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Introduction

This research was triggered by our interest in understanding the meaning and reason of the large number of social confrontations over water recorded in the Basin of Mexico during the 1980s and 1990s. These are conflicts over water resources and services ranging from bureaucratic complaints to mass parades, actions of civil disobedience and even direct violence resulting in the destruction of infrastructure and the loss of human lives. The Mexican authorities recognized that by the early 1980s ‘the protests of the majority around water problems were amazing owing both to their depth and breadth’ and that ‘water had become a strong political concern for society’ (Secretaría de Agricultura y Recursos Hidráulicos (SARH), 1988: 175). It seems that water problems attracted even more attention after the urban catastrophes of the mid-1980s, in particular the 1985 earthquakes that seriously damaged the urban infrastructure and further worsened the living conditions in Mexico City.

Despite the political saliency of water conflicts in the Basin of Mexico – and in the country at large – the interrelation between these incidents and broader social and political processes like the struggles for the democratization of the political system or the enhancement and expansion of citizenship rights have received comparatively little attention. This work contributes towards filling this gap by exploring the interconnections between the evolution of the processes and institutions involved in the governance¹ and management of water resources and services² and the development of citizenship in Mexico. The confrontations over water, we argue, are part and parcel of a wider social struggle over the conditions that make human life possible and meaningful, and as such, are an expression of the social character of water, as distinct from the biophysical and techno-scientific dimensions.

In short, this work investigates the ways in which water, the most essential life-sustaining element, has become interwoven with the socio-economic and political processes structuring Mexican society, like the struggle over what can be termed the territory of citizenship.

Relevance of the topic

Although water and citizenship have risen to prominence since the 1980s, the interplay between the two has been rarely addressed in the literature. On the one hand, social struggles over ethnic, gender, environmental and sexual rights, among other issues, have fuelled changes in the traditional extension, contents and meanings of the concept of citizenship. Moreover, the processes of regional integration and economic globalization have promoted the revision of the notions of citizenship or national sovereignty in the light of the increasing differentiation and complexity of social systems. On the other hand, the rising awareness about the unfairness and ecological unsustainability characterizing the management of water sources and services worldwide has prompted heated debates and radical policy reforms with far-reaching consequences for the consolidation of substantive democracy and citizenship.

In this regard, the notion that water for essential human uses is a common good that cannot be denied to anyone can be traced in most cultures and constitutes a legacy of human civilization that has been inherited by modern societies. This principle has been integrated in some of the traditions of modern citizenship, like in the European notion of social rights that established the universal access to those goods and services deemed essential for sustaining life according to the standards prevailing in society, notoriously public health, education, and safe water and sanitation. Since the late nineteenth century, the provision of safe water supply and sanitation became a social duty, a public sector responsibility, and most developed countries achieved their universalization shortly after World War II. Contrastingly, in most developing countries this process has been much slower, and access to these vital services is still a minority privilege.

In Mexico, as in most developing countries, protracted qualitative and quantitative inequalities have limited the scope of citizenship rights, which finds expression in the large numbers that still lack the most basic conditions of subsistence such as safe drinking water and sanitation. For instance, according to the 1990 census, 30 per cent of the Mexican population lacked access to safe drinking water while

51 per cent had no sewerage. However, the authorities warned that those figures did not reflect the serious defects affecting the services, such as low pipe pressure, intermittency, and lack of control over the 'quality of water, which is normally not disinfected' (Comisión Nacional del Agua (CNA), 1990: 33). Unsurprisingly, preventable water-related diseases continued to cause the 'largest number of deaths in the Mexican population' during the period covered by the research (Kumate Rodríguez, 1991). Ironically, although the Mexican constitution adopted after the 1910–17 Revolution had enshrined the universal right to essential water services, this promise was never achieved. Moreover, the principle of universality itself was erased from the constitution during the neo-liberal reforms introduced in the 1990s.

Although most modern citizenship systems provide for the formal enunciation of the right to essential goods and services such as safe water and sanitation, the real practices have rendered this right meaningless for vast majorities. For instance, despite the important achievements of the international community in improving water and sanitation worldwide since the 1970s, the goals of providing a modicum of 'clean water and sanitation for all by 1990' set by the United Nations Water and Sanitation Decade (United Nations (UN), 1980) were not met. Moreover, there are good reasons to argue that the mainstream water policies³ implemented since the 1980s may have contributed to the significant worsening of the conditions of social inequality that continue to negate access to essential water and sanitation to millions of human beings.

Acknowledging the difficult challenge ahead the international community has set new targets that can be considered ungenerous when compared with the goals of the 1980s – some would say more realistic instead. Rather than achieving universal coverage the new targets aim at halving the world population with no access to water and sanitation by the year 2015 (UN, 2000, 2002b). In any case, even these objectives might be unfeasible given that the financial arrangements needed to double current investment in the sector as required to meet the targets (Camdessus, 2003) would involve radical transformations in the governance of water resources and related services worldwide, which seem unlikely in the foreseeable future. Furthermore, achieving the goals would require connecting around 200,000–400,000 people per day worldwide respectively for water and sanitation until 2015 (European Commission (EC), 2003), and many water experts believe that the scale of the task renders the proposals technically unachievable. If these critics are right, and considering that more than 5 million people die

each year from avoidable water-related infections, of which around 40 per cent are killed by preventable diarrhoeal diseases – mostly children under 5 years old – (EC, 2002b; World Health Organization (WHO), 2003b), there is a bleak future awaiting a large proportion of human beings in forthcoming years. In fact, the situation is even more severe when we consider the diversity of threats and dangers arising from the way in which water resources are governed and managed, which range from the impacts of chemical, physical, and biological agents present in water to the recurrent floods and droughts that regularly affect millions of humans, mainly the most vulnerable (WHO, 2003c; WHO-Europe, 2003; Sims and Butter, 2000).

It is increasingly accepted that crucial changes are needed in the structures and processes intervening in the governance of water resources and services. Unfortunately, mainstream debates tend to obscure the fundamental disagreements existing about what governance means and implies, often neglecting the fact that governance is about exercising power, which in the particular case of water involves decisions about how water resources and services should be governed, by whom, and for whom. This requires, for instance, the development of institutions to ensure that the management of water resources and services is accountable to the people and subject to democratic control. However, the traditional systems of water governance and management have been developed in ways that have precluded, for the most part, the participation and engagement of citizens and have prevented effective democratic monitoring, a situation that has been worsened by the reforms promoted by mainstream water policies since the 1980s.

Water, citizenship and power

In the perspective of this book, the ‘conflicts’ over water resources and services form part of a much broader confrontation against the prevailing exclusionary – some would say weak-inclusionary – model of social organization characterizing Mexico. Interestingly, despite the centrality of water for human life and social organization, these conflicts have received relatively little attention from the perspective of the social sciences. Perhaps, the overriding dominance of techno-scientific approaches in the sphere of water management and policy, compounded by the slow development of theoretical tools and studies within the social sciences focusing on the interplay between physical-natural and social processes, has contributed to maintain largely unobservable what we call here the social character of water. We believe

that bringing into the analysis the interweaving between these processes requires, on the one hand, an inter- and transdisciplinary approach and, on the other, the elaboration of observables⁴ on a temporal scale adequate to the processes under attention.

Regarding interdisciplinary co-ordination, although our point of departure is located within the tradition of the social sciences, and particularly sociology, our work also draws on contributions from other fields including economic and social history, history of technology, geography, archaeology, anthropology, and we have also made an effort to establish a dialogue with the traditional bodies of thought engaged with the physical-natural and technological aspects of water. In relation to the time scales, although this research was triggered by events recorded in the late 1980s and early 1990s, we adopted a long-term perspective because the processes under analysis can be better understood through the combination of diachronic and synchronic analysis. Following the model of long-term structural social change offered by Norbert Elias in his study of the Western 'civilizing process' (Elias, 1994), we understand that the normally rationally planned actions directed at the control of water have also had unintended effects both on ecological and social systems. Like in the establishment of human control over fire, which has been examined by the Dutch sociologist Johan Goudsblom in his book *Fire and Civilization* (Goudsblom, 1994), the social apparatuses created for the governance and management of water resources, whether it is for irrigation or flood prevention, for providing regular amounts of safe water or water-borne sewage disposal, or for controlling the pollution and depletion of water resources, impose intergenerational constraints and duties upon human beings with far-reaching economic and political implications.

As shown by Elias, long-term processes of structural social change are the result of the blind dynamics of human beings 'intertwining in their deeds and aims' (Elias, 1994: 445). In this connection, we argue that, independently from the individual deeds and aims of the actors, the confrontations over water in the Basin of Mexico can be understood as forming part of a long-term social struggle over the territory of substantive citizenship. We believe that contributing to a better understanding of the formation of citizenship rights may enhance our capacity to intervene with a higher degree of success in checking undesired outcomes and achieving citizenship's emancipatory potential.

Although there is no scholarly consensus about the contents and extension of the concept of citizenship, it is accepted that T. H.

Marshall's essay on the long-term formation of citizenship rights in Britain has set the standard for addressing the subject (Marshall, 1992). We follow Marshall's analytical breakdown of citizenship into three bundles of rights (civil, political, and social) because it provides a useful criterion for operationalizing the concept, but we are well aware of the controversial character of his analysis and place more emphasis than he did on the internal contradictions of the process.

The links between water and citizenship are multidimensional. One of these facets concerns the interconnections between the social forms of appropriation and allocation of water and the formation of citizenship rights, whereby water (property) rights are related to the civil right to own property. Also, the rights and duties involved in the governance and management of water resources and services, how they are governed and managed, by whom, and for whom, can be examined in relation to the political rights of citizenship. Likewise, the universal right to essential water and sanitation services belongs in the group of social rights, which includes the right to a share in social welfare through the universalization of access to basic services such as public health and education. New rights and duties are recognized over time as a result of ongoing social struggles for the expansion and extension of citizenship, which has also brought about the progressive inclusion of growing numbers of human beings into the territory of citizenship. However, both the boundaries of the territory and the scope for accessing it are also subject to reversion and collapse, whether it happens through the lawful restriction of civil rights during emergency situations, because of the brutal suppression of civil and political rights during authoritarian processes, or as a result of the cancellation of acquired social rights as it has actually happened through the neo-liberal reforms implemented since the 1980s.

From the specific angle of the interrelations between water, citizenship and power configurations, the control of water has played a substantive role in shaping human history and has fuelled the development of different institutional arrangements. For instance, while some cultures developed co-operative and decentralized forms of organization to coordinate water use, others ended up with highly centralized and authoritarian systems of water management, especially in irrigation agriculture. However, the extent to which the development of power structures is connected with the activities involved in water operations is still an open question, and the historical evidence shows that there is no one-to-one fixed relationship between technical and environmental forms of water control and the social and political

structures developed to ensure their functioning. Nonetheless, there is enough evidence that everywhere the control of water presents certain inescapable requirements and constraints, and that these features have had a strong influence on the forms of socio-political organization.

Classic thinking in this field has considered large-scale water management activities, in particular irrigation works, to be a key explanatory feature of state formation in the case of certain civilizations. For example, drawing on a long tradition of thinking which includes Marx, Engels and Weber's insights about forms of social organization in Eastern societies, Karl Wittfogel argued that Aztec Mexico shared important characteristics with the ancient civilizations that he termed 'hydraulic societies', which developed a high degree of water expertise and despotic and centralized power structures. Wittfogel's theory is highly controversial, but his insights on the interactions between water and power have continued relevance for understanding the social character of large-scale water management, and his work has inspired a rich scholarship, of which perhaps Donald Worster's study of twentieth-century water 'empires' in the United States is the most remarkable (Worster, 1985: 30).

In the case of Mexico, the function played by water control in the formation of political power has received much less attention than other processes such as the appropriation of land. For example, there is well-established knowledge about the role played by mining and *hacienda* [large estate] exploitation since the colonial period and by the combination of railways, agriculture, and industrialization in the pre- and post-revolutionary period.⁵ There is also an important tradition in historical, archaeological, and anthropological studies in Mexico addressing the political and economic implications of irrigation agriculture, and water technology and architecture.⁶ Nevertheless, as Michael Meyer stated in his social and legal history of water in colonial Mexico, 'although the historiography of Spanish American colonial land tenure is rich, relatively little is known about the historical relationship of land to water anywhere in Spain's huge American empire' (Meyer, 1984: 8). This situation has not changed much since he wrote his book. After all, as Marx mentioned in passing, 'the soil, economically speaking, includes water' (Marx, 1946: 157), a phrase that can perhaps synthesize the rationale behind the dominance of land-centred research.

Focusing now on our main area of interest, the interweaving between water and power in the urban realm has not received much attention. It could be argued that until the late 1970s scholars seem to

have assumed that the urban question – paraphrasing Marx – economically speaking, includes water services, and this could explain the rare occurrence of studies in sociology or political science in which water plays a central role. Thus, most of the available references to urban water in Mexico relate to historical studies that have also remarked on the lack of research in this field (Lipsett-Rivera, 1993: 25; Borah, 1984: 552). This situation has been changing in recent years, with a growing number of studies on different aspects of urban water development in the colonial, independent and contemporary periods carried out in Mexican universities.

Still, the links between water and citizenship in Mexico have not received much attention. Some authors have focused on the importance that property rights and their institutions have in the centralized power structures of the Mexican state, and in particular in the extraordinary authority conferred on the President (Elizondo, 1992). Also, there is a large body of literature on citizenship rights in Mexico stressing the case of political rights, and civil rights other than property rights, focusing on issues of political participation and civic liberties in twentieth-century Mexico.⁷ In contrast, such issues as the links between citizenship rights and water rights, the development of power configurations, institutions, and practices around the governance and management of water, or the connection between the access to essential water and sanitation services and social rights have been largely neglected and we aim to contribute to filling this gap.

Outline of the book

Chapter 1 introduces the research problem and briefly describes the social impacts of water-related hazards and threats in the Basin of Mexico. It provides clues for understanding why the social character of water activities remains largely unobservable despite the growing social unrest around water and water services. It also advances the theoretical framework structuring the study, and reviews some of the relevant debates that help to place the Mexican case in a wider context. Chapter 2 traces the hydrogeological transformations undergone by the Basin of Mexico during the last five hundred years. It presents the necessary background for understanding why water has played such a crucial role in the basin, and how this development has an impact on the conditions that the present and future generations of Mexicans have to face. The chapter also provides grounds for comprehending the multi-dimensional character of the social struggles that have punctuated

water development in the basin, and how they have become interwoven with the particular formation of citizenship in the country.

Chapter 3 examines the process of state formation in Mexico, looking at how human activities aimed at controlling water were inextricably linked to the formation of political power. We explore the balances between coercion and co-operation in the interaction between Spaniards and Indians over the control of water and the changing character of the public–private interface during the colonial and post-independent periods. This section also pays attention to the social and political influence of water experts, especially the role played by specialized water techno-bureaucracies and the crystallization of power structures around the governance and management of water. Chapter 4 examines the empirical evidence of around 2000 events of conflicts over water recorded in the basin during the period 1985–92. We argue that although the immediate reasons moving the protagonists to act are multifarious and that the individual events are discrete and often unconnected, these actions are constitutive of a wider social confrontation over the territory of citizenship, which is largely autonomous from the individual wills and reason of the actors.

However, we do not reduce the concept of struggle to its manifestation in the events analysed in the fourth chapter, as we conceive of the struggle as a multidimensional, multi-level and long-term process. Thus, Chapter 5 examines the specific links between the activities involved in the governance and management of water resources and services and the formation of citizenship rights in Mexico. We discuss first the conceptual links that can be established between citizenship and water, looking at the development of property rights over water – water rights – the governance of water resources and essential water services, and the access to water and sanitation as a social right. Then, we explore the historical processes that by the late nineteenth century had transformed New Spain into an oligarchic capitalist regime that formally granted citizenship rights to all Mexicans but in practice exacerbated the process of social exclusion to unprecedented levels. The chapter shows how water policies, institutions and practices became interwoven with the particular expressions adopted by the development of citizenship, which has been punctuated by protracted social struggles that have not yet been entirely played out. Finally, Chapter 6 explores the changing patterns of governance and citizenship in twentieth-century water policy, shifting between state- and market-led models, as well as the epistemic and political debates informing this

process. In particular, attention is paid to the far-reaching neo-liberal reforms implemented worldwide since the 1980s, which have exacerbated the systemic exclusion of large numbers of human beings from accessing the territory of civilized life.

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