

ENDURING OR ESCAPING LEGACIES?

**Politics, inherited institutions, and rebellion in the
struggle over water futures in Chile**

by

Daniel Gallagher

Master of Engineering in Civil Engineering, University of Glasgow, 2008
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Submitted to the Department of Urban Studies and Planning in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy in Urban Planning and International Development

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Abstract: Following a wave of insurgent political action in 2011, the hegemony that governs life in Chile appears to be increasingly threatened. One area of politicized struggle has coalesced around water law. On one side of the struggle, water utilities, agro-export firms and entrenched political actors seek to retain the water laws inherited from the nation's 1973-1990 dictatorship. On the other, socio-political movements and recently elected political actors are challenging what they see as the political content of those laws that prioritize private economic gains. Why does politicization take the form it does in Chile? To what extent, if at all, is politicization of water law reconfiguring the institutions of urban governance? Responding to scholarship in "post-political" urban governance, I draw on ethnographic fieldwork, process tracing, and historical analysis to present a narrative of the multi-scalar struggle over water laws that explains the effects of the new wave of political action. First, I argue that a range of factors combined to enable a politicization of water laws. Those factors include (i) the failure of a private water firm to depoliticize disruptions in water supply to the nation's capital (ii) the hyper-inequality in water access across the national territory produced by legally-sanctioned processes of accumulation by dispossession and (iii) a loss of fear of political disagreement in a new generation of politically-active youth, which translated to the formal political arena. Second, I argue that politicization has widened the parameters of political debate and the collective imagination of different political trajectories. Issues naturalized during past decades are now rendered highly contentious and political action conducted "back stage" is increasingly exposed "front stage" through protest, congressional investigation and an invigorated independent media. Third, I argue that despite leftist politicians' pursuit of ambitious congressional reforms to national water laws, institutional reform is foreclosed due to material and discursive forces acting across geographical scales. I posit that Chile's institutional inertia in water law can be explained by an incomplete generational shift following the fall of dictatorship, wider political instability in the Latin American region, and Chile's deep articulation with global economic forces.

Keywords: law; neoliberalism; politicization; post-politics; urban governance; water

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TABLE OF CONTENTS

<i>Acknowledgements</i>	4
<i>List of Figures</i>	8
<i>List of Acronyms</i>	9
CHAPTER 1: INTRODUCTION	11
1.1 Motivations	11
1.2 Situating the “Chilean Model” of water governance	14
1.3 Research questions	18
1.4 Theoretical grounding	19
1.4.1 Urban water governance	20
1.4.2 Post-political urban and environmental governance	28
1.5 Methodology	35
1.5.1 Relational study	35
1.5.2 Data collection	37
1.5.3 Data analysis and validity	39
1.5.4 Protection of human subjects	40
1.5.5 Positionality	40
1.6 Summary of findings and research contributions	42
CHAPTER 2: A FADING STAR? THE RISE AND FALL FROM GRACE OF THE CHILEAN MODEL OF WATER GOVERNANCE	49
2.1 Constructing Chilean water: from pre-colonial to independent Chile	50
2.2 Technocracy in water governance under democratic socialism (1967-1973) ..	55
2.3 Anti-politics in the neoliberalization of water law (1973-1989)	59
2.4 Consolidating post-politics in water governance (1990-2010)	68
2.5 The “fearless generation” and the challenge to post-politics	79
A vignette: The view from HQ looking down	90
CHAPTER 3: SEEING LIKE A WATER COMPANY: CONSTRUCTING CRISIS AND PERFORMING PLANNING IN POLITICIZING TIMES	93
3.1 Maximum emergency	93

3.2	Aguas Andinas and the city’s water supply network	97
3.3	Making sense of the crisis.....	102
3.3.1	Deciphering disaster: the view from HQ	105
3.3.2	Deciphering disaster: the view from where the rains fall	110
3.4	Water HQ’s volte-face: from fierce opposition to silence	116
3.5	Engineering a way out of the crisis?.....	121
3.6	The importance of a glass half full	126
 CHAPTER 4: COUNTERING RUPTURE IN POLITICIZING TIMES.....		139
4.1	Politicizing profits in the pursuit of legal reform.....	144
4.2	The possibility of losing everything	153
4.3	Countering water democratization in relational context	159
 A vignette: The view from the grassroots looking outwards		166
 CHAPTER 5: RE-POLITICIZING WATER BEYOND THE CITY		170
5.1	Accumulation and deprivation in Petorca	171
5.2	Petorca and the agricultural export state in global perspective	176
5.3	Seizing on discontent to pursue legal reforms in Congress.....	180
5.4	Agricultural elites and the politics of fear	188
5.5	The Executive intervenes to water down the reform.....	192
5.6	Stoking fears: additional measures to combat the reform	195
5.7	Beyond Congress: going global in the pursuit of legal change	202
 CHAPTER 6: CONCLUSION.....		210
6.1	Seeing politicization in practice	210
6.2	Implications for theory	222
6.3	Counter-arguments, limitations and future research	225
 BIBLIOGRAPHY		228

LIST OF FIGURES

Figure 1: Protestors hold aloft an oversized mock of the 1981 Water Code	18
Figure 2: Dedoose interface for qualitative data analysis	39
Figure 3: Reactions can be polarizing in discussing Chilean water.....	41
Figure 4: Historical accounts of drought and political unrest (1968-69).....	58
Figure 5: “They took so much from us that they ended up taking away our fear”	88
Figure 6: Schematic of Santiago’s water supply system (Cembrano et al. 2006)	101
Figure 7: El Yeso Dam.	101
Figure 8: Map and extent of Alto Maipo tunneling for hydropower generation	112
Figure 9: Phases of emergency works designed to respond to water cuts	123
Figure 10: Aguas Andinas financial performance 2008-2018	128
Figure 11: Protest against Aguas Andinas, Santiago, April 2017.....	129
Figure 12: Snapshots from Aguas Andinas’ 2017-18 social media campaign	133
Figure 13: Graphic representation of Emergency Works Phase II	137
Figure 14: Vallejo and Jackson protesting during 2011 urban uprisings.....	140
Figure 15: Vallejo and Jackson on congressional committee duty in 2016.....	141
Figure 16: Aguas Andinas’ share price collapse in December 2016	155
Figure 17: Petorca Region, approx. 3 hours drive north of Santiago	172
Figure 18: La Ligua, Petorca, where water no longer flows.....	172
Figure 19: Storage ponds for large-scale agriculture.....	173
Figure 20: Posters produced by conservative agricultural interests.....	189
Figure 21: Undersea and overland water highways	201
Figure 22: International media in 2017-18 on political nature of the water crisis.....	205
Figure 23: Death threats following investigation into water theft	207

LIST OF ACRONYMS

ANDESS	<i>Asociación Nacional de Empresas de Servicios Sanitarios</i> (National Association of Water Companies)
CAS	<i>Consorcio Agrícola del Sur</i> (Southern Agricultural Consortium)
CEPAL	UN Economic Commission for Latin America and the Caribbean (commonly ECLAC in English)
CIEL	Center for International Environmental Law
CIPER	<i>Centro de Investigación e Información Periodística</i> (Investigation and Journalistic Information Center)
CONCA	<i>Confederación de Canalistas de Chile</i> (Chilean Confederation of Irrigators)
COUHES	Committee on the Use of Human Subjects
DC	(See PDC)
DGA	<i>Dirección General de Aguas</i> (General Water Directorate)
DFL	<i>Decreto con Fuerza de Ley</i> (Decree with Legal Force)
DOH	<i>Departamento de Obras Hidráulicas</i> (Department of Hydraulic Works)
ECONSSA	<i>Empresa Concesionaria de Servicios Sanitarios</i> (Management Company for Water Concessions)
EIA	Environmental Impact Assessment
EMOS	<i>Empresa Metropolitana de Obras Sanitarias</i> (Metropolitan Water Company)
GDP	Gross Domestic Product
HBS	Heinrich Böll Foundation
HQ	Headquarters
IAM	<i>Inversiones Aguas Metropolitanas</i> (Metropolitan Water Investments)
IDB	Inter-American Development Bank
IFC	International Finance Corporation
INDH	<i>Instituto Nacional de Derechos Humanos</i> (National Human Rights Institute)
IPCC	Intergovernmental Panel on Climate Change
MIT	Massachusetts Institute of Technology
MW	Megawatts
NCh	National Chilean standard
NTU	Nephelometric turbidity unit
OECD	Organisation for Economic Co-operation and Development
OLCA	Latin American Observatory on Environmental Conflict
ONEMI	<i>Oficina Nacional de Emergencia del Ministerio del Interior</i> (National Office for Emergencies)
PC	<i>Partido Comunista</i> (Communist Party)
PDC	<i>Partido Demócrata Cristiano</i> (Christian Democratic Party)

PH	<i>Partido Humanista</i> (Humanist Party)
PS	<i>Partido Socialista</i> (Socialist Party)
PRSD	<i>Partido Radical</i> (Democratic Socialist Radical Party)
PPD	<i>Partido por la Democracia</i> (Party for Democracy)
RN	<i>Renovación Nacional</i> (National Renewal)
SERNAC	<i>Servicio Nacional del Consumidor</i> (National Consumer Service)
SISS	<i>Superintendencia de Servicios Sanitarios</i> (Water Services Superintendent)
SMA	<i>Superintendencia de Medio Ambiente</i> (Environmental Superintendent)
SNA	<i>Sociedad Nacional de Agricultura</i> (National Agricultural Society)
UDI	<i>Unión Democrática Independiente</i> (Independent Democratic Union)
UN	United Nations
US	United States
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Motivations

Two contemporary urban phenomena motivate this study. The first is the seemingly permanent condition of crisis that now grips major cities worldwide in their struggle to guarantee water supplies for urban residents. From Santiago's water supply cuts that affect millions of people year-on-year, to São Paulo, Cape Town and Chennai's experiences of coming precariously close to running out of water in recent years, a new normal of precarity has taken hold over the water that sustains major cities across the globe (BBC 2017, 2018; MIT 2018; UN-Water 2016; Sengupta 2019). The second phenomenon of interest is the wave of "urban anger" in which socio-political uprisings over the past decade have raged against governing authorities in the major squares of cities across the globe (Beaumont 2013; Harris 2011). These phenomena find deeply intertwined expression in the ongoing political struggle over water and urban governance in Santiago, Chile, on which this study focuses.

International organizations warn that one of the world's most pressing challenges is the "approaching global water crisis" (World Bank 2018). By 2030, we are told, there will be a 40 percent gap between water supply and demand and some 700 million people are at risk of being displaced by the ensuing water scarcity. The United Nations has declared 2018-2028 to be the Water Action Decade, dedicated to "averting a global water crisis." The World Economic Forum (2019) has, for the fifth consecutive year, declared the water crisis to be one of the top five global risks to the established world order, with the potential to seriously disrupt social stability, supply chains, food systems, and energy

production (Van Der Heijden and Stinson 2019). Those who wield influence, in sum, predict a future of catastrophe, chaos and collapse unless a suite of responses that they have at the ready is implemented imminently.

Meanwhile, as Dikeç (2017) has eloquently argued, a new “era of urban rage” has come to characterize the contemporary urban condition. In cities as far-flung as Cairo, Hong Kong, Barcelona and Santiago, outbursts of rage have exploded at political inequality, bleak economic prospects, authoritarian governance, repressive policing and political corruption. While such expressions of discontent and dissent relate to specific grievances and take on differentiated forms in time and space, these uprisings share a pattern in that they expose deep-rooted grievances, histories of exclusion and outcomes from the political, economic, and cultural transformations that took place through processes of neoliberalization since the 1970s. Dikeç joins a growing number of urban scholars (including Harvey 2012; Holston 2014; Mayer, Thörn, and Thörn 2016) in applying a political reading to these patterns of uprising, exposing the historically contingent production of unjust and exclusionary relations of power in urban governance and life.

In this dissertation, I focus on the struggle between polarized positions on the future of water governance as it is unfolding on the ground in Chile, where market-based water laws long hailed by champions of the “global water consensus” (Miroso 2012) appear increasingly fragile under challenge from insurgent movements. This struggle in Chile, I argue, can be understood as part of a wider-scale uprising against decades of depoliticizing, techno-managerial urban governance. Since around 2011, when student

activists took to the streets of the Chilean capital in record numbers to protest against neoliberal educational reforms, urban life in Santiago has increasingly been characterized by overtly politicized struggle. Now, in the most public and politicized way since Chile's return to democratic politics in 1990, struggle is playing out between those seeking to uphold the country's dictatorship-era water laws, and those seeking to abolish or transform them. In this departure from post-political urban governance, hitherto sidelined issues are newly on the agenda in urban politics, including allegations of political meddling by Aguas Andinas (Santiago's private water provider); the debating of constitutional-level reforms to property rights law in a presidentially-sanctioned congressional committee; and continuing political unrest related to urban governance throughout the nation. I interpret the contestation of water law in Chile as part of a wider *re-politicization* in urban governance, in which socio-political movements question and challenge the established relations of power through various performative and strategic actions beyond the formal political arena. The question of whether and how that re-politicization can give rise to genuine possibilities for emancipatory change in the instituted order is one of the central issues explored in the dissertation.

While disparate social movements in Chile fighting for water justice articulated first around the specific demands of reversing the commodification of water resources and privatization of water utilities, a growing mass escalated and universalized their claims to demand a fully-fledged transformation of the political structuring of life. That socio-political movement found itself, as Wilson and Swyngedouw (2014) argue may be more widely the case, positioning their politics against the consensual governance orthodoxy of

an alliance of professional economic, political and technocratic elites determined to hold onto and defend the neoliberal order by any means necessary. In this dissertation, I aim to provide a better understanding of how processes of politicization around water conflict are contributing towards the reshaping of urban politics and governance. How, if at all, does a momentary spark of insurgent political action translate to the formal political arena, in the longer-term pursuit of a new institutional order through legal change? Reflecting the degree of resistance from entrenched interests, I also focus significant efforts on the ways that powerbrokers and the political establishment seek to defend the status quo and prevent the emergence of a new order. What strategies and tactics are employed, by whom, and to what effect, in the struggle to uphold or overthrow the neoliberal water regime in Chile?

1.2 Situating the “Chilean Model” of water governance

There are three core reasons that I examine recent changes in urban politics through the lens of water in Chile. First, owing to the historical significance of Chile’s water laws—as one of the earliest and most merciless experiments in the commodification, marketization and privatization of water resources that began under military dictatorship (Bauer 1998; Boelens 2015; Budds 2004a)—that nation was one of the first worldwide to consolidate in its water management into what could be termed a “post-political” regime of governance (Swyngedouw 2011; Wilson and Swyngedouw 2014). Existing studies have traced Chile’s shifts in water management achieved through the 1980 Constitution and the 1981 Water Code (e.g. Bauer 1998, 2010, 2015; Budds 2004a, 2013). Those reforms, in short: (i) separated water rights from land ownership for the first time; (ii)

created several market mechanisms to allow water rights to be bought, sold, traded or mortgaged much like any other private real estate (iii) aimed to foster a market-oriented mentality among users, the vast majority of whom were farmers; and (iv) reduced the government's role in oversight of water resource management (Bauer 1998, 2004). The 1980 Constitution and 1981 Water Code represent an important institutional legacy of the military government in water governance that, in an agreed pact in the transition to democracy, was not only retained but indeed intensified. In *Water on Tap*, Bronwen Morgan (2011) documents several legal and regulatory shifts in the 1990s that allowed water resources and services in Chile to be more fully commodified through the deregulation of issues of social equity and ecology, the privatization of operators that deliver water, and water's transnationalization through the lifting of legal restrictions on investment to permit foreign-based monopolization of water markets. As I will argue in Chapter 2, following the return to democracy, Chile's authorities largely succeeded in suppressing disagreement, dissensus and the consideration of competing political alternatives in water management for approximately two decades from 1990 to 2010.

Second, reforms in water law and management achieved in the 1980s in Chile represent a model that rose to global prominence among policymakers and scholars in the 1990s. In that decade, nations across the Global South were compelled to follow the Chilean model through programs designed by the World Bank and Inter-American Development Bank. Though no country adopted the Chilean model in full, several of its essential parts were transplanted in countries including Bolivia, Argentina, Mexico, South Africa, Spain and Vietnam (Bauer, 2004). The politicization of water in Chile, then, and the related

potential for a reconfiguration in urban politics and governance, may have implications more broadly than in Chile itself, towards the territories where its model was emulated.

Third, the contemporary struggle in Chile offers a window onto understanding how a moment of political uprising can engender a pursuit of alternative constellations of power between institutions of state, market and society across multiple scales of influence. The Chilean model, I will argue, experienced a fall from grace since 2011, with the exposing of hyper-inequality in water consumption between rich and poor, the stress of manufactured shortages during a ten-year mega-drought, and a generational loss of fear of political disagreement. In the struggle, insurgent socio-political movements and their allies have focused on transforming the institutions of Chile's water governance regime in ways that re-establish water as a social need instead of a profit-generating commodity. Meanwhile, commercial and political interests that benefit from the legal-institutional status quo have focused on retaining (or moderately reforming) that status quo in the face of challenge. Public sentiment now suggests a desire to see the Chilean Model of water management overturned: 74 percent of Chileans now support a return to public ownership of water (MediaBanco, 2016). Given that water management in Chile involves a range of transnational conglomerates, and that it is increasingly enmeshed in global markets of agriculture and trade, the Chilean case allows an understanding of the local particularities of struggle in relation to macro or structural processes that operate from a distance. If those vectors of influence can be examined with an appropriate methodological approach, the Chilean case has the potential to illuminate the multiple interrelated processes that

come into conjuncture across scales and territories in the contestation over water and the potential reconfiguration of urban governance.

Taken together, these characteristics make the Chilean water struggle a paradigmatic case (Flyvbjerg 2006) of political rupture in a post-political governance condition. The remarkable events in the post-2011 period—when insurgent movements succeeded in pushing the President and Congress to promise and then initiate reforms to the laws that govern water—makes the struggle generative to study the effects of political rupture. An examination of urban politics and governance through the lens of water struggle in Chile has the potential to develop a deep understanding of the conditions under which politicization emerges in practice, how a momentary spark translates to the longer-term pursuit of political transformation, what vectors of influence the establishment mobilizes to counteract that transformation, and with what effects.

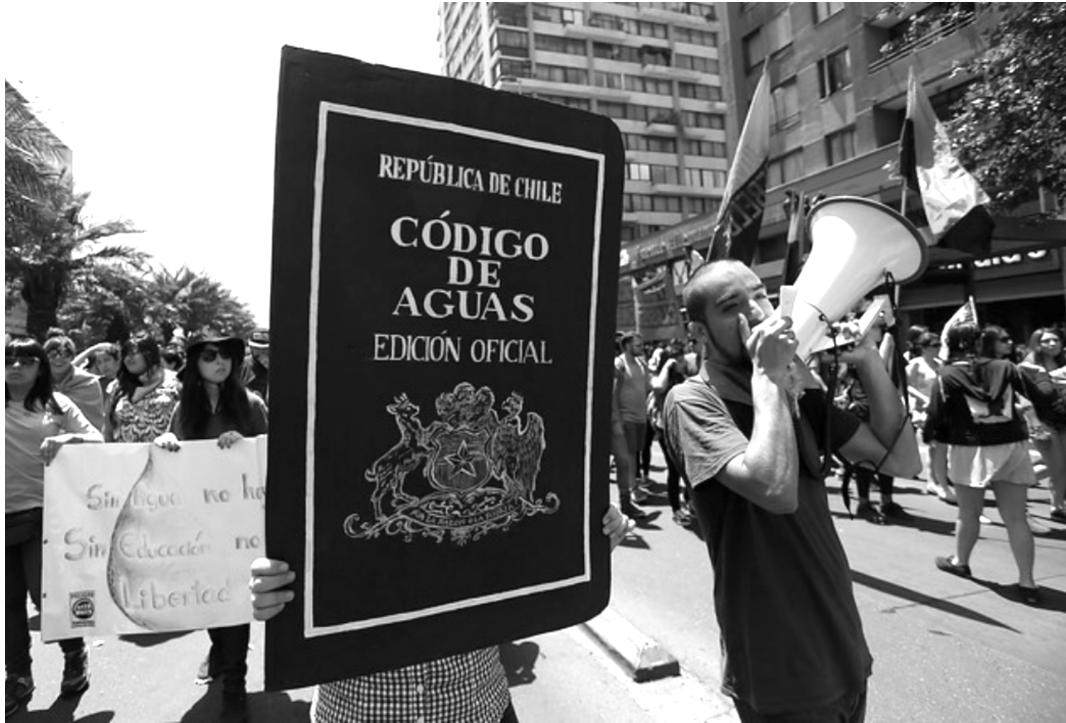


Figure 1: Protestors hold aloft an oversized mock of the 1981 Water Code, a major water law inherited from Pinochet’s dictatorship (www.eldesconcerto.cl)

1.3 Research questions

The major question in my dissertation concerns the effect that re-politicizing inherited water laws has on the relations of power in urban governance. In what ways, and to what extent, is the re-politicization of water laws reconfiguring urban governance?

I respond to this question through attention to four sub-questions, delineated below.

- a. Through what processes were Chile’s neoliberal water laws institutionalized during the country’s military dictatorship—and

consolidated after the return to democracy—to form a post-politicizing, consensual, techno-managerial form of governance?

- b. Through what processes are Chile's neoliberal water laws being re-politicized—especially in the post-2011 era—through the actions of socio-political movements and their political allies, seeking a transformation of the legal and institutional status quo?
- c. Through what processes are Chile's neoliberal water laws defended and protected by those (e.g. multinational shareholders; domestic economic and political elites, water-rights owning politicians) who continue to benefit from the legal and institutional status quo?
- d. What are the effects thus far of the re-politicization of water law on potential reforms or transformations to inherited institutions?

1.4 Theoretical grounding

This research builds on several existing literatures. In what follows, I outline the contours of relevant critical literatures on *urban water governance* to first situate my approach in the wider context of urban water debates. That literature shows that, against the orthodoxy of the global water consensus, the analytic of the hydro-social cycle is particularly suitable for examining water and power relationally across scales from the local to wider political and economic forces. That literature has proven to be highly

effective in exposing the ways that unequal relations of power in water management were constructed, as well as the maintenance of unjust governance arrangements that have negative social and ecological outcomes. Part of the critique of that literature, as I detail below, is that it fails to engage concretely with the pursuit of legal change, despite the centrality of law in the production of contemporary problematic water-society relations. It is also yet to examine in detail how the relatively recent discourse of a global “urban water crisis” is playing out through the planning apparatus of water companies and their state regulators. Moreover, that literature is yet to seriously consider the potential of an immanent politics to emerge from existing post-political governance arrangements. To bridge this gap, I turn to recent scholarship on *post-politics in urban and environmental governance*, which I see as having the potential to more completely understand contemporary shifts in urban politics and governance. That approach allows us to develop an appreciation of the ways that water governance to date was constructed in Chile as de-politicized, techno-managerial, and consensual in nature, before exploring the related potential that the re-politicization of inherited legacies may have on the pursuit of change.

1.4.1 Urban water governance

Contrasting positions exist in scholarship on urban water governance. In what sociologist Oriol Miroso (2012) called the “global consensus on water management”, orthodox policymakers, international finance institutions and transnational water corporations push for market-based reforms, asserting that water scarcity can most efficiently be solved through the institutions of private property rights, marketization and de-regulation (e.g. 2030 Water Resources Group 2009; World Bank 2016; World Water Council 2018).

Mainstream economists and legal scholars have also long made the case for managing water as a commodity. In the 1990s, United Nations and World Bank officials prescribed tradable water rights and markets as a remedy for water scarcity in developing countries (Rosegrant and Binswanger 1994) while the Cato Institute commissioned a widely-cited report hailing markets as an antidote to the inefficient management of water by the state (Anderson and Snyder 1997). Many governments took that advice, particularly in Latin America, with cities turning to water markets and privatizing water utilities (Budds and McGranahan 2003). But as results showed, the urban poor remained peripheral to markets, and by its own metrics, the World Bank had concluded that 34 percent of its water privatization projects were “in distress or cancelled” by 2008 (Owen 2012).

These experiences provide much reason to be cautious about sweeping claims that water markets will cure climate-related water crises. Nonetheless, economists and legal scholars are increasingly framing climate change as an opportunity to reassert the case for “water capitalism” through an expansion of water markets and private property rights (e.g. Adler 2012; Block and Nelson 2015; Easter and Huang 2014; Tarlock 2000). Similarly, reports by international organizations such as the World Bank and the 2030 Water Resources Group (a consortium including the World Economic Forum and the Coca-Cola Company) increasingly read like political manifestos for a renewed global rollout of market solutions in the water sector (Water Resources Group, 2009; World Bank, 2016).

In contrast to that orthodoxy on water management, critical social scientists, including interdisciplinary political ecologists, have focused on the socially detrimental effects of that approach, including the infamous water wars in Cochabamba, Bolivia (Budds 2004a; De Freitas, Marston, and Bakker 2015; Laurie and Marvin 1999; Liverman and Vilas 2006) and neoliberal transformations in urbanization and water across regions and scales (e.g. Bakker 2003; Kaika 2006; Sultana and Loftus 2013). Those works have contributed empirical evidence confirming that a generalized pattern of dispossession and injustice has resulted from processes of water commodification and privatization.

A particularly productive lens through which critical studies on water governance are increasingly being viewed is that of the hydro-social cycle. Whereas the hydrological cycle describes water's physical processes, the lens of the hydro-social cycle attends intentionally to water's social, political and natural dimensions (Linton and Budds 2014). In an early formulation, Bakker (2002) proposed that water be understood as something that is socially mediated:

Whereas H₂O circulates through the hydrologic cycle, water as a resource circulates through the hydro-social cycle – a complex network of pipes, water law, meters, quality standards, garden hoses, consumers, leaking taps, as well as rain-fall, evaporation, and runoff... water is simultaneously a physical flow (the circulation of H₂O) and a socially and discursively mediated thing implicated in that flow (Bakker 2002).

The hydro-social lens differed from extant analytical approaches to water politics by beginning from the premise that “water internalizes social relations and politics, as opposed to being merely the object of politics” (Linton and Budds 2014). In the hydro-

social lens, environments in which water is mobilized and transformed are reinterpreted as the outcome of contingent socio-natural processes (Swyngedouw 2004; 2009).

Three aspects of the hydro-social lens as articulated by Linton and Budds (2014) prove especially important to a study of the re-politicization of water. First, the material properties of water (e.g. its physicality, seasonal unpredictability and evasion of total human control) find their place within the hydro-social cycle “not merely as material flows of water, but as agents of social change and organization”. In that view, hydrological events such as extreme events can break and disrupt established rhythms, contributing to ruptures and opportunities for change in existing relations. Second, the hydro-social lens examines how water is made known. For Linton and Budds (2014), it can interrogate the epistemology of water in the hydro-social cycle by “attending to how water is constructed through discursive practices... [and] alternative ways of knowing... acknowledging that representations of water are politically charged and have political effects.” Third, echoing the methodological and political commitment of political ecology more broadly, water in the hydro-social cycle becomes a means of investigating, revealing and *acting upon* particular relations of power to bring about transformation. These aspects, taken together, make the hydro-social lens a productive one through which to begin an examination of the re-politicization of water and the institutions that govern it in Chile.

Adaptations of the hydro-social lens can be found beyond the research domain, too, in political discourse. In Chile’s 2017 presidential and congressional elections, for instance

(discussed in more detail in Chapter 5), Beatriz Sanchez of the radical leftist *Frente Amplio* coalition narrated a video juxtaposing the “natural” hydrological cycle with the social and political transformations in water that Chilean water law has allowed for (Frente Amplio 2017). The video begins with the “natural” hydrological cycle set in warm colors, against upbeat music. It then darkens as Sanchez narrates how the “non-natural” interventions of privatization and transnationalization have caused speculation and distant foreign ownership that she promises to reverse if elected. The politician’s appeal to the hydrological vs. hydro-social acts here as a discursive tactic that reveals the socio-political dimensions of water-society relations in Chile to potential voters.

Despite the analytical advances of the hydro-social lens in political ecology, there exist two gaps in the literature that this study aims to contribute to. First, most scholars have been relatively slow to engage in empirical examinations of the actual institutions in which social relations and political ideologies are embedded, i.e. the institutions of laws and norms found in constitutions, property laws, and laws governing the water industry. As Borgias (2016) argues convincingly, critical studies of water governance have largely neglected the rich methodological and theoretical approaches from socio-legal studies, legal geography and legal pluralism. Exceptions include Rutgerd Boelens and colleagues (Roth, Boelens, and Zwarteveen 2005; Boelens, Bustamante, and de Vos 2007; Boelens 2015) whose scholarship on water justice and legal pluralism is a pathbreaking example of research on how water law actually functions in lived experience.

In interpreting law, and efforts to change it, I take inspiration from scholars in the resurgent sociopolitical law studies movement who reject the two key tenets of legal formalism: (i) legal autonomy in relation to society and (ii) legal neutrality in relation to political power. Sociopolitical approaches to law (which are vibrant and growing in Latin America) recognize that the majority of the societal and ecological problems faced today are, for the most part, “sociopolitical legal problems that have no solutions in today’s legal frameworks” (García-Villegas 2016).¹ Such approaches:

[Draw] upon the idea that the law is a language composed primarily of words and symbols that reflect society’s core values, such as justice, equality, order, cooperation, and freedom. They claim that legal language and values do not have a fixed meaning, and that the reality of the law depends to a large extent upon the political ability of social actors and institutions to determine the meaning of legal texts in an adversarial legal field... the symbolic dimension of legal norms is grounded in the fluidity of legal meaning.

As legal scholar Amy Kapczynski states in a discussion on the emerging interdisciplinary law and political economy movement, “we live in a time of increasing inequality, eroding democratic institutions, and accelerating ecological destruction. *Law has fueled these crises and will be central to reckoning with them*” (Kapczynski 2019; Grewal, Kapczynski, and Purdy 2017; my emphasis). In the dissertation, I position legal struggle as a central object of critique, through the lens of water-society relations. Such an approach, I seek to demonstrate, is necessary if engaged scholarship is to contribute towards transforming the inherited institutions that are being politicized today.

[1] For a detailed review of the sociopolitical legal studies movement (SLS) see García-Villegas (2016). A selection of Latin American scholars in this interdisciplinary field include de Sousa Santos and Rodríguez-Garavito 2005; Lopes and Filho 2014; Rodríguez-Garavito 2014)

A second gap in the extant literature relates to the limited deployment of the hydro-social lens to the issue of planning for water futures under conditions of so-called emergency and crisis. Most literature that exists on water utilities and planning for a changing climate, for instance, comprises apolitical, technical, normative prescriptions such as the *Climate change and urban water utilities: challenges and opportunities* report produced by the World Bank (Danilenko, Dickson, and Jacobsen 2010) or proposals for decision-making frameworks (e.g. Diaz and Yeh 2014; Wilby and Dessai 2010) that appear removed from the political and economic contexts that water operators work within and help to reproduce. Early work on the political ecology of urban water by Kaika (2003) examined the ways that drought in Athens was marshaled as a discursive vehicle to expedite a state-led neoliberal political-economic agenda. Swyngedouw (2003) too, examined the political effects of the discourse of “water scarcity” on the global project of commodifying and privatizing water resources. These works revealed the power of discourse to shape ownership paradigms and governance arrangements. However, new challenges have emerged since that time. Water utilities (and the state authorities that regulate them) in cities around the world continue to declare “crisis” and “emergency” with increasing regularity as they respond to new challenges in providing water supplies to the populations they serve.² Much less is known, however, about how water utilities

[2] Recent media confirms that water utilities in cities around the world face new challenges, the vast majority of which are framed around “running out of water” or other climate-related disruptions to water supplies. See e.g. “10 Cities Most At Risk of Running Out of Water” (US News 2019); “Water crisis: Towns, cities stare at Day Zero” (Deccan Herald 2019); “Africa’s Booming Cities Are Running Out of Water” (Bloomberg 2019); “36 percent cities to face water crisis by 2050” (Venkatesh and Sengupta 2018)

actually perceive those challenges, how they rationalize and construct “problems” to solve, and the strategies they deploy to pursue their desired solutions. I contribute to addressing that gap and respond to those questions through embedded ethnographic research in the planning department of a major private water firm.

Recent critical scholarship on climate adaptation planning (Mills-Novoa et al. 2017) has demonstrated the promise of an engagement between the hydro-social literature and planning for climate change in the water sector. And yet, still no critical examination appears to have been undertaken that applies the hydro-social lens to ways that water utilities are responding to the challenges they appear to face on a massive and growing scale. Perhaps the lack of critical attention to urban water utilities is due to the reality that urban water consumes a small proportion of overall water use globally. Another more significant factor is likely the difficulty in gaining access: as a senior geography professor told me as I planned my research design for this study, water conglomerates that provide urban water services are “notoriously difficult to access”. In this dissertation, I aim to contribute to the gap in knowledge on how private water utilities rationalize the environment they work in, how they discursively construct public problems, how they undertake planning to prepare cities for the future, and how they pursue their desired solutions. Following extant critical studies, I propose to do so through the lens of hydro-social relations.

1.4.2 Post-political urban and environmental governance

Foster et al. (2014) note that “depoliticization is emerging as one of the most, if not the most, important devices for understanding contemporary patterns of governance through advanced industrial societies”. Debate has emerged, however, around what conceptual approaches are best for critically examining processes of depoliticization in contemporary urban governance arrangements. In a seminal work in the early 2000s, Crouch (2004) advanced the notion of “post-democracy” to describe the current state of democracy in western societies, where “politics and government are increasingly slipping back into the control of privileged elites” including lobbyists, experts and entrepreneurs. In post-democratic societies, politics are “shaped in private” through the interaction between elected governments and those elites that lack public legitimacy and overwhelmingly represent the interests of business. In that new condition, the possibility for struggles that politicize class-based inequalities and exclusions is highly limited. Following Crouch, scholars including Dikeç (2006), MacLeod (2011) and Darling (2014) have examined how post-democratization has unfolded through socio-natural and spatial transformations in diverse urban regions of industrialized nations. What those works share is the understanding that *the political*—a space of contestation and agonistic engagement—is increasingly replaced by *politics*, understood as technocratic and consensual procedures that reduce political complexities to policy problems in which the scope of outcomes is narrowly defined in advance.

A number of critical environmental governance scholars have adopted “post-politics” as a descriptive and explanatory framework to examine shifting political configurations under

processes of depoliticizing neoliberalization. Scholarship on post-political governance builds on the philosophical work of political theorists including Ernesto Laclau (Laclau and Mouffe 2001), Chantal Mouffe (2005) and Jacques Rancière (1999), who describe a “post-political” condition in which political dissensus, ideological difference, and genuine disagreement are silenced in favor of a universalizing, depoliticizing and techno-managerial approach to governance. For Chantal Mouffe (2005:9) there exists an important distinction between “politics” and “the political”:

By ‘the political’ I mean the dimension of antagonism which I take to be constitutive of human societies, while by ‘politics’ I mean the set of practices and institutions through which an order is created, organizing human coexistence in the context of conflictuality provided by the political.

The post-political, for Mouffe, names a hegemonic order in which the antagonistic dimension of the political has not been sublimated but repressed. The demise of social democracy, the rise of Third Way neoliberalism, and the suppression of antagonism, are characteristic of the post-political. Mouffe posits that there exist practices through which certain social and political orderings become hegemonic, and that every hegemony is susceptible of being challenged by counter-hegemonic practices (Mouffe 2005:18).

Rancière appears to agree with Mouffe on that difference, but conceptualizes it in terms of a tripartite division between the political (*le politique*), politics as policymaking (*la politique*) and the police (*la police*).³ For Rancière, political action, or politicization, is

[3] For a comparative review see Wilson and Swyngedouw (2014)

about making something visible that was previously invisible in what he called the ‘police order’: a managerial practice of maintaining order whose logic is that there is nothing to see or hear beyond the dominant discourse, yet its order is inevitably unequal and generates exclusions. Politics is about “rupturing this order and making audible or visible what previously remained unheard or invisible” (Kenis and Lievens 2014).

In the absence of that agonistic politics, politics as policymaking limits disagreement and dissensus and forecloses the agonistic confrontation of competing visions of different socio-natural configurations and political economic arrangements. In the de-politicizing form of governance that has blossomed over the past several decades, a techno-managerial apparatus promotes new eco-technologies and new managerial and institutional configurations, to produce a socio-ecological fix to “make sure nothing really changes” (Swyngedouw 2011). The social relations and processes through which problematic socio-natural arrangements came into being are disavowed in favor of a new, external enemy blamed for intruding into and interrupting life as we know it. Problems are neither the result of any fatal flaw in “the system” nor of vastly unequal relations of power, but blamed on an outsider. It is “nature” that is increasingly seen as the enemy and potential cures are generated from within the market functioning of the system itself. Depoliticization functions as a governing strategy that uses particular institutional arrangements to deflect blame away from government and to protect profitable forms of capital accumulation from systematic critique (Rogers 2009, in Wood 2016).

Scholars have complicated the notion of the alleged “disappearance” or “retreat of the political” (Lacoue-Labarthe and Nancy 1997) in urban governance, especially after challenges emerged to neoliberal governance following the global financial crisis of 2007-8, the Arab Spring of 2011, and the explosion of insurgent rebellions in city squares worldwide. David Harvey's (2012) *Rebel Cities: From the Right to the City to the Urban Revolution*, is perhaps the most prominent example of the view that cities conditioned by growing social inequalities and political grievances provide the best stage for politicization and struggle. Beveridge, Hüesker, and Naumann (2014) push back against the post-political framing to uncover what they call “a politics of possibility” in which the norms and practices of urban governance in Berlin were politicized through shifting discourses around water management. For Beveridge, a post-political framing “overlooks the continuing contingencies and contestations of neoliberal globalization – it assumes the inevitability of its outcomes and underplays the ongoing potential for a diversity of political agency.” While correct in highlighting the contingent nature of variegated neoliberal urban governance, however, those authors overlook nuances in post-political governance, where hegemony is never fully achieved. As Mouffe would have it, the political is not extinguished but “sublimated and repressed” and open to challenge.

By the late 2000s, a new generation of scholarship on depoliticization emerged, characterized by more attention to the relationality of processes of “de-politicization” and “re-politicization” and the re-emergence of dissensus and a “return of the political”. In an effort to “search for ‘the political’ in environmental politics”, Kenis and Lievens (2014) argue that the same characteristics that make the environmental question liable to

depoliticization also render it “a field of politicization par excellence”. In that second generation of scholarship (e.g. Jenkins 2011; Jessop 2014; Strange 2014), politicization was defined not only narrowly in terms of state strategies, but as “rhetorical strategies employed by *various* social actors to either open up or close down the appearance of an issue as being political” (Jenkins 2011). Bob Jessop (2014) argues that depoliticization can occur at three “levels”: in the polity (where there are uneven personal capacities to engage in politics), politics (who gets what, when, how) and policies (policy making as the art of the possible). Political activities, for Jessop, refer to:

...practices [that aim] to transform the scope of the political sphere, define the state’s nature and purposes, modify the institutional integration and operating unity of the state, exercise direct control over the use of state powers, influence the balance of forces inside the state, block or resist the exercise of state power from ‘outside’, or modify the wider balance of forces that shapes politics as the art of the possible. Key issues include the forces involved in different political activities, which issues get thematized as legitimate topics of state action and political mobilization, who defines the conditions for declaring a state of exception, and shifts in the political conjuncture.

In a useful conceptualization, Jessop proposed to understand one form of de- and re-politicization as a separation between “front and back stages of politics”, where “re-politicization” can be accompanied by a process through which covert political actions once relegated to the back stage of politics are illuminated in the public sphere. More recent theoretical interventions have proposed research agendas that examine concepts of politicization at multiple analytical levels, from the macro-level philosophical to the micro-empirical. In *Politicisation, Depoliticisation and Anti-Politics: Towards a Multilevel Research Agenda*, Matthew Wood (2016) argues convincingly that the

concepts of politicization and depoliticization can be applied in philosophical/theoretical critique, analytical framework building and empirical process tracing.

The frame of the post-political has been of undoubted significance in exposing the ‘hollowing-out’ of urban governance and the narrowing of debate on political alternatives. Its thesis, however, has been challenged as being analytically flat, totalizing and risking the overlooking of micro-political experiments in the search for alternative socio-environmental futures (e.g. Larner 2014; McCarthy 2013). Beveridge and Koch (2017) argue for a nuanced and differentiated approach to post-politics and suggest that the contemporary field of urban studies falls victim to several deficiencies in a “post-political trap”. First, they argue that post-politics rests on a binary understanding of genuine politics that negates the “in-betweenness” of contingency and actually existing urban politics. Second, they suggest that it reduces political agency to the heroic and anti-heroic. Third, they suggest that the perceived omnipotence of post-politics diminishes the possibilities of the urban as a political space of resistance and emancipation.

Such critiques demonstrate that post-foundational philosophy remains poorly understood in its translation to urban politics and the urban political. Processes of post-politicization foreclose political disagreement and seek (though may never accomplish) the prevention of struggle over genuinely competing political alternatives. As Swyngedouw has argued:

There is a considerable confusion between depoliticization understood as the withering away of politics and post-politicization. The latter does not by any means suggest a disappearance of politics, but rather *the transformation of politics in ways that attempt to suspend the political* (Swyngedouw 2017; my emphasis).

Post-politicization, the process through which post-democratic regimes of governance are instituted, is one form of depoliticization. It may be achieved through e.g. the criminalization of protest and the discursive labeling of antagonists as non-citizens undeserving of a political voice. Processes of post-politicization are necessarily incomplete, as evidenced by the proliferation of political eruptions in cities around the globe in 2011, when those long excluded and silenced asserted demands that could not easily be rationalized within the frame of reference of the instituted order, but represented the imagination of a new, alternative and seemingly impossible more humane future.

In this dissertation, I make the case for the relevance of post-politics and processes of re-politicization in a context in the Global South. Whereas the post-political thesis acquired relevance in continental and Anglo-Saxon philosophy and in studies of neoliberal cities of the Global North, it is generative too in examining political change in Chile. In what follows, I draw on Chilean anthropologists, sociologists and historians (e.g. Paley 2001b; P. Silva 1991; E. Silva 2011) and scholars of water and political history in Chile (e.g. Bauer 1998; Budds 2004a; Davies and Loveman 1997; Fischer 2009; Morgan 2011) to argue that post-politicizing strategies have until recently prevailed in water governance in the country. I examine recent processes of re-politicization across multiple spatial scales, seeking to uncover expressions of politics and the political in what Tania Li (2019) refers to as the concrete, historically situated practices that seek to fracture and disassemble formations of power and subject them to critical challenge. Crucially, given the high degree of resistance from powerbrokers and elites that seek to interrupt potential

pathways to progressive transformation, much of my focus rests on the political strategies and tactics deployed by entrenched interests, in the formal political arena and in public discourse, that seek to sustain the hegemony that has prevailed for many decades.

1.5 Methodology

1.5.1 Relational study

This study on the contemporary politicization of urban governance in Chile posed several methodological challenges. A first decision concerned the construction of the basic unit of analysis. My primary focus in this research was determined not by location or social grouping, but rather on uncovering the relational, processual nature of social and political change as it concerns multiple perspectives on, and understandings of, water in Chile. I therefore applied a relational ethnographic approach, which gives ontological primacy not to groups or places but to configurations of relations (Desmond 2014). Relational comparison breaks with the substantialist tradition in sociology that imposed static, atomistic categories and artificially severed complex interconnected processes. Instead, the relational approach focuses on processes involving configurations of relations among different actors or institutions. The relational ethnographer is tasked with designing strategies that “quite literally follow connections, associations and putative relationships” (G. E. Marcus 1998) with the proper object of study being “chains of independence”. Relational analysis is not propelled by the logic of comparison of multi-sited ethnography but rather is designed around “chains, paths, threads and conjunctions” (Ibid.).

Such an approach incorporates at least two types of actors occupying different positions in a social space and bound together through relationships of mutual dependence or struggle. In my research, relevant actors include the major groups engaged in the struggle over inherited water laws, i.e. those who seek to retain the laws and those who seek to abolish or transform the laws. In the former group, the study included Aguas Andinas and its parent company Aguas de Barcelona, as well as lobbyists, regulators, and politicians. In the latter, the study included socio-political movements and a small number of leftist politicians. Explanation in a relational approach is found not with reference to forces deemed “macro” or “structural” alone, nor to the perspectives of localized agents, but in contingent relational pathways that reveal global connections across scales (Desmond 2014; Tsing 2011). Through such an approach, I aimed to respond to my research questions through attention to events in Santiago, Chile, in relation with other sites of power bound together in the matrix of multi-scalar global connections that constitute Chilean water governance.

A second methodological challenge concerned gaining *entrée* to an interconnected web of people and organizations bound up in relations of antagonism, where gaining access to one person or organization may jeopardize access to another. Much as Desmond (2016), in his widely acclaimed monograph *Evicted: Poverty and Profit in the American City* sought to get as deep with landlords (doing the evicting) and tenants (being evicted), my study aimed to get as deep with those resisting political transformations to the legal-institutional status quo and those pushing for political transformations.

1.5.2 Data collection

My data collection strategy proceeded in three main phases. The first phase, from January to May 2018, took me to Santiago, Chile, where I first improved upon my existing knowledge of the country's legal water rights regime by studying the archives of the Congressional Water Resources Committee, which has been working for several years on wide-reaching proposals for legal and institutional reform. Concurrently, I undertook participant observation on the day-to-day planning activities of Aguas Andinas during an unpaid internship in the company's planning department. In April and May, I undertook semi-structured interviews with staff of the company's planning department, as well as lawyers and corporate managers that I identified as key informants during that time.

Overlapping that period, I attended public meetings and protests organized by the water justice movement in Chile during April and May 2018. Through this fieldwork I gathered data that began to respond to (and revise) my research questions. I undertook semi-structured interviews with members of the movement, seeking to uncover the wider conditions that gave rise to a reconsideration of water law in Congress and the potential of those shifts to challenge the roots of uneven access to water.

In a second phase, I traced connections from Chile to Barcelona, where Aguas de Barcelona—the global conglomerate owned by Suez, and the parent company of Aguas Andinas—is headquartered, and Paris, where Suez dramatically lost its water services concession in 2010. As will become clear in the dissertation, each of those organizations has an interest in (and influence on) the present and future of Chilean water law. In June

and July of 2018, I met with and interviewed staff of Aguas de Barcelona and Eau de Paris, as well as researchers and activists either studying, or active in, the movement seeking the remunicipalization of European water utilities. Santiago, Barcelona and Paris, though physically distant from one another, prove to be tightly entangled in the contemporary tensions over institutional preservation or transformation in Chile.

In a third phase, following my fieldwork in Barcelona and Paris, I returned to Santiago for an additional period of two months, convinced that beyond the urban water crisis, national-level legal reform must be a central part of any investigation into the politicization of water law and urban governance. In that second period in Santiago, I interviewed politicians from different political parties, political advisers, and members of the socio-political movement pushing for change in Congress. I also interviewed members of the agricultural lobby resisting those changes. I identified those interviewees through purposive and snowball sampling and found social media particularly useful as an opening to contact and speak with Chile's politicians. Once my fieldwork concluded, I remained in online correspondence with several interviewees to follow additional developments and to undertake fact checking.

In each site, my strategy was to take ethnographic field notes in the form of "mental notes", and "jottings" (Emerson, Fretz, and Shaw 2011) that I later wrote up as detailed descriptions of scenes and interactions. My interview questions evolved over time, through a refinement of my understanding of the observed phenomena (Small 2009). To achieve saturation, or the point at which new interviews no longer significantly

challenged previous perspectives, I undertook 60 interviews, whose duration ranged from 45 minutes to several hours.

1.5.3 Data analysis and validity

With the consent of interviewees, I recorded semi-structured interviews and took a grounded-theory approach to develop analytical categories emerging from analysis of transcripts (Charmaz 2014; Charmaz and Mitchell 2001). I organized, reviewed and analyzed my transcripts using the online software Dedoose produced by SocioCultural Research Consultants (2018). Part of the code tree that my analysis gave rise to, with a section of coded interview transcript, is shown below for reference.

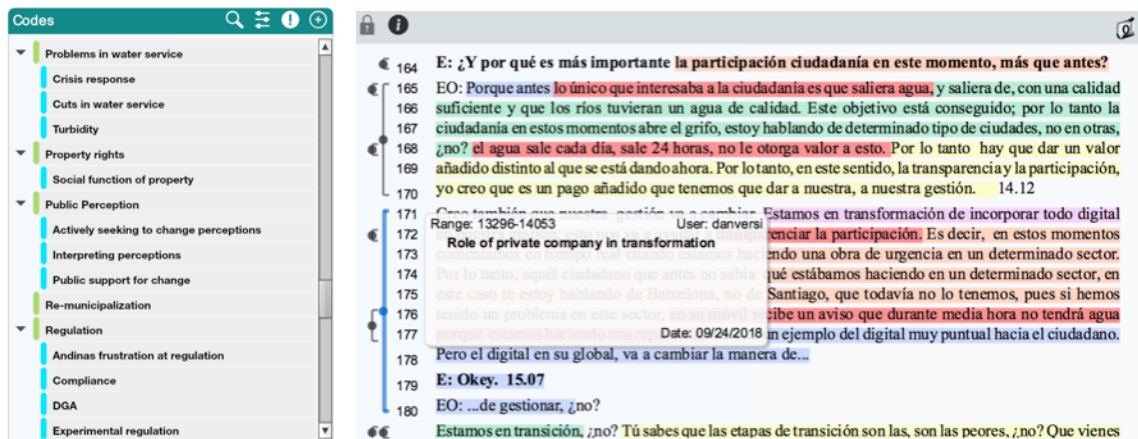


Figure 2: Dedoose interface for qualitative data analysis

I take a realist approach that sees descriptive, interpretive and theoretical validity as being particularly important in qualitative research (Maxwell 1992). I have sought to ensure throughout that my interpretive accounts are developed from multiple sources, to allow triangulation between accounts relayed to me by informants, observations, and

documented accounts. I allowed informants to select a place of their choosing for interviews, the vast majority of which were undertaken in Spanish, which I speak fluently. The theoretical validity of my research depends, of course, on what I have inferred from data analysis. It has, in each case, been informed by theoretical approaches used in critical scholarship in urban studies, planning, and geography. Finally, as in all interpretive qualitative methods, I take a reflexive approach that is attentive to the mediation of data and findings through the intersubjectivity between the researcher and the objects of study (Davies 2012).

1.5.4 Protection of human subjects

MIT's Committee on the Use of Human Subjects approved the semi-structured interview instrument based on an exempt status application (COUHES Protocol 1712159045; 3 January 2018). Subjects in participant observation were observed in their usual workplace or day-to-day natural settings; the project did not therefore cause additional risks beyond those occurring in the participants' quotidian life.

1.5.5 Positionality

Several interlocutors warned me to be "responsible" and "careful" in discussing water issues in Chile. The "wrong words", they cautioned me, may have serious consequences for the performance of water-related businesses publicly traded on stock markets. Over the years that I have been engaged in research on water issues in Chile, I have seen some highly polarized reactions. An editorial I wrote for an international newspaper several years ago (Gallagher 2016) showed the divisions that such discussions can give rise to.

That essay, in which I discussed some research I undertook with MIT colleagues that put Santiago’s present-day water crisis into wider historical context, provoked contrasting reactions. A representative of a global think tank that supports private water industry, for instance, called the research “worryingly one-sided” and incorrectly stated that it called for “Santiago’s water services to be nationalized”. Many others responded favorably, “agreeing completely” and putting their own spin on the Chilean water crisis in what they saw as a context of financialization, speculation and social justice.



Figure 3: Reactions can be polarizing in discussing Chilean water. Left: a booster of the private water industry calls the report “one-sided”. Right: citizens and news outlets deploy critical discourses in lending support to the protestors.

I have sought, in representing my findings, not to make the dissertation read as an exposé. Yet there is no denying that the future of water in Chile remains an ideological battleground. I have sought, throughout, to be fair in representing the views of each side as they were recounted to me, without glossing over or minimizing some of the potentially more controversial facts uncovered. I accept, however, that given the degree

of access I had to influential people and organizations seeking to reshape relations of power, some hitherto unseen and unheard views may make uncomfortable reading for some. In putting into conversation the perspectives and worldviews of the relatively powerful with those of the relatively powerless, perhaps such an outcome is unavoidable.

1.6 Summary of findings and research contributions

Over the next several chapters, I demonstrate how a narrow, consensual, techno-managerial form of urban governance in Chile has been challenged in the period following the explosive urban uprisings in Santiago in 2011. Emboldened by that moment of uprising, socio-political movements have since politicized a water crisis in Santiago, exposed the political influence of Aguas Andinas, refuted the company and regulator's depoliticizing narratives, and sparked threats of political challenges to the legal status quo. By 2013, uprisings and protest had translated to the formal political arena, with the emblematic election to Congress of four of the student activists that led protests in 2011. That shift in the political landscape set the conditions for major congressional challenges to the water laws inherited from dictatorship. However, re-politicization is shown to have its limits. In Chile, the re-politicization of water law widened the parameters of political debate and the collective imagination of different potential political trajectories. It saw issues naturalized during past decades rendered highly contentious, and political action conducted "back stage" increasingly exposed through protest, investigation and an invigorated independent media. The progressive challenges to inherited water laws, however, encountered fierce resistance from powerbrokers in industry and the political class that protects business interests when in

government. Ultimately, change to inherited institutions of water law is inhibited by the incompleteness of the post-dictatorship generational shift in Chilean politics, the effects of wider political instabilities in the Latin American region, and Chile's deep articulation with global economic forces. Together, these factors explain why the neoliberal project introduced under dictatorship, of which water law was a key pillar, survives through turbulent and politicizing times.

In Chapter 2, I trace the processes and moments through which the “post-politicizing” water governance landscape in Chile was historically constructed. I draw particular attention to the rise of a cadre of technocrats and the structural reforms of the civico-military government, which moved to radically evacuate politics from social life. These processes, I demonstrate, consolidated a consensual, techno-managerial governance form. I then trace how efforts to reform water laws after the return to democracy in 1990 were vastly limited through processes of post-politicization. Through processes of post-politicization, the political class and their allies combine to foreclose a questioning of the political-economic frame by narrowing the space of debate around political possibilities. Issues of public concern are recognized (e.g. speculation in water markets that harms those deprived of water access; systemic problems in overexploitation of resources) but are to be dealt with through consensual governance arrangements and not any questioning of wider political-economic structures and legal frameworks. I subsequently turn to the intensifying political opposition to the Chilean Model through the emergence of a newly conflictive, agonistic form of urban politics in the post-2011 period that de-legitimizes existing forms of neoliberal urban governance. What is at stake around water in Chile is

far more than debates around optimizing water management witnessed in urban contexts elsewhere. Rather, the newly-politicized struggle has seen a surge in discourse around hitherto sidelined political issues and a continuing condition of unrest on the streets of Santiago amidst continued discontent with the realities of life under a seemingly unchanging extractive neoliberal development model. This shift in urban politics, I suggest, represents the semblances of a re-politicization of water that merits our sustained theoretical and political attention to better understand wider shifts in urban governance.

In Chapter 3, I demonstrate how, in a politicizing city, dominant actors can lose their ability to depoliticize the institutional landscape in which they operate. I examine the contemporary water crisis in Santiago through the relationship between Aguas Andinas (one of the largest water utilities in Latin America and part of the global Suez/Agbar conglomerate) and the city's population, i.e. its customers. Through the crisis, discontent and dissensus has seen Aguas Andinas lose legitimacy and encounter increasing challenge from residents. Drawing on several months of participant observation and interviews in the planning department of Aguas Andinas, I trace the multiple ways that the company's planners, engineers, and lawyers have planned for the future of the city's water supplies in these increasingly politicizing times. I advance two central claims relevant to urban politics and planning. First, I suggest that knowledge on the crisis constructed by planning staff is deployed publicly by the company to promote a reductionist discourse that artificially pits "nature" against "society". That narrative strategy proves to be only partially successful in neutralizing political claims against the company, which has found itself mired in political controversies during the water crisis.

The strategy proves productive in facilitating the planning and construction of US\$ 200 million of new “emergency works” infrastructure. In that sense, knowledge produced by planners—several of whom did not share an ideological commitment to, but rather were ambivalent towards, private water provision—is used to maintain the status quo of market-based urban water governance. Second, however, I demonstrate how, in these more openly conflictual times, the company’s response to the crisis was not adequate to ward off protests against the company. Despite the company’s efforts to depoliticize the water supply crisis facing Santiago, leftist politicians began to challenge the company (and other private water suppliers throughout the nation) that continued to make sustained and increasing profits during the crisis under laws inherited from the final years of the dictatorship. In these politicizing times, the private water company appears to have lost some of its political influence.

In Chapter 4, I examine the relationship between Aguas Andinas and the formal political arena, i.e. the national government and Congress. In 2016, urban water was formally politicized at the national level through a congressional challenge to the laws that allow private water companies to operate with guaranteed minimum profits in the country. Through process tracing of congressional documents, media, and interviews with members of Congress, I demonstrate how the formal political arena remains a challenging avenue for change to inherited institutions, where in these politicizing times, private companies can still turn to their well-established political relationships that are mostly not on public view. Specifically, I examine the trajectory of a reform proposal that sought to eliminate guaranteed profits for water companies, involve citizens for the first

time in the tariff-setting process, and increase the state's regulatory powers over urban water services. The reform was approved unanimously by the lower house of Congress in late 2016, sending shockwaves outwards from Santiago globally, as the share prices of Chilean water companies tumbled and international investors scrambled to make sense of what the reform meant for the future of private urban water provision in the country. Despite Aguas Andinas' public disavowal of its past political influence, I find that in relation to the proposed legal reforms, a highly political relationship between the company and the formal political arena prevails. Through that relationship, the company has sought to maintain the legal status quo through a strategy of appealing to the fears of economic downturn that the political class holds (across the political spectrum of both center-left and center-right governing coalitions). In its strategy, the company deploys several tactics including (i) directly engaging government ministers to encourage them to veto congressional reform proposals (ii) mobilizing foreign embassies to threaten capital flight across multiple industries beyond water and (iii) remaking its own public image. The examination of this relationship sheds light on the ways in which, in politicizing times, private and state actors collaborate to stave off the possibility that uprisings on the street, when they translate to the formal political arena, have any real effect on inherited institutions.

In Chapter 5, I look beyond the city to examine what has arguably become the most intense instance of struggle over water, where a socio-political movement has politicized the nation's dictatorship-era water laws as the root of a development model that sacrifices territories of extraction for the benefit of urban life elsewhere. I examine how a struggle

over export-oriented avocado production in the Petorca Region of Chile resulted in a multi-year challenge to water law in the national Congress. In contrast to the challenge to private urban water service provision explored in the previous chapter, the laws in question in this instance relate to the entirety of water across the nation and therefore represent a much more significant challenge to the dictatorship's legacy. Through interviews with members of Congress, political advisers and members of socio-political movements, I trace the processes through which water law was politicized through the reform initiative, and then tempered as the initiative mutated on its journey through Congress. Working to counter that national-level reform effort, I argue that private companies and the political class deployed a suite of discursive and procedural tactics to insulate and protect the hegemony of inherited institutions. Those tactics, though varied in nature, together formed a coherent strategy that drew on the fear that the dominant political class (across center-left and center-right governing coalitions) has of deviating from the economic model inherited from dictatorship from which they derive personal and generalized material gains. Socio-political movements have not, as of yet, succeeded in transforming Chile's national water laws. They have, however, through protest and performance, made their struggle visible on the international stage, reshaped the national debate on the future of water, institutionalized permanent Congressional committees that must address the nation's water crisis produced by its water laws, and remained committed to a politics of imagining the impossible.

In the conclusion, I draw together a number of original contributions that my dissertation makes to (i) the political ecology of water and (ii) debates on post-politicization in urban

politics and governance. I also review the limitations of the research and suggest avenues for important further research on the issues in question.

CHAPTER 2: A FADING STAR? THE RISE AND FALL FROM GRACE OF THE CHILEAN MODEL OF WATER GOVERNANCE

“The only way to change the course of society is by changing its ideas. First you must reach the intellectuals, professors and writers... their influence on society will prevail and politicians will follow”.

—Friedrich von Hayek (in Blundell 2004, own translation)

The popular discontent and protest that Chile experienced from 2011 onwards raised a series of questions: In a context where neoliberal educational reforms had mobilized some of Chile’s largest protests in recent history, what had led the country’s globally celebrated water management model to become a target of popular movements? Why was the market model—said to be supremely efficient in the face of scarcity and responsive to the demands of water users—struggling to deliver during the drought? How did we arrive at this conflictual political moment?

An informed understanding of contemporary political tensions begins by viewing the institutional landscape in historical perspective. In this chapter, I review the historical construction of the institutions that water justice protestors came to agitate against. The consensual, techno-managerial form of water governance that prevailed from the return to democracy remained largely unquestioned until around 2011. How did that de-politicized model of water governance come to exist? What social relations were embedded in extant institutions before Chile’s experiments in neoliberalization in the mid-1970s began in earnest? How did the neoliberal project articulate with existing institutions and laws to

produce one of the world's most radically free-market water laws and rules? And how were those laws and rules institutionalized after the return to democracy?

In the first section of the chapter, I trace the processes and moments through which Chile's water laws were historically constructed. I draw particular attention to the rise of a cadre of technocrats and the structural reforms of the civico-military government, which deliberately moved to radically evacuate politics from social life. In a second section, I trace how efforts to reform water laws after the return to democracy were vastly limited through processes of post-politicization. In a third section, I briefly turn to the intensifying political opposition to the Chilean Model through the emergence of a newly conflictive, agonistic form of urban politics in the post-2011 period that de-legitimizes neoliberal water governance. This shift in urban politics, I suggest, has been accompanied by a re-politicization of water that merits our sustained theoretical and political attention to better understand wider shifts in urban governance.

2.1 Constructing Chilean water: from pre-colonial to independent Chile

As in the rest of the Americas, law played a central role in facilitating European colonial plunder from the territory now known as Chile. Historical information on the organizational structures of pre-colonial Chile is scarce, though it is known that the Mapuche nation of Wallmapu was built on a sociopolitical structure that supported control over immense territory, water, agriculture and commerce (Millalén et al. 2006). The Mapuche fought off several invasions, notably from the Inca in 1470—the hegemon of the day—protecting the central valley and southern territories (León 1992, 1983).

Following Pope Alexander VI's Papal Bull "*Inter Caetera*" in 1492, which deployed the doctrine of discovery to provide legal backing to the Spanish conquest of the New World, Spanish conquistadors would survey and prod at Chile's periphery from around 1520 (Miller, Lesage, and Escarcena 2010). Two decades later, in 1541, Pedro de Valdivia founded the present day capital, Santiago, and conquest was set in motion (De Ramón 2018). Throughout the three centuries of colonial rule, the territory's sociopolitical structures would be transformed significantly in the service of colonial plunder and the subjugation of non-Europeans.

In the Americas, more than any other continent, the dominant historical interpretation suggests that the established institutional order and the indigenous people who held it were wiped out (Angeles and Elizalde 2017). On closer inspection, however, the colonial extraction of labor and resources can be seen to be, in significant measure, underpinned by an "indigenous social order" (Lang 1975:7) and a diverse patchwork of indigenous institutions (Angeles and Elizalde 2017). Indigenous political and legal institutions, it is now clear, played an important role throughout the rupture and reorganization of the early colonial period (Bengoa 2003, 2004; Gallo 1987; Cepeda 2015). Such institutional continuities can be found in water law. According to Vergara Blanco (1992) a set of common principles underlay indigenous water law, including the legal concept known nowadays as public ownership (*dominio público de las aguas*), a concessional arrangement to access and use water, the creation of water rights, and a strong role for state authority in oversight and conflict resolution.

Those indigenous legal arrangements were not eradicated and replaced under colonialism, but rather evolved in line with the wider direction that the colony and the independent republic took. The Spanish colonial period (1541-1818) was characterized by legal ambiguity of ownership and control over water. As in the Spanish civil law tradition, water in colonial Chile was considered a common and public resource, while public authorities could grant private entities “use-rights” (*mercedes de aguas*) (Bauer 1998; Rodríguez 1984)⁴ for the use of that water. In practice, use-rights to public waters were treated as private property, linked to private land ownership, with agricultural interests the primary concern of water law at the time.

Several studies in the law and society movement in the 1960s examined the historical evolution of Chilean water law in later centuries.⁵ While no provisions existed for the sale of water rights under Spanish legislation for the American colonies, it is known that farmlands were bought and sold, including their associated water-use rights (Manriquez Lobos 1999). Under Spanish legislation, all water was considered to be property of the Crown, or in modern legal language, a public asset. Rights to water use were granted by governors, with two use categories: urban licenses for domestic use, and rural licenses for farm irrigation. Following formal independence from colonial rule in 1818, the new republic enacted a law that established a standard unit of measurement of water across the national territory, the selling price of each water unit, at 750 pesos, and a provisioning for

[4] According to Dougnac-Rodríguez (1984), these use-rights (*mercedes de aguas*) can be considered a real right (*derecho legal*) granted by the Crown. Such rights were transferable, usually of a perpetual nature, relating to running, standing, superficial and subterranean waters.

[5] See Daniel Stewart (1967), *Aspects of Chilean Water Law in Action: A Case Study*.

water conveyancing. According to Manriquez Lobos (1999), the legal tradition at that time made it possible for Chilean water users to sell water rights, instilling a mentality of commercialization, especially amongst water users in the farming community.

Chile codified its laws through the Civil Code of 1855, the nation's most important legal document of the nineteenth century and a document imbued with continental European liberalism (Bauer 1998). Elaborated in major part by Venezuelan-born intellectual Andres Bello, the 1855 Civil Code, which came into force in 1867, would become an important source of civil law throughout the Latin American region. In advancing the Code, Bello drew on French civil law, medieval Spanish law and Roman law (Mirow 2004), which he studied and used in his decades as a diplomat in London. With regards to possession of property in water, Bello drew on the civil code of Sardinia, remarking:

It is the only [code], I believe, among known codes that has sanctioned the same principle as our memorable decree of 18 November 1819, which has brought into cultivation so much land that nature seemed to have condemned to perpetual sterility. But on this point—as on everything having to do with the use and enjoyment of water—this bill, like the code that guided it, has limited itself to little more than establishing bases, reserving details for special ordinances, which probably cannot be the same for different localities. (Bello, 1998)

In the 1855 Civil Code, the great majority of waters in natural channels were declared “national property for public use” (*bienes nacionales de uso público*), a category of property which is owned by the nation as a whole and whose use belongs to all of its inhabitants. However, the Civil Code appeared to contain a tension, in that while water in natural streams was declared to be public property, private water could also exist in

certain instances. In lakes, small lagoons, and mountain streams “originating in, running through and remaining within the same property”, a landowner could be granted private ownership rights over the water. The Code established that “water running through an artificial watercourse built at some else’s expense belongs solely to the party which built the waterway”. This provision produced a legal effect known in Chilean administrative law as the *desafectación* of an item of public property: the transfer of such an item from the public domain to private ownership. The Civil Code, thus, paradoxically declared all water to be public property while water diverted to private channels was the property of the infrastructure owners (Manriquez Loboz 1999). Groundwater, too, was considered private, belonging to the owner of the land above it. Despite the seeming contradictions, public property could not be sold under Chilean law. Throughout this time, then, water essentially remained a non-marketable commodity.

In the latter part of the nineteenth century, Chile suffered a series of severe droughts when snow accumulation in the Andes was low. The provisions relating to water in the Civil Code, according to Manriquez Loboz (1997), were no longer adequate and new principles, ordinances and regulations had to be developed. Politicians undertook various efforts at reforming the legal system that governed water in light of drought and water scarcity, but water users did not accept them, and reforms were not enforced. Legislators subsequently prepared a new comprehensive water act, 20 years in the making, which would become the 1951 Water Code.

The 1951 Water Code codified many existing aspects of water law. Reflecting Latin American developmental concerns at the time, a strong and active role of the state was considered necessary for national economic development (Bauer 1998). That code established formal procedures for granting private rights to use publicly owned waters, and those rights were treated as private property rather than administrative concessions or permits. Those private rights were subject to legal conditions, including a provision that the Ministry of Public Works could cancel rights if owners did not plan and prove that infrastructural works were implemented to make use of water. The code was in force under the 1925 Chilean Constitution, which strongly protected private property. Water use rights, held as items of private property, were backed by a “solid and safe legal basis” (Manriquez Loboz 1999). Further, the code followed an order of preference to sort out competing demands of water, giving priority to drinking and domestic purposes, before irrigation, and latterly hydroelectricity and other industrial purposes. At that time, water rights remained legally tied to land ownership. Though the 1855 Civil Code had earlier warned of the need for spatial differentiation in water management throughout Chile’s territory (Bello 1998), that one Water Code continued to be applied universally across the national territory.

2.2 Technocracy in water governance under democratic socialism (1967-1973)

By the late 1960s, the conviction that science and technology could solve societal ills became widespread in Chilean politics, and in turn, in the laws and practices that governed water. Allegedly apolitical expertise was adapted to the tasks of governing by applying scientific knowledge to find technical solutions to political problems. Patricio

Silva (2009) in *In the Name of Reason: Technocrats and Politics in Chile* undertook a seminal study of the technocratic ascendancy in the political history of state-building in twentieth century Chile. In contrast to scholars who position political parties as the backbone of Chilean political culture, Silva argued that multiple administrations in the past century governed with technocrats playing a central role in the ideological orientation of political projects since the state modernizing administrations of Arturo Alessandri and Carlos Ibañez in the 1920s. By the 1960s, during what Mario Gongora called “the era of global planning” Chilean technocrats had assumed a driving role as ideologists of developmental-style structuralist reforms, particularly those who worked in the United Nations Economic Commission for Latin America and Chilean universities (Silva 2009).

Under the Agrarian Reform of 1967, which enforced far-reaching reforms to modernize agriculture and redistribute land to peasants, landholdings were expropriated under the slogan “the land for those who work it” (*la tierra para el que la trabaja*). Eduardo Frei Montalva’s government made a raft of reforms to existing laws, including a substantial change to the existing Water Code (through Act 16.640), producing in effect a replacement code. The 1967 Water Code, as it became known, amended the property clause of the 1925 Constitution, expanding the social function of property and restricting private property rights (Bauer 2010). Breaking from the 1855 Civil Code, it declared “all of the nation’s waters” to be “national property for public use” including those waters previously considered private in artificial channels. That amendment allowed the expropriation without compensation of all existing private water rights. Water rights lost

their legal status as property rights and became administrative concessions, governed by administrative law instead of civil law. The transfer of water rights, following the 1967 Agrarian Reform and 1967 Water Code, was made illegal.

In 1968, disaster struck, as Chile suffered what a Boston Globe journalist likened to a “slow earthquake” as drought led to a national collapse in agricultural production (Brady 1968; Singer and Alvarez 1975). The drought had deep consequences, raising the cost of living by 25 percent and leading to the loss of one in every 40 Chilean jobs (Sigmund 1977). Commentators at the time highlighted the close relations between water stress and political unrest, with one news outlet noting that “Chilean politicians feel that long-term privation from the drought may have a major effect on the outcome of Congressional elections here next year and the presidential election of 1970”.

Worst Drought in 100 Years Hits Chile Like Slow Earthquake

By THOMAS BRADY
Associated Press

SANTIAGO, Chile — Summer has almost arrived in Chile and with it will come the full impact of the nation's worst drought in 100 years.

When Chileans describe disasters, they talk in terms of earthquakes, familar crippling occurrences in this narrow Andean nation. Seeking a description for the drought, the liken it to "a slow, silent earthquake."

"There is no quick roar with falling buildings and sudden death," says one Chilean. "Instead, the drought is a slowly accelerating disaster."

As summer nears, signs of the drought's effect — higher food prices, electricity blackouts, low water pressure — appear each and portend growing problems of President Edue Frei's administration and nation's nine million people. Agriculture is hardest so far. Frei says 800,000 sheep, mostly lambs, have died

pasture feed," the official says, "and livestock graze on the toxic plants when the safer pasture has withered from lack of water."

The drought has not appreciably affected the 1968 harvest, but crops sown now will suffer greatly, agriculture experts say.

The government estimates there will be water to irrigate less than half of the three million acres that normally receive water.

Unemployment has followed the decline in farm and livestock production. The government — battling to put an agrarian reform program into practice — says 12,000 peasants have

Chile's wettest month, produced little precipitation. Rivers are flowing at far below average rates. The usually rushing Copiapo River in the north is little more than a trickle. The Aconcagua and Rapel Rivers are low and muddy.

As a consequence, the government says hydroelectric production is off 80 percent nationwide. Electricity rationing began in Santiago the week of Nov. 10. Each day certain sections of the city of 2.8 million will be

blacked out. The government says television transmission will be cut back to four hours in January as a measure to save electricity. Decline in available electricity has affected industry, particularly copper production which accounts for as

much as 75 percent of Chile's foreign exchange income. The huge El Teniente copper mine 63 miles south of Santiago has cut back production several times for lack of electricity and, also, water for processing.

The steel production center of Concepcion, a strongly Marxist port 230 miles south of Santiago. Asein, the drought is in great part the blame. The United States already has loaned Chile \$2.5 million to buy water pumps and

grain unloading equipment for ports, an agreement to sell \$3 million of food on easy terms is expected to be signed soon. The Food and Agricultural Organization of the United Nations has provided \$3.5 million for food.

OPPOSITE NORTH STATION... will get their exit visas soon. show at 2 p.m. presenting the

OPEN NIGHTLY... SAT... information from Brunswick precipitously," he said.

Drought Cripples Chile

By Francisco Quintana
Reuters

SANTIAGO, Chile — The worst drought in 120 years is threatening food, water and electricity supplies for more than half of Chile's 9 million population.

More than 150,000 head of sheep have died and about 116,000 square miles of lush agricultural land have been devastated by the eight-month drought.

Electricity supplies have been reduced by 15 per cent through lack of water to drive hydroelectric generators while about 100,000 acres of sown wheat fields were razed through lack of irrigation.

The affected areas are the recently bombed central provinces of Valpa-

raiso and Aconcagua and the northern province of Coquimbo, which borders an arid salt desert.

The government declared the three provinces disaster areas and ordered wells to be drilled in an effort to find water. Special loans will be made to peasants to have wells drilled on their land.

Local authorities ordered domestic electricity supplies rationed, with stiff penalties for anybody using power outside the stipulated times. The government is making an effort to keep essential industries moving. Light rains fell in some areas

bombarded clouds with silver rain.

But this brought the rainfall so far this year to only about 0.75 inches. In a normal year about seven inches of rain would have been registered in the same period.

Agriculture Minister Huzo Trivelli said in an interview that if the drought continued much longer it could have worse effects than an earthquake.

Special measures were introduced to insure drinking water supplies for 30,000 inhabitants in scattered villages in Coquimbo, where the drought is most severe.

Figure 4: Historical accounts of drought and concerns of political unrest (1968-69)

The emergency ultimately forced government planners to institute a shift in time zone (which remains in effect today) in a radical effort to save energy (Montes 2016). Under the 1967 Water Code, government scientists and technicians came to take on a strong role in establishing the amounts of water needed for different crops, and allocate or reallocate water rights to particular land parcels. Distributive decisions, in essence, were to be fully managed by government functionaries deploying a technical rationality. The General Water Directorate (*Dirección General de Aguas*, DGA), founded in 1969 under the Ministry of Public Works, adjudicated between conflicting uses, reducing the role of courts in water conflict. The ascent of technical rationality, along with a professionalization of knowledge, would remain defining characteristics of Chilean political culture as democracy entered its prolonged period of darkness in late 1973.

2.3 Anti-politics in the neoliberalization of water law (1973-1989)

On September 11, 1973, Chilean society was subject to a democratic rupture with the CIA-backed overthrow of its elected president, Salvador Allende and installation of General Augusto Pinochet as head of state. The economic and societal transformations that transpired thereafter have been covered in much detail elsewhere (Harvey 2007; Klein 2007; Valdés 1995; Silva 1991). In pursuing its transformation, the military government sought to extinguish what it saw as the anti-capitalist “betrayal” of the nation’s liberal ideals by politicians who had embraced developmentalist ideas of delinking from the world system in earlier decades (K. Fischer 2009; T. Davies and Loveman 1997). The regime had “no clue about economics”, according to members of the group of professionals that it would ultimately empower to provide the free-market ideological impetus for the regime’s transformation (Fuentes and Valdeavellano 2015). That group included several economists from the monetarist school of thought trained under Arnold Harberger and Milton Friedman at the University of Chicago from the mid-1950s onwards.⁶ Ernesto Fontaine, the first Latin American to gain a PhD in 1964 in economics in the generation that would become known back in Chile as the Chicago Boys, would go on to reshape economics at the Catholic University in line with those ideas. Others, including Sergio de Castro and Rolf Lüders, would hold the most important ministerial positions in economy and finance under Pinochet’s reign.

[6] In 1955, the University of Chicago and the Catholic University of Chile signed an agreement to permit Chilean students to study under the tutelage of monetarist economists in Chicago. Approximately 25-30 students were trained through the program. Several went on to influential positions in the civico-military dictatorship after the fall of President Allende in September 1973. Between 1953 and 1956, early in the cold war, the US allocated US\$ 12.9 million to expand its influence in Latin American universities.

During the recession of 1975, a window of opportunity opened for the Chicago Boys and the *Mont Pèlerin* Society to convince Pinochet that societal transformation could be achieved by a program of shock therapy, centered on budget cuts, monetary reform and free trade.⁷ That program, based on CIA-funded economic studies, would come to be known as “The Brick” (*El Ladrillo*) (De Castro 1992). In that first round of roll-back neoliberal creative destruction (Peck and Tickell 2002), the institutions that govern water went largely unnoticed. The state-centered 1967 Water Code, however, soon became incompatible with the country’s rapidly transforming economic model and resulted in a confusing mess in relation to land ownership (Bauer 1998). By the late 1970s, the military government became convinced that greater legal protections were needed for private property in water, embarking on a program of reform that would become the world’s most extreme experiment in market fundamentalism in water management.

The first legal reform paving the way for the new Water Code was promulgated through Decree Law No. 2.603, of April 23, 1979 (Bauer 2004; 43-44). By that point, the Chicago Boys had risen to control most aspects of the regime’s economic and social policy. That law was the regime’s first substantive legislation on water and formed the foundation for the new Water Code that would take precedence two years later. A major justification for the reform was to stave off worries of land reform: the regime had undertaken its agrarian

[7] The *Mont Pèlerin* Society was founded in 1947, by Professor Friedrich Hayek and a group of 36 economists, historians and philosophers near Montreux, Switzerland, to discuss what it saw as the worrying state and the possible fate of liberalism after WWII. Hayek was its first president and highly influential on the society’s direction. On its website, for instance, the society remarks that one of its Nobel laureate members once quipped that the society could be called “The Friends of F. A. Hayek” (The *Mont Pèlerin* Society 2017). For a critical review of the society’s influence see Mirowski and Plehwe (2015).

counter-reform, selling and transferring previously expropriated land to private individuals. If water rights were separated from land through law, it would be harder for future governments to intervene in land tenure issues.

For the first time in Chilean history, the 1979 decree separated water rights from land ownership, allowing water rights to be freely bought and sold. It also strengthened private property rights to water and established the system of registering water rights in real estate title offices, requiring that all water rights transactions be recorded in those registries. It proposed to “regularize” existing water rights by declaring a presumption of ownership in favor of those *de facto* using them and holding auctions for all expired or cancelled rights. The contents of the law were fiercely debated internally within the government with tensions between neoliberal cabinet members, whose earlier drafts proposed to auction off *all existing and new* water rights, and military lawyers who were concerned about the confusion between the public ownership of water and the private property rights for water use. The agricultural sector (through the National Society for Agriculture and the Confederation of Chilean Irrigators), while praising the guarantee of secure property rights to water, opposed the more extreme aspects of the law including its facilitation of markets (Bauer 2010).

By that time, Chile’s government had transformed into a militarized authoritarian state with a four-member junta the sole source of executive and legislative authority (Constable and Valenzuela 1993; 117). Its “legislative process” consisted of obtaining only four signatures from the junta to create or change a law. By the turn of the decade,

the junta cemented its central institutional triumph: a new political Constitution for a transformed nation. On 11 September 1980, in a referendum clouded by confusion, the cryptic Constitution was passed, paving the way for further changes to come. The Constitution had a profound impact on all water legislation that followed. Through its Article 19 Clause 24, the Constitution established the legal framework for a market of water rights, defining an individual property right permitting owners of the right of access to water (Yáñez and Molina 2011). Based on this right, individuals were permitted to use, enjoy and legally dispose of water with complete freedom (A. Vergara 1998).

The Constitution was soon followed by a legal masterpiece in depoliticization. Following a secretive process with no public debate or political opposition, the military government promulgated its Water Code through Decree Law 1.122 in 1981. The new Water Code, according to Bauer (1998) had two purposes that reflected the competing interests in government: to increase the legal security of private water rights and to raise the productive value of water uses through the use of market forces. Confusingly, the new code still declared water to be “national property for public use”, which could not be alienated from public ownership nor enter into commercial relations, much as was the case in the 1855 Civil Code. For the first time in history, however, water rights were separated from land and could be freely bought, sold, mortgaged and transferred like any other real estate protected under the 1980 Constitution. Though not much noticed at the time, the juridical incoherence of the code—in effect privatizing a resource that it simultaneously defines as inalienably public—would be a source of tension in later years.

Under the new legislation, the DGA's authority in adjudicating competing uses was bequeathed to the market, with its functions limited to granting water rights to private individuals at no cost and in perpetuity where water was physically and legally available. Water rights were now to be governed by private law and rights-holders could freely change the uses of water without state approval. No legal preference was granted to any particular use, meaning that the DGA should sell rights to the highest bidder in a public auction if there was insufficient water to meet simultaneous applications. Taxes, fees, and any obligations to use the water rights were left out of the Code as they were seen as invasions of private freedom. According to Bauer (1998) the provisions in the Code allowed for "unregulated speculation" in water rights markets. The DGA maintained some minimal administrative and technical functions such as collecting hydrological information, maintaining a registry of water rights and water users' organizations, and preparing studies for other branches of government to consider in regulatory decisions.

Several scholars have interpreted the 1980 Constitution and 1981 Water Code as part of a utopian endeavor that profoundly changed socio-natural relations. For Boelens (2015), the code, and the Constitution that underpinned it, birthed the earliest and most devastating instance of the neoliberalization of water globally, "imprisoning" water users in order to liberate the market, thrusting peasant communities into market relations, and ultimately making it easier to dispossess them of their land and water. Others, including Prieto (2015, 2016) have examined the complexity of legal behaviors that have resulted at the grassroots level, with water users in many instances defying the Water Code in favor of customary laws, and acting collectively to protect themselves from the predations of

the market. Few scholars, however, have examined water laws in relation to the wider transformation of Chilean society. One exception is Budds (2013), who interprets neoliberal water laws in Chile as central to the later empowerment of contemporary elites. The military government achieved a consolidation of power through the construction of export-oriented natural resource sectors and state-owned enterprises, in mining, chemicals, water supply, and electricity companies, all reliant on water and underpinned by commodified water resources. The commodification of water resources, in this way, lent material and economic support to the military's transformation program. The water reforms, however, went far beyond the material dimension, in their wider contribution to the project of transforming the ideological terrain of Chilean society.

Beyond their material effects, efforts to commodify water through the 1980/81 water laws must also be understood as an ideological achievement in constructing a new form of political thought. The Water Code did not mandate or establish a market in water rights, but set up the legal preconditions and incentives for a market to emerge (Bauer 1998, 2004). Those preconditions, essential to the operation of the market, were imbued with the political and ideological persuasions of its architects. What was the aim of those who constructed the legal scaffolding for the market? And how did their political ideologies shape the wider transformation in Chilean politics in the 1980s and beyond?

In many ways, the water laws that promoted marketization reflected not only the junta's desire to roll back decades of state-led redistributive development, but to transform the social structure and perceptions of its people. A central figure in the secretive drafting of

the 1981 Water Code was Hernán Büchi, who would later become Pinochet's Minister of Finance (1985-1989).⁸ Büchi, a long-haired and introverted figure had been a radical left student at the University of Chile, before adopting the free-market doctrine of the Chicago Boys in his graduate training at Columbia in the U.S. and his association with the *Mont Pèlerin* Society (Mirowski and Plehwe 2015; Muñoz 2008). According to Büchi, Pinochet's economists wanted not to withdraw the state from economic life but to redeploy state power to reshape relations between state and society. The stated objective of the code was to create "solid water use rights in order to facilitate the proper operation of the market as an allocation mechanism" (Büchi, 1993, 85–87). But the wider intent was to reconstruct state-society relations at the level of behaviors and thought. Clark (2017) points to Büchi's memoir, *Economic Transformation of Chile: A Personal Account*, to reveal the intent of the reforms that economic technocrats pursued:

One has to recognize that the process of modernization in Chile, apart from a series of sectoral reforms, included a *serious attempt to modify the analytical and judgmental criteria of public opinion and to change the forms of thought in society* (Clark 2017; emphasis mine).

The 1981 Water Code, understood in that light, should be read not only as a legal and technical scaffolding for the commodification of water, but as part of a wider program of thought transformation in Chilean society. Achieving that transformation required not only technical expertise, but also an engineering of consensus to give it a chance of being accepted by the population, even under a coercive military state. Büchi elaborated on the importance of engineering consensus in his 1993 memoir, stating:

[8] Interview with political adviser, Santiago, April 2018

The successful completion of a transformation requires more than that it be properly conceived from a technical point of view... something more than good ideas is required. *A certain skill in generating consensus is also needed*—not just at the top levels, which was the kind of consensus the Chilean opposition was interested in at the time—but *especially at the grassroots level, among ordinary people* (Büchi 1993; emphasis mine).

These efforts at engineering wide public consensus would prove largely successful as depoliticization prevailed in efforts to reform the water law in the 1990s, the focus of the next section. For the purposes of understanding the political context of the legal reforms in water, at this stage it is instructive to review one final dimension of the military government's extensive efforts at depoliticization: coercion and violence.

Following its first four years of harassment, imprisonment, torture, and disappearance of its opponents, the junta declared all political parties dissolved. In the 1980 Constitution, severe limits were placed on citizen participation in “class-based, ideologically motivated or interest-oriented political groups, parties, or movements”, with the junta seeking to “exorcise the evil of ‘politics’ from the political process” (T. Davies and Loveman 1997). The sentiment behind the junta's purification of politics is perhaps best captured by the words of its leader. Speaking in Santiago in 1983 on the anniversary of his government's Constitution, Pinochet celebrated a form of politics he called “authoritarian democracy”. To avoid a return to more political times, the general promised to:

[Renovate] completely the institutional system, to the end of banishing forever the inveterate habits which are an inevitable consequence of the excesses which Chilean partisanship brought down upon itself during various generations (Ibid).

With the Congress closed and the junta taking violent measures to extinguish politics, the only permissible dissent during the military junta's years was that which took place within the junta itself. All other forms of disagreement were relegated to the margins. The junta's efforts were not entirely successful: pre-coup movements, groups, parties and ideologies survived, and some were emboldened. The politics that remained was pushed underground, notably to intellectuals and student movements, which had long played a vital role in Chilean politics (Davies and Loveman 1997). Tensions over private property rights in water rose throughout the 1980s, mainly through the judicial system rather than through social upheaval (Coleman 2012).

By the end of the 1980s, the junta had achieved a profound transformation of nature-society relations. It did so through promulgating a new Constitution that made political parties and dissent illegal. In the water sector, it launched a Water Code that assigned distributive political choices to the market. Those laws, taken together, were drenched in market fundamentalist political ideology but promoted as an apolitical technical apparatus. The construction of those laws was part of a wider effort to depoliticize nature-society relations by transforming the minds of the nation's people and reducing their capacity to imagine alternative configurations of power relations. That transformation in political thought, while never achieving full hegemony, would prove to be one of the military government's crowning successes by impinging on the imaginaries of permissible possibilities for decades to come.

2.4 Consolidating post-politics in water governance (1990-2010)

By the end of the 1980s, Chile's military government was losing legitimacy at home and abroad. At the urging of his advisers, Pinochet held a national plebiscite in October 1988, confident that he could cement his leadership. The general lost his bid to retain power, leading to a presidential election in December 1989, in which Hernán Büchi ran, and lost, as the center-right's candidate (Christian 1989).⁹ Democracy formally returned under the leadership of Patricio Aylwin, a Christian Democrat and nominee of the 17-party coalition that led the opposition to Pinochet in the 1988 plebiscite.¹⁰ The military agreed to transfer power to their democratic opponents only after the opponents had committed to following the legal rules in the 1980 Constitution and maintaining its free-market economic policies (Bauer 2015), protecting the legal-institutional framework put in place by Pinochet. A series of negotiated pacts between the opposition and Pinochet's regime resulted in a democracy heavily structured by the former dictatorship. These included the nation's "binomial system", the existence of designated senators, the state security council and the inability of the President to name the head of the army.¹¹

[9] Following Pinochet's failure to extend his rule for another 8 years in the 1988 plebiscite, the 1989 presidential election represented an opportunity for the regime to try again with a civilian candidate. In effect, the plebiscite followed by the 1989 presidential election gave the regime two chances at victory. They failed both times. For more, see *The Pinochet Regime* by Huneus and Sagaris (2007).

[10] Though Pinochet had outlawed political parties, he legalized political parties and political advertising in 1987 under increasing opposition pressure, especially at the international level. That legalization took place ahead of the 1988 national plebiscite in which the Chilean population would ultimately vote "No" on the question of whether Pinochet should extend his rule for another eight years. Despite the 13-year suspension, political parties did not disappear completely but worked in the shadows. The 1987 return prohibited parties from "ideologies that are of a totalitarian nature or based on class struggle", barring Marxist parties. (Associated Press 1987).

[11] Pinochet secured military interests before his departure, ensuring his continuation as Commander-in-Chief and establishing a number of former regime members as "senators for life."

In the two decades following the return to democracy, four center-left democratic governments led by the *Concertación* coalition (1990-2010) governed Chile, emphasizing the need for consensus, pragmatism and negotiation. Their economic platform focused on sharing the wealth of the nation gained through capitalist modernization. Their achievements in any key reforms, however, were limited. In successive administrations—Aylwin (1990-1994) on tax reform; Frei (1994-1999) on state modernization; Lagos (1999-2005) on health; Bachelet (2005-2010) on pensions—the *Concertación* failed to deliver any more than a modest correction of neoliberalism’s inequities (Garretón, Merckx, and Kellum 1989). For Undurraga (2015), the failure of the *Concertación* to deliver on its promises of structural transformation once it was in power can be attributed to the perceived fragility of democracy and the importance of Aylwin’s administration not appearing to seek political revenge. In particular, Minister Boeninger, Secretary of the Presidency (1990-1994) and right-hand man to Aylwin, promoted a “doctrine of demobilization” that stigmatized protest and social conflict, continuing the military’s ethos of demobilization (Undurraga 2015:21). Even within its own ranks, politicians in

His administration also established new electoral rules prior to the 1989 elections, known as the binomial system. Under that system, two senators and two deputies are elected from each district (60 for deputies and 19 for senators). The candidate with a plurality wins the first seat, but for a candidate from the same list to also win the second seat, she or he must receive twice the vote of the second-place candidate; if not, the seat goes to the third-place candidate. The binomial system thus favors the candidates of the parties of the right, the *Unión Demócrata Independiente* (UDI) and the *Renovación Nacional* (RN), which often place third after the candidates of the *Concertación*. The avowed rationale for the military’s imposition of the binomial system was to remedy the political polarization and ideological competition of the past by providing congressional representation to less popular political parties. For more, see Marcus (2004).

the *Concertación* that spoke out on structural reform were dismissed (Garretón, Merckx, and Kellum 1989; Saavedra 2012). For McSherry (1998), Chile's passage to new political arrangements represented a "guardian democracy", in which military power endured as a counterweight to popular majorities and the political space for opposition was heavily circumscribed.

Notwithstanding the *Concertación's* efforts to demobilize politics through the transition, civic groups and opposition politicians came forward to challenge neoliberal water laws almost immediately after the return to democracy. In 1991, the new government convened a public forum as part of the preparation of a national water policy that would set out principles to guide legal and policy reform in the water sector (Dirección General de Aguas 2014). At that time, the DGA expressed concerns about the juridical incoherency of the 1981 Water Code and urged reform:

Water's nature as national good for public use (*bien nacional de uso público*) is indisputable and it should be expected that it be safeguarded by legislation... as a vital and scarce resource it should be put at the service of the general interest of the country... consistent with the foregoing, access to exploitation rights must be linked to real needs and their protection fundamentally based on their exercise (Blanco 2017).

Then Director of the DGA, lawyer and scholar Gustavo Manríquez Lobos, put forth a legal reform proposal in the 1991 forum:

It is necessary to reaffirm the legal quality of the national good for public use of water and carry out corrections that make compatible acceptance of this principle with the current legal reality (Blanco 2017).

The government's first legislative efforts at reform were introduced in 1992, seeking to amend the status of water ownership in Article 19, No. 24 of the Constitution as well as aspects of the Water Code. Those efforts warned that existing water law risked sowing "seeds of conflict". The DGA argued that the state of affairs was socially unjust and economically undesirable, allowing private interests to profit from public property without performing a useful social function in return and thus holding back economic development (Bauer 1998). It proposed four major modifications: (i) to recover the legal status of national good of public use, require a justification of water rights at the moment of application, and the obligatory use of those rights; (ii) to assign ecological conservation responsibilities to the DGA for rivers and channels; (iii) to institute changes to the legal nature of river management organizations; and (iv) to propose regionally distinct water regulations, in line with Andres Bello's 1855 Civil Code (Biblioteca del Congreso Nacional 1992).

The 1992 proposal met strong opposition from both rightwing political parties, the *Renovación Nacional* (RN) and *Unión Demócrata Independiente* (UDI) as well as large agricultural interests led by the National Agricultural Society and Confederation of Irrigators (Bauer 1998).¹² Though many agriculturalists shared concerns about speculation, they rejected the solution as unconstitutional and in violation of private property rights laws enshrined in Pinochet's Constitution. By late 1993, the opposition

[12] The Independent Democratic Union (*Unión Demócrata Independiente*, UDI) is a Chilean right-wing, conservative political party, founded in 1983. Its founder was the lawyer, politician and law professor Jaime Guzmán, a civilian who collaborated with Augusto Pinochet and a member of the *Opus Dei*.

forced the government to withdraw its proposals. Under a new *Concertación* administration led by Eduardo Frei Ruiz-Tagle, a less ambitious proposal was presented to Congress in 1996. That reform moved away from assigning greater state oversight and towards “economic incentives”, i.e. an annual fee for non-use designed to curb speculation (Bauer 1998). Still, the opposition fiercely resisted the reforms, referring the case to the Constitutional Tribunal.

Years later, in a presentation to the World Bank, Humberto Peña (n.d.), ex-Director of the General Water Directorate (1994-2006), remarked that the legislative project was “long and laborious”, with over 300 sessions in Congress, 50 technical and legal studies, and several hundred of meetings with stakeholders over a 13 year period. A reform, far more modest than originally planned, was approved via Law 20.017 in June 2005. During those 13 years, according to Bauer (2015), the terms of debate “narrowed dramatically” from the original proposals in 1992, which had aimed to change core elements of the model. In an interview with me in 2018, Peña explained how several major barriers constrained the terms of debate and ultimately blocked a more ambitious reform.

It was not only the mathematics of formal political representation, but also the inertia of political ideology that would delimit the scope of debate so strongly. Within the *Concertación* itself, Peña had to convince factions of the administration that the state could legally take on a regulatory role with respect to water rights, calling on expertise from the CEPAL to support the idea of the state taking on a regulatory role. In the final moments of debate in 2005, the president of the Senate Finance Commission, Evelyn

Matthei, consulted with her former colleague, Hernán Büchi, by then quietly influencing public policy from the Institute of Freedom and Development (*Instituto Libertad y Desarrollo*) a think tank he created in 1990 to act as legislative branch to the conservative UDI party. The Institute, which is highly influential in shaping Chilean public policy and is the biggest think tank in the country, has close associations with the *Mont Pèlerin* Society and counts several neoliberal technocrats from Pinochet's regime among its experts (Couyoumdjian 2006; Dyble and Baugh 2011; Pössel and Carrera 2012). Among its strategic pillars, according to Büchi's co-founder Cristián Larroulet (Dyble and Baugh 2011) is to shape public policy in line with free market ideas through establishing "direct relationships with government, Congress, the judicial branch, the political parties, the communications media and universities". In contrast to other Chilean think tanks, the Institute's efforts are focused on intervening in the "daily battle" over specific public policies in Chile (Ibid.).

With Büchi's blessing, Matthei endorsed the 2005 reform, confident that it did not challenge the market logics inscribed in the water laws developed in the early 1980s.¹³

The final reform was hence one that had the backing of the gradualist democratic government as well as the primary architects of Pinochet's program of economic and

[13] Several analyses point to a close and long-term relationship (approx. 1990-2010) between Matthei and Büchi. Both are Swiss-Chileans and members of the conservative UDI. Büchi was Pinochet's finance minister 1985-1989, while Matthei is the daughter of General Fernando Matthei, Pinochet's Air Force Commander in Chief. In 2010, Matthei brokered a meeting between president Sebastián Piñera, and Büchi, who had been highly critical of Piñera's economic policy. The relationship between Matthei and Büchi soured when Büchi remained critical of the government. Matthei broke off relations with Büchi's think tank shortly after, stating that "I will not continue working with them as I think the institute should be a supporter of this government, but it's become the leader of the opposition" (Diario Charancillo 2010; C. Vergara, Labarca, and Marino 2010).

social transformation. It granted the president authority to exclude water resources from economic competition where it was in the public interest, initiated a fee to be charged for unused water rights, and obliged the DGA to ensure a 10 percent minimum ecological stream flow in most rivers where water was extracted. Crucially, the reforms were restricted to the issue of any *new* water rights. In practice, *existing* water rights accounted for the majority of water availability, and thus few *new* water rights could now be granted. The reforms therefore may represent too little too late, and have delivered little more than a symbolic impact (Budds 2004b; Hearne and Donoso 2005).

According to Bronwen Morgan (2011), major political decisions were taken during the 1990s in the interstices of technical and obscure legislation, in times of growing public discontent with privatization. In 1998, for instance, legislation that had maintained a ceiling on private ownership of shares in water operators (Law 19,549) was removed in a little-noticed bill passed with the stated aim of raising funds for social programs (Law 19,888 Article 5). That legislative move paved the way for the generalized privatization of urban water operators across the nation. In Santiago, Chile's capital and largest city, a Franco-Spanish group led by Suez Lyonnaise des Eaux (Suez), the French utilities and environmental services group, emerged as the victor in one of the world's largest water privatizations. Suez and Aguas de Barcelona of Spain (Agbar), in which Suez is the leading shareholder, agreed to pay US\$ 957 million for 42 percent of *Empresa Metropolitana de Obras Sanitarias* (EMOS), the state-owned water utility supplying Santiago. That acquisition formed Aguas Andinas (Cai, Ringler, and Rosegrant 2006), which consolidated its position over the next decade as it acquired other local municipal

water providers. The government pursued the privatization process despite the nation, under state ownership, having already achieved an average of 99.6 percent of urban water coverage and 93.3 percent of urban sewage coverage. The privatization announcement left Chile's coalition government in disarray and led the government to publicly call for its postponement (Kaffman 1999). The privatization was also opposed by water company workers, who went on strike (Hall and Lobina 2002). The unpopular privatization process would come to haunt president Frei, with opponents discrediting him during TV debates as he ran for another (non-consecutive) presidential term in 2009 (El Desconcierto 2014).

How did the privatization of EMOS succeed in 1999 without stronger political opposition, given its unpopularity among political parties and workers? Answers may be found in an examination of the political climate in the return to democracy. Paradoxically, according to Julia Paley (2001), the return to democracy was not accompanied by a rise in political participation, but a sharp reduction in political activity and solidarity, including the quieting of social movements. Paley examines that process of depoliticization, finding that collective action remained strong throughout the dictatorship, as clandestine survival centers emerged as nodes of protest and delegitimization of the regime, but that further political deactivation took place under the *Concertación*. The post-dictatorship quelling of politics was achieved through (i) the pact to continue the regime's political economic policies (ii) the loss of a strong and visible antagonist (the dictatorship's centralized state) (iii) the cooptation of citizens through political rhetoric and involvement in service delivery, to limit dissent and contestation from below. Such findings are backed by Paul Posner (2008) who finds that grassroots

politics disappeared under the new democracy with the institutional structures working against organization from below. Political alternatives, in the new democracy, could not viably be proposed when official discourses suggested that alternatives could allow the dark shadows of authoritarianism to resurface.

These interpretations are helpful for understanding the discursive terrain on which the water reform debate from 1990-2005 was undertaken. Writing in the mid-1990s, Bauer remarked that water had taken on greater national importance as the economic stakes rose with increasing demand and news media gave more attention to water issues. It was clear that the debate evoked ideological disagreements on issues including the 1967 Agrarian Reform, the dictatorship and the legacy of the Chicago Boys (Bauer 1998: 70-71). However, the parameters of debate were severely limited in the corridors of power. In a review, Budds (2013) reports that the media debate on the future of water law during that time elevated the views of technocrats and vested interests. The conservative media, which had taken CIA funds to destabilize Chilean democracy in the early 1970s, granted a prominent role to “experts”, “specialists” and “professionals”—economists and lawyers from politically oriented think tanks and private sector entities—with an interest in maintaining neoliberal water laws. Interest groups mobilized their experts to stress that the reforms were unconstitutional as they violated individual liberties to property rights. Their inputs were consistently framed in terms of “technical” knowledge and contrasted with the views of mere “officials” from organizations in favor of the reforms, including the DGA and the Institute of Engineers (*Ibid.*)

What is striking in the debates on water laws, both in media and in policy inputs, is the absence of viewpoints from average citizens who stood to win or lose from the reforms. Along with the Institute of Engineers, the CEPAL provided important input into the political debate.¹⁴ In a highly influential report entitled *The Chilean Water Code: Between Ideology and Reality* (Dourojeanni and Jouravlev 1999), which served as an input into the debate on the Water Code, CEPAL researchers examined the impacts of neoliberal water laws to date. They mentioned that the population most impacted by those laws were “smallholder farmers, who may not have had the knowledge of the need to, nor the economic or administrative resources to, formalize their water rights” and expressed concern that indigenous communities had been displaced when their ancestral waters had been inscribed by mining companies and other private entities (Jorquera 1993; Toledo 1996; in Dourojeanni and Jouravlev 1999). It is unclear how, if at all, their voices were included in the policy debate on the future of water law in the early 2000s. The exclusion of average citizens who stood to win or lose from the reforms can be understood in relation to Paley’s finding that, in the transition to democracy, the citizenry was reframed as non-knowledgeable subjects and only the objects of studies, as the “professionalization of knowledge” was consolidated and Chilean society came to value above all a formal, “neutral” technical knowledge that excluded informal or experiential knowledge.

Throughout the efforts at reform, political discourse was systematically reduced from complex moral, political claims, to fit a narrow consensual post-politicizing manner of dealing with things. This depoliticization fits a wider context in post-dictatorship Chile,

[14] Interview with Humberto Peña, former Director of DGA, Santiago, November 2018.

where conflict was seen as dangerous, and a careful consensus was engineered. In contextualizing the pursuit of reforming water laws, we can understand the techno-managerial approach as a symptom of a highly de-politicized form of governance that prevailed in Chilean society and politics.

There is an enduring path dependency of the water laws from the early 1980s. In the view of Hearne and Donoso (2005), who favor maintenance of those laws with subtle corrections, reform of the water sector will ultimately be dependent on reforms of Pinochet's Constitution. The historical political moment of market fundamentalism and depoliticization captured through that Constitution and the water laws that followed, they suggest, will "endure and impede any evolutionary change in water law". Their view on path dependency echoes that of Büchi, who, in the second edition of his memoir on the transformation he helped to architect in Chile, remarked that the reforms implemented under Pinochet were not owned by any specific group or political party but to "the people" (Büchi 2012). Ideally, he continued, those reforms become "an integral part of the country" such that the people rationally defend them rather than seek to undermine them through the political process. The dictatorship's achievements in legal change, thus understood, articulated not only around the conquest of water resources for extraction and wealth accumulation but also around the production of a new post-political climate for the nation. That post-political climate, until around 2010, had appeared to be largely impenetrable.

2.5 The “fearless generation” and the challenge to post-politics

Hopes for a fairer future in water management, it seemed, had been extinguished with the reduction of 1992 proposals to a modest reform in 2005. In the years that followed that reform, however, a politicization of water issues appeared to accompany a wider political uprising. As in the late 1960s, when the effects of a devastating drought combined with a moment of state action to rewrite the nation’s water laws, a prolonged shortage of precipitation—the 2008-2018 “mega-drought”—contributed to the renewal of political mobilization against existing water laws.

That process of politicization must also be understood in relation to a new wave of environmental action as well as the student movement discussed previously. In Coyhaique, Chile’s gateway to its rugged Patagonian south, an environmental commission gathered on 9 May 2011 to consider HidroAysén, a mega-project that would dam the Baker and Pascua, two of the nation’s most pristine and powerful rivers (Schaeffer 2017, Reuters 2011). Backed by President Sebastian Piñera, The World Bank, and Chile’s energy industry, the project was slated to send electricity 2,200 kilometers north to serve Chile’s expanding urban centers and booming copper industry (Lowrey-Evans 2012; Barrionuevo 2011a; Enríquez-Ominami 2011). In a televised broadcast that day, the commissioners approved the project with 11 votes in favor and one abstention (Associated Press 2011). Protestors took to the streets across the country, on a day that would set in motion the largest environmental movement in Chile’s history. Across the world, solidarity protests were held in support of the anti-dam masses, from Buenos Aires to Barcelona, San Francisco, and Stockholm (Barrionuevo 2011, Schaeffer 2017).

Eleven days later, as Piñera prepared to deliver his State of the Nation speech to Congress in the coastal city of Valparaíso, 40,000 protestors marched against HidroAysén in the Chilean capital. The following day, students marched in even larger numbers to demand an overhaul of the nation's profit-driven educational system that gave rise to the world's proportionally most expensive university education (Goldman 2012; Barrionuevo 2011b). In the weeks and months that followed, Chilean youth, often clad in superhero costumes, would engage in mass kiss-ins, pillow fights, artistic performances, and hunger strikes in their protest against profit-driven education (Taylor 2011; Franklin 2011; Long 2011; Bellei, Cabalin, and Orellana 2014).

So began the “Chilean Winter”, the 2011-2013 period of uprising that awakened the political consciousness of one of Latin America's most politically dormant nations. Weaving together disparate social and ecological concerns, a generation of youth leaders would go on to organize collective action that railed not only against dams and profiteering education, but against other aspects of the cozy politics of nominal consensus at the core of Chile's neoliberal political economy, including its water laws. In the words of Camila Vallejo, a 24-year old student and joint leader of the movement, “The people woke up. Lost their fears. Questioned the model” (Franklin 2012; Padgett 2012).

The loss of fear of the current generation of protestors has been examined in detail by Cummings (2015) who attributes the social mobilization and politicization to generational change. Cummings posits that the generation born after the end of the

dictatorship worried far less than their parents about (i) the potentially destabilizing consequences of protest action (ii) fears of torture and repression that were hallmarks of the response to protest under Pinochet. Such findings build on existing literatures on the generational impact of political violence and trauma on worldviews and activism (e.g. Edelman et al. 2003; Collins, Hite, and Joignant 2014; Humphrey 2013).

That seemingly fearless attitude, reflected across the student and ecological movements, would soon lead to storm clouds gathering over the nation's waters. For decades, the assumption had prevailed that Chile's water management model delivered a global standard for improving and developing society towards capitalist modernity. The Chilean Model, as it became known in the 1990s, had been seen as ripe for export by international policy think tanks and international development organizations. However, since around 2011, this wisdom would come to look increasingly suspect: the very society held up as the main beneficiary of that model was expressing widespread discontent at its outcomes, manifest through protest and congressional processes.

As Chile's central valley battled with the worst drought since the 1960s, frustration was growing over alleged hoarding of water rights, speculation and profiteering. On 22 April 2013, Earth Day, communities marched from the north and southern periphery of Santiago's metropolitan region, coming together symbolically with urban organizations in a gathering of hundreds of student, environmental, and indigenous organizations in the first *March for the Defense and Recovery of Water and Life*. Among its organizers was Camila Vallejo, the former student leader by then featured in the list of "people who

mattered” in Time Magazine’s person of the year (TIME Magazine 2011). The movement’s demands included the abolishment of laws that commodified water resources and privatized water companies, institutional restructuring in favor of common management, and an end to the criminalization of protest (Observatorio Latinoamericano de Conflictos Ambientales 2013; Jarroud 2013; Ruiz 2013).

In the midst of the uprisings of the Chilean Winter, presidential candidate Michelle Bachelet appeared to sense the growing desire for an overhaul of inherited institutions. In August 2013, the candidate announced her intention to run on a political platform that, among other promises, would “guarantee the human right to water, and make clear that water [was] not a commodity but a social right”. In her first address to the nation after being elected, Bachelet recognized water to be “national property of public use” and promised to significantly modify the decades-old laws that governed Chile’s water (Superintendencia de Servicios Sanitarios 2014; Diario U Chile 2014; San Juan 2014). Following her election, Bachelet appeared to follow rhetoric with action, appointing a Water Czar charged with developing a proposal for water law reform. Four months into Bachelet’s second mandate, Daniel Núñez, a member of the lower house of Congress and of the governing coalition, remarked at the *Congreso del Agua*, addressing a high-level gathering of government, mayors, and activists:

We will resolve the emergency, as urgently as possible, so that each one of you has water, a human right. The new Water Code, which is a fair demand, and a tremendous necessity, will require a new Constitution... because in the Constitution we have, private property is worth more than the right to water (Terra Verde 2014; own translation).

While the final shape of any reform would depend on congressional process, the proposals notably included the ambitious step of constitutional reform. Such a reform, if enacted, could pave the way for transformational change in water law and in urban politics more generally. Earlier efforts at reforming water laws had failed. But Bachelet's government was aware that the political climate was rapidly changing. The "democracy of consensus" that steered Chile through its first sixteen years of post-Pinochet politics had prioritized broad agreements with the right-wing and remnants of the dictatorship. That consensus experienced its first major challenge in 2006, when high school students protested against the inequities in education produced through market-based educational system locked into law in the dictatorship's final days (O. Sepúlveda 2006).¹⁵

Over a ninety-day period that would become known as the *Movimiento Pingüino*, or March of the Penguins (an ode to the students' black and white school uniforms) students raged against rising out of pocket expenses in an increasingly market-based educational system. Successive *Concertación* governments had raised fees for school transportation and college placement tests and left school buildings to deteriorate, creating an educational system that, in the words of one organizer, had become "too similar to South African apartheid". The government's proposal was that the movement demobilize before any negotiations would take place, but the students resisted, continued to protest and occupy schools, and the occupations spread nationwide. Over a three-week period from

[15] In its last days in power in 1990, the military government locked in educational reforms through an act known as the Organic Constitutional Law on Education (LOCE) that requires a supermajority in Congress to reform it.

late April 2006, thousands of students participated in weekly marches in Santiago and the government beat them back with water cannons, tear gas, violence, and arrests.

When the Ministry of Education convened a meeting with the student leaders, the Minister, Martín Zilic, did not turn up and only some of the student representatives were allowed in. The government's approach to the meeting "caused fury in the movement". In late May 2006, the students called for a national student strike and imposed new conditions for negotiation, including a demand that the Minister come in person and that negotiations be halted if he left the room for cigarette breaks or consultations. On 30 May 2006, 790,000 students struck, marched and occupied schools throughout the country, including the Liceo No.1 girls' school, which president Bachelet herself had attended. The Minister of Education finally agreed to meet with the students at the National Library—a site of the students' choosing—as battle raged on the streets outside. Popular opinion sided with the students, who found teachers, parents associations and workers unions vocalizing support in solidarity. The repressive police forces backed off. By 5 June 2006, the movement had forced Congress to hold an emergency session in which members approved a path ahead to meet the immediate demands of the students. For the poorest 80 percent of high school students, the movement won, among other gains, free transportation and grants to pay for college placement tests.

Concretely, the movement had made gains in moving the government's position from "there is no money" to those significant concessions (Olivares 2006). It had also forced the president to establish a presidential advisory committee, with student representation,

to propose responses to the students' long-term demands. The citizen participation was a new precedent in post-Pinochet Chilean politics. The movement also had an impact on the composition of government: after less than three months in power, several members of the administration were removed. Most tellingly, the biggest achievement was the students' demonstrated ability to question the legacy of the dictatorship in educational policy that had survived since the return to democracy (Moreno 2006). In leading the "biggest student mobilization since 1972", the students had "changed the face of Chilean politics" (O. Sepúlveda 2006). The gains were far from acceptable to the students. But their political work had opened the door of something much larger (Olivares 2006):

The fact that we managed to question this pillar of the regime, of Pinochet's Constitution, is a tremendous victory that shakes Chile like nothing has since before the dictatorship, and opens the door to a democratizing revolution in our country.

The *Movimiento Pingüino* was credited for laying the groundwork for the more protracted cycle of protests that university leaders led from 2010, demanding a new Constitution and major reforms in higher education. A group of key student leaders went on to hold positions of power in government when former student leaders were elected to the lower house of Congress and went on to advocate for reforms to education as well as the political process more broadly.¹⁶ In one of the most significant reforms to Chilean politics, the new generation of leaders played a decisive role in pushing through the 2015 electoral reform law, ending the binomial system inherited from Pinochet's legacy and

[16] Two of the new deputies, Gabriel Boric and Giorgio Jackson won seats as independents while Camila Vallejo and Karol Cariola won seats with the Communist Party, which joined Bachelet's governing coalition in 2013.

which overrepresented conservative interests and which successive governments of the *Concertación* had failed in many attempts since 1990 (Gamboa 2009).

The new generation of politicized youth had a sweeping effect in challenging the hegemony of post-political governance that had dominated for decades. Now, for the first time since Chile's return to formal democratic politics in 1990, overtly politicized struggle began to play out in relation to water. On one side of the struggle, insurgent political movements are campaigning for the abolishment of the country's dictatorship-era water laws. On the other, economic elites and their political allies aim to retain the legal-institutional status quo. In sharp contrast to the early 1990s, when major water law reforms failed to pass in Congress, popular movements are emboldened and the socio-natural conditions are such that much of the population is directly experiencing water deprivation. The hyper-inequality in water consumption between rich and poor is increasingly highlighted in progressive media, while a number of factors have led public sentiment against the privatized model. In a recent poll, 74 percent of Chileans said they supported a return to public ownership of water (Mayol 2016). Insurgent political movements and their allies are now focused on transforming the institutions of Chile's water governance regime in ways that re-establish water as a social need instead of a profit-generating commodity.

Leaders of the movements currently challenging neoliberal water laws draw clear associations between the insurgency of student movements and the politicization of water law in recent years. Rodrigo Faúndez, activist and spokesperson for the Movement for

the Recovery of Water, remarked:

We called the 1990s the 'lost generation'. Now, there's a politically active youth that understands its role, which validates mobilization and has some distance from the criminalization of protest in the 1990s. I'm not sure it's a generation 'without fear' as they say, but certainly it's a generation with 'less fear than before'. The student movement is a really powerful movement of that loss of fear... we [the water movement] were born in that same time, and we all had political experience in the student movement. Our strategy began with getting water on the table as a political issue.

Faúndez's perspectives on political tensions on water appear to confirm that what is at stake is far more than debates around optimizing water management witnessed in urban contexts elsewhere. Rather, the newly-politicized struggle has seen a surge in discourse around hitherto sidelined issues including questioning the legitimacy of private water companies, the potential to radically reform constitutional-level protections on property rights, and continuing unrest on the streets of Santiago challenging wider issues of extractive neoliberal development.

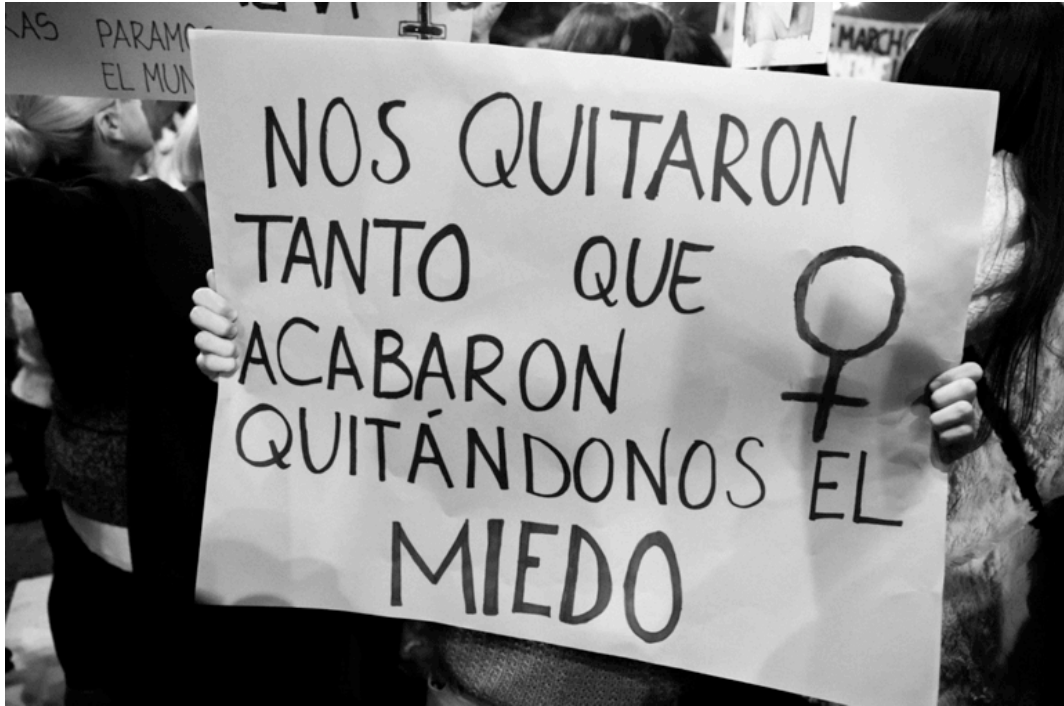


Figure 5: “They took so much from us that they ended up taking away our fear”, a sentiment common to the new generation of politicized students. Protest sign from the 2018 march for a non-sexist education in Santiago (www.amandalabarca.org)

These phenomena appear to parallel what urban theorists have termed re-politicization: a process through which “the political” returns as the “immanent terrain for the expression of social antagonism and for the egalitarian staging of disagreement” (Swyngedouw 2018). Events in Santiago represent a process through which agonistic conflict erupts as established relations of power are challenged by insurgent political movements, giving rise to possibilities for transformational change in inherited institutions. Such transformations may hold the promise of reconfiguring political choices about where water flows; the norms and laws on which such choices are based; and the legitimacy of the groups and individuals deemed qualified to influence such choices.

The re-politicization of urban water in Chile makes for a compelling phenomenon of study, owing to the historical significance of the nation's water regime as the original experiment and inspiration for the past several decades of global efforts in water commodification. Transformations being pursued from below in Chile, if achieved in full or in part, may pose a counterpunch to the dominance and continued legitimacy of that neoliberal form of water management. Moreover, the struggle over urban water offers a window onto understanding insurgent movements' pursuit of alternative constellations of power between the institutions of state, market and civil society. The dynamics of re-politicization, examined in several dimensions and across multiple scales in the following chapters, are central to the contemporary urban political moment.

A vignette: The view from HQ looking down

I got up from my desk and made my way across to the twelfth floor window. It was a mid-morning in late April and the aroma of fresh ground coffee travelled from the tiny kitchen where my colleagues were gathered. I pulled back the blinds at the vacant workspace at the edge of the room. The blinds were warm to the touch from the still harsh fall rays in Chile's central valley. I squinted, scanning the streets, but all was quiet below. I wondered if my colleagues would find themselves in the crosshairs today.

I closed my laptop and put it in the desk drawer, pretending to lock it as I put my notepad in my satchel. I'd never actually been given a desk key, as a temporary visitor with a keycard that would grant me entry for only four months, and I cared more about the news I had been reading on the laptop that morning than the machine itself. It was the day of the eighth annual march for the recovery of water, a tradition stemming back to 2010 when 80 civil society organizations gathered together aiming to take down the country's privatized water system. Twitter informed me the protest should be a particularly big one, now that Piñera's new government was threatening to shut down the almost-complete reform to the Water Code that began in Congress in 2011. Aguas Andinas had been a target of protests in recent years. How might they fare today?

The elevator stopped on the way down on the ninth and sixth floors. These were parts of the company I'd never seen the inside of, but I imagined they might be full of young professionals wearing headsets and responding to customers complaining about water bills. A 10-inch screen played in the top-right corner of the elevator, broadcasting a loop

of the “*Vaso medio lleno*” (glass half full) campaign with a soft typeset font and smiling glass that told us about the millions the company had invested in infrastructure to combat climate-related storms. On the ground floor, I scanned my security pass at the turnstile in the marble entranceway and stepped outside as my eyes adjusted to the bright late morning rays.

I made my way on foot towards *Plaza Baquedano*, the gathering point of protestors, according to the latest post I’d now seen on Facebook. I glanced back to the red brick building of Aguas Andinas, one of two twin towers built in the late 1990s. I had a good sense, by now, that many in the capital had little affection for the company. But I wasn’t clear who the protestors were directing their ire at. Was it the engineer seated next to me manipulating excel spreadsheets, or his manager who used those sheets to negotiate tariffs with the regulator in order to pay for new infrastructures in the coming years? Was it the IT guy with the forearm tattoos who rode to work on a fixed wheel bicycle? Or was it my manager—a long time engineer in the water industry who had worked here when it was a public utility and now found himself working in the service of investors and shareholders in Barcelona, Paris, and beyond?

A recent critique of quite a different industry—the industrial meat industry—came to mind as I pondered how vastly *removed* the water providers were from water users. I wondered: “What if these red brick walls were transparent?”¹⁷ What difference would it

[17] In *The Omnivore's Dilemma: A Natural History of Four Meals*, Michael Pollan (2006) states: “The industrialization—and brutalization—of animals in America is a relatively new, evitable, and local phenomenon ... No other people in history has lived at quite so great a remove

make if the protestors could see inside the company walls and listen in on my colleagues' chatter at the coffee machine? What if, when hundreds of protestors gathered on the streets below in years past, they knew more about how the company's employees were dealing with the issues causing them such angst? What if, when the water company's headquarters was bombed back in the early 2000s, the attackers had first seen through the walls to planners, engineers, and lawyers reporting for their day's work? As I examined the views of the protest movements, I also wondered how the company—whose responsibility it was to provide the city's residents with an uninterrupted water supply—was making sense of the conflict on the streets. Could the tools of ethnography be put to work in uncovering how the company understood its relationship with its consumers? How it understood politics and this moment of apparent crisis? The following chapter is an attempt to uncover how a water company sees: how it sees itself, how it sees crisis, how it sees its customers, how it influences discourses and how it executes its planning functions. If we could break open its interpretive grid, might we be better prepared to understand how the company, together with its allies, is seeking to shape the future of the urban water industry?

from the animals they eat. Were the walls of our meat industry to become transparent, literally or even figuratively, we would not long continue to raise, kill, and eat animals the way we do.”

CHAPTER 3: SEEING LIKE A WATER COMPANY: CONSTRUCTING CRISIS AND PERFORMING PLANNING IN POLITICIZING TIMES

3.1 Maximum emergency

On a Friday in late May, 2008, a million schoolchildren awoke in Santiago, Chile, to news that school was cancelled (El Mercurio 2008b). Thousands of miners at *El Teniente*, the world's largest underground copper mine 120km south east of Santiago, too, had the day off (EFE 2008). The military was put on standby. Floods extended throughout the capital, as heavy rains led the Maipo River to more than treble in size to 427 m³/s (CIPER 2016; El Mercurio 2008b). The floods were bad, but not, it turned out, the major headache for Santiago's authorities. Amidst historic rainfall, the city was exposed to problem it was not prepared for: massive, widespread cuts in water supplies.

“We are in maximum emergency”, announced Felipe Larraín, CEO of Aguas Andinas, the private company that supplied water to the city (El Mercurio 2008b) as the taps ran dry for an unprecedented 1.8 million people (Deutsche Presse 2008). In a metropolis whose water supply system was used to being the poster child throughout Latin America, authorities scrambled to position emergency water trucks, tanks, and workers to distribute water to desperate citizens in neighborhood squares throughout the city.

On the sixteenth floor of the company's HQ, a group of managers gathered in the crisis room, a glass-walled container that seemed to resemble either a fish bowl, or a water

drop.¹⁸ Engineers manned computers in the adjacent control room, watching as indicators spiked off the charts on the wall of screens in front of them and they took the ominous step measure of shutting down the water intake structures. From Thursday 22 to Saturday 24 May, the blackout in water supplies continued. The reaction from the city population and authorities was one of outrage and confusion. In the neighborhood of *Estación Central*, in the city center, hundreds of neighbors, together with their mayor, tabled a lawsuit against Aguas Andinas in Santiago’s Court of Appeals seeking punitive measures against the company for failing to have a contingency plan in place (UPI Chile 2008).

A spokesperson from the *Moneda* intervened, saying it would be disgraceful if Aguas Andinas were to charge its customers the full month.¹⁹ The national government, though it had no legal basis to do so, requested that the company reduce its monthly bill for customers throughout Santiago (Ramírez Contreras 2008). The regulator, the *Superintendencia de Servicios Sanitarios* (SISS) launched an investigation into Aguas Andinas’ performance (SISS 2008a), finding that the company did not inform its clients opportunely of the cuts in service, nor where to seek alternative water supplies. The company was fined approximately US\$ 84,000 for its role in causing “public commotion” and “bewilderment” (SISS 2009c).

The emergency was caused, according to Aguas Andinas, by a sudden spike of turbidity—or suspended particulates—in the Maipo River where the company sources 80 percent of the city’s drinking water. Never in recorded history, the company claimed, had

[18] Interview with staff of Aguas Andinas planning department, Santiago, May 2018.

[19] Chile’s presidential palace

such an extreme level of turbidity caused them to cut off the city's water. In its annual report of 2008, the company assured its investors that it possessed enough water rights and the technical and human capacity for "overcoming critical situations".

Over the following years, however, the problem would not be overcome. In fact, Santiago—the only capital city in South America that is part of the elite OECD club—with a modern water supply system the envy of many, was caught off guard repeatedly. In 2013, heavy rains left 4 million people in the city without running water (UPI Chile 2013). In April 2016, the same number were affected again (ABC News 2016). In February 2017 and April 2017, the same again (BBC 2017; NPR 2017). Despite the SISS fining Aguas Andinas, and compelling it to make new infrastructural investments, the crisis continued and the city's population became increasingly agitated. Aguas Andinas found itself under the microscope, losing legitimacy, and subject to political threats to reform the regulatory environment it operated in. How did the city's authorities and the company attempt to comprehend and arrest the original problem? And almost a decade on, how did they fail so spectacularly to address the underlying causes of the crisis?

In responding to those questions, I first review the immediate reaction to the 2008 crisis, when efforts were channeled towards containing the blackout in water supply. I then examine how relevant authorities—in this case the SISS and Aguas Andinas—framed excessive turbidity in the Maipo River as a public policy issue and went about exploring, and then planning, potential solutions. Aguas Andinas' approach was to cast "climate" and "turbidity" as the problem and to design and construct larger infrastructures. I argue

that the water “crisis” was essentialized and de-politicized through the performance of a particular mode of planning that reduces complex socio-natural relations to problems that can be dealt with only by mega-infrastructures. Through that performative maneuver, the authorities and water company seek to place beyond reproach the inherited laws and the discourses that contribute to destructive hydro-social arrangements today.

I demonstrate how, in times of so-called “crisis” or “emergency”, a discourse of “climate-as-villain” is constructed and deployed in public policy debates with wide-reaching political effects. In a system of urban governance that I characterized in the previous chapter—at least in the decades leading up to the present—as post-political, that discourse dominates at the expense of other ways of seeing, reasoning, and imagining political alternatives. The climate-as-villain discourse advanced by Aguas Andinas and the regulator, the SISA, conceals a range of political assumptions and worldviews behind a veneer of objectivity that politicians, regulators, and others take for granted. The company’s deployment of that discourse is a highly political move that proves effective in promoting US\$ 200 million investments in mega-infrastructures that consolidate the guaranteed profits that Aguas Andinas has become accustomed to under Chile’s pro-business regulatory environment. Employees of Aguas Andinas, I show, understand the contingent character of their technical authority, express doubts about the veracity of the company’s claims, and understand how public perception is key to delivering a future that protects the company’s social legitimacy and financial stability to continue operating in Santiago.

The company's and regulator's efforts to depoliticize the water "crisis", however, was not wholly convincing to the city population that would ultimately pay for the new infrastructure through higher tariffs. Drawing on alternative media, counter-expertise, and expressing their claims through protest and performance, groups affected by water cuts drew attention to the wider political and legal institutional legacy in water governance. In doing so, they paved the way for larger challenges to the future of Chile's highly privatized, lightly regulated and depoliticizing urban water governance arrangements.

3.2 Aguas Andinas and the city's water supply network

Aguas Andinas' headquarters is located a short walk from the *Estación Central*, in the bustling center of Santiago, home to its fish market and street vendors. The building that houses it was constructed on the site of the old *Carcél Pública de Santiago*, the city's prison from 1892 until its demolition in 1994. The site was a prime location for the crimes of detention and torture during Pinochet's dictatorship. The prison was razed to the ground in 1994 before the towers were constructed in 1997.

I first became aware of the company back in 2014, when I travelled to the Chilean capital to research wider planning issues in the city relating to efforts to confront various climatic risks. Three years later, in a conversation in an apartment next door to my own in Cambridge, Massachusetts, an acquaintance from a graduate seminar in political science told me he was chairing a start-up and innovation event in Santiago, Chile, and asked me if I knew anything about innovation in water. I said that I didn't. But I did offer to chat with the organizer of the water track and met up with her several days later. I spelled out

what I saw as some issues facing the capital city's continued water provision in light of melting glaciers and rising conflict, and urged her to explore the idea of innovation beyond technical issues, i.e. in the regulatory and political sphere. Based on what I heard from citizens in Santiago concerned about the city's water supplies, I recommended a few people they may wish to consider for the panel and some Chilean academics that might be suitable to moderate it. Following our discussion, they invited someone from Aguas Andinas to discuss innovation and water alongside some representatives from civil society organizations. In the end, the organizers asked me to moderate the panel and I accepted the invitation. The panel would prove to be my initial point of *entrée* for much of my fieldwork.

I contacted human resources at Aguas Andinas in late 2017, wondering if I could enter the company as an intern or as a consultant. I told them I was interested in issues of governance, politics, and planning for the long-term future of the city's water. Could they accommodate me for a few months? I thought it was an audacious ask, considering I had published work that raised critical questions about Chile's water management. Following an interview with human resources, I agreed to spend four months in the planning department of the company, potentially contributing to the company's thinking on issues of sustainability, climate change and water crisis. My presence alongside engineers, lawyers and economists in the company dealing in these issues day to day in the company's headquarters would prove insightful in understanding the company's response to contemporary natural and political challenges.

Santiago's water company can be traced back to 1861, with the creation of the *Empresa de Agua Potable de Santiago*. The company installed the city's first municipal taps in 1908, reaching 1,112 homes in its first year (Gran Santiago 2016). In 1917, the Laguna Negra aqueduct was inaugurated, conveying 4 m³/s freshwater a distance of 87km from the Andean cordillera (Fernández Domingo 2015).²⁰ In 1947, the first water treatment plant—Las Vizcachas—was inaugurated to draw water from the Maipo River (Dirección General de Obras Públicas 1952). The city's water company was renamed the *Empresa Metropolitana de Obras Sanitarias* (EMOS) in 1977 and corporatized in 1989 (Pflieger 2008). By that time, public investments, including support from World Bank loans, saw municipal water coverage reach 98 percent of the population in Santiago's metropolitan region.

When the Chilean government began privatizing water utilities in the late 1990s, the *Sociedad Inversiones Aguas Metropolitanas Ltda.*, controlled by the Agbar Group (50 percent) and Suez (50 percent) acquired 51.2 percent of EMOS for US\$ 1,125 million (Aguas Andinas 2002). In 2002, following a corporate restructuring and reorganization of staffing, the company changed its name to *Aguas Andinas*. The company has, since then, been held up as a model of neoliberal water management—a case where a private corporation can successfully manage water and sewage water treatment in a major city. Santiago's residents are said to receive some of the best drinking water in Latin America, though they also pay some of the highest rates (Lefew and Brook 2017). *Aguas Andinas*

[20] Around 1940, a section of the aqueduct was damaged and replaced with open channel. The open channel—antiguo Canal Romanzas—suffered from excessive turbidity during periods of glacial melt, leading it to be abandoned in 1960. In 1986, a second open channel—nuevo Canal Romanzas—was constructed at a higher altitude to overcome damage due to excessive turbidity.

now serves approximately 6 million people throughout the Metropolitan Region, equating to approximately 80 percent of the city's residents.²¹

Water availability and quality is governed under Law 18,902 (27 Jan 1990) through which the *Superintendencia de Servicios Sanitarios* (SISS) was created. The SISS oversees the private companies that provide urban water services throughout Chile, in terms of the water quality and price. For Aguas Andinas to meet its obligations to supply potable water around the clock, presently it must generate 15 m³/s in winter and 20 m³/s in summer months. Around 80 percent of its water comes from the Maipo River, which has an average turbidity of 100-200 NTU. The water is treated at Las Vizcachas, where potable water is produced, before it is distributed to the city. See Cembrano et al. (2006) for a more detailed description of Santiago's water supply system.

[21] In the neighborhoods of Maipú and Cerillos, part of San Bernardo and Estación Central, water is provided by smaller entities including the state- and worker-owned water utility SMAPA.

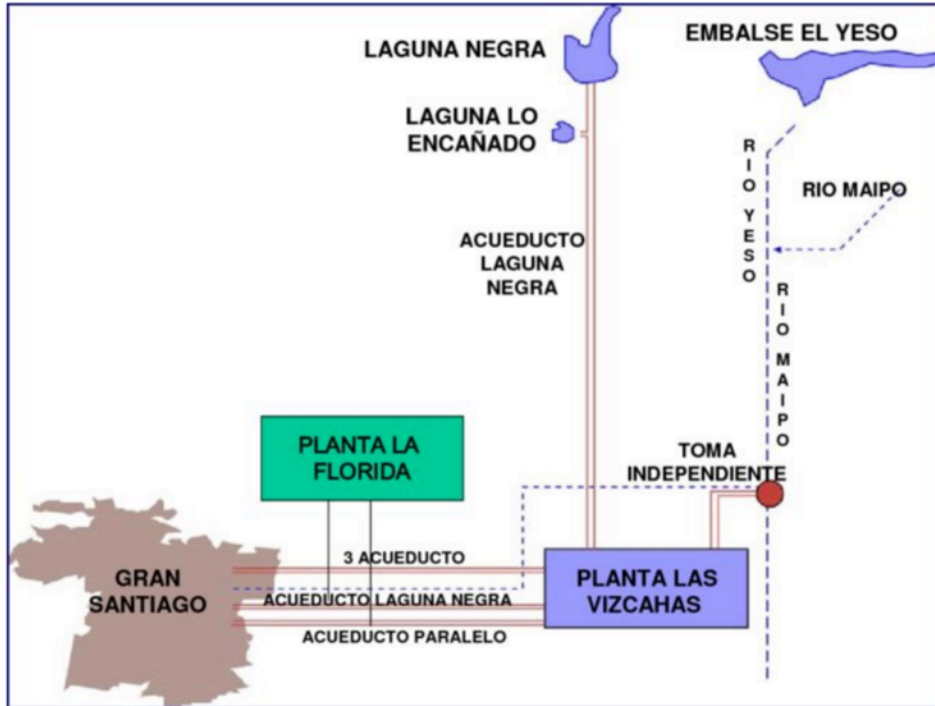


Figure 6: Schematic of Santiago's water supply system (Cembrano et al. 2006)



Figure 7: El Yeso Dam, high in the mountainous upper catchment of the Maipo River, owned and managed by Aguas Andinas (Photo by Author, May 2018).

3.3 Making sense of the crisis

In my first week of fieldwork at Aguas Andinas in 2018, a senior member of the planning staff told me of his shock at the events that transpired ten years prior, when a turbidity spike took the city's authorities and the water company entirely by surprise. The company had been researching the impacts of climate change on operational risk for several years but had not come across the phenomenon of intensifying convective rains (*lluvias convectivas*) that were later blamed for the spike in river turbidity. Could Aguas Andinas and the city reasonably have expected the turbidity phenomenon to occur in the Maipo River basin?

A starting point to answering that question is the Intergovernmental Panel on Climate Change (IPCC) Working Group II report, which reflects the state of knowledge on climate change and adaptation needs at the time. The IPCC's 2007 report cites a comparative study on Andean glaciers by a team of French hydrologists (Coudrain, Francou, and Kundzewicz 2005) and notes a rise in the zero isotherm in the Bolivian Andes in association with glacier retreat (Vuille et al. 2003). The former of those two reports cites a study at the *Centro de Estudios Científicos* in Southern Chile by meteorologists and climatologists (Carrasco, Casassa, and Quintana 2005) which examined radiosound data for central Chile to find that the elevation of the zero isotherm increased from $122 \pm 8\text{m}$ in winter and $200 \pm 6\text{m}$ in summer, from 1975 to 2001. Precipitation events in the Andes, it reported, were becoming "less frequent but more intense". Beyond that statement, however, none of the above reports mentions an expected increase in turbidity in surface water emanating from convective rains in the

Andes.²² Staff in the planning department at Aguas Andinas stressed continually that, prior to 2008, there existed no records of high turbidity events that led to any interruption in potable water supplies.²³ What had changed, since the entire duration of those historical records, to cause turbidity to become such an issue for the city's water supplies?

Turbidity, like sediment generally, is something that water operators deal with on a regular basis in withdrawing surface water from rivers to generate potable water supplies. Domestic and international guidance exists for turbidity, and engineers and managers are schooled to transform raw water to potable water with acceptable turbidity levels. The World Health Organization defines turbidity in water supply as follows:

Turbidity, which is caused by suspended chemical and biological particles, can have both water safety and aesthetic implications for drinking-water supplies. Turbidity itself does not always represent a direct risk to public health; however, it can indicate the presence of pathogenic microorganisms and be an effective indicator of hazardous events

[22] In subsequent years more research would be evidenced on the phenomenon of convective rains. In the set of landmark IPCC reports, the term first appeared in the organization's fifth assessment report (AR5) in 2014, in relation to flood risks due to convective storms in Australia.

[23] Interviews with planning staff of Aguas Andinas, Santiago, March and April 2018. Such a statement speaks to the staff's perceived shock at water's behavior, but appears to be historically inaccurate. Potable water was cut for several days in areas of Santiago in November 1987 (in the neighborhoods of Ñuñoa, Peñalolén, Isla de Maipo, San Luis de Macul, Puente Alto y La Florida) due to extreme high river flow and associated avalanches of snow, rock and earth (Bustos Cavada 2011). Again, in May 1993, debris flow during higher than average rains killed at least 26, injured 85 and resulted in 8 disappeared. The water supply to the city was partially cut at that time due to high turbidity. Chile's National Geology and Mining service (Sernageomin 2015) reports that, similarly, a significant part of the city had its water supplies cut in April 1997 due to an excess of sediment at the city's main water intake. A report for Aguas Andinas by IFARLE Ingenieros Civiles Consultores Ltda. (2013) states that "Historically, there have been events of high turbidity in the Maipo River in summer and in winter... but records have not been consistent".

throughout the water supply system, from catchment to point of use (WHO, 2017).

At 1 nephelometric turbidity unit (NTU), water is deemed “crystal clear”. Above 4 NTU, water becomes visibly cloudy. In Chile, along with other measures of water quality for potable water, there exists a permissible level of turbidity of 2 NTU (SISS 2005). To contextualize the severity of the May 2008 crisis, which went on for three full days, it is worth noting that turbidity in the Maipo River averaged 10,000 NTU and reached its peak at 43,750 NTU. The WHO advises water managers to consider turbidity as follows:

The sources of turbidity are diverse, and many of the constituent particles (e.g. clays, soils and natural organic matter) are harmless. However... elevated turbidity in source waters can signal pollution events in the catchment (e.g. heavy rain, spills or contamination of groundwater), and can challenge the effectiveness of [water treatment]. Each source needs to be considered in context because the treatment and management implications will vary (WHO 2017).

The International Water Association (2018) adds that the impacts of climate change on rainfall patterns can lead to increased water turbidity. In its guidance to operators and regulators, the WHO (2017) states that rapid changes in turbidity can indicate contamination due to both human and natural events. Changes in turbidity, it urges, should be investigated to determine causes and identify appropriate corrective measures.

When the turbidity spike hit the city’s water supplies in May 2008, the company’s efforts were first focused on containment. An employee in the planning department recounted to me his surprise at the company calling him, on his phone, asking him and his colleagues to attend to emergency water tanks and serve hordes of thirsty consumers across the city.

It was strange, being called to “volunteer” to give water on the streets.... They were recruiting all of us, *everyone*, no matter what department you were from. They wanted to send us to whichever terrible part of the city. People [on the streets] were furious... nobody wanted to be the face of Aguas Andinas in that moment.²⁴

The company had been aware that the turbidity spike was coming around 8 hours in advance, but there was disagreement about who should announce it to the city’s population.²⁵ The people, as the event unfolded, were kept in the dark. The company did not consider it its responsibility to make the announcement, but rather it should come from a government entity such as the National Office for Emergencies (ONEMI; *Oficina Nacional de Emergencia del Ministerio del Interior*). The failure to warn the city inhabitants in a timely manner was symptomatic of a larger confusion around public and private responsibilities and a combined lack of preparedness to deal with extreme events.

3.3.1 Deciphering disaster: the view from HQ

Following the immediacy of containing the crisis, attention turned to what had caused it and how to get it under control. It was not apparent, in the weeks and months that followed the disaster in May 2008, what was the “problem” to be solved. The SISS, responsible for overseeing water regulation throughout the nation, focused its public messaging on the investigation it launched into Aguas Andinas’ crisis response. Similarly, in its messaging to investors, Aguas Andinas assured that, even though water production is highly dependent on climatic conditions, things were fine, asserting that

[24] Interview with member of planning staff, Aguas Andinas, Santiago, April 2018

[25] Interview with member of planning staff, Aguas Andinas, Santiago, April 2018

“Currently [in 2008] Aguas Andinas has sufficient water rights to ensure an adequate production of potable water, even in adverse climatic situations. Furthermore, the company possesses the technical and human capacity necessary for overcoming critical situations” (Aguas Andinas 2008). The same message was included in 2009 (Aguas Andinas 2009). It was not until 2010 that the company confronted the issue of water cuts directly in its annual report, announcing that during the year it coordinated with authorities to prepare for large-scale emergencies or climatic situations that may lead to the suspension of potable water services (Aguas Andinas 2010).

On the public-facing website that Aguas Andinas dedicates to the issue (<http://www.reservadeagua.cl/>) the cuts in water service are attributed to climate change and rising temperatures. In a warming environment, in parts of the Andes where precipitation historically fell as snow, that precipitation now falls as rain. That rain, according to the explanation, leads to earth movements that transform rivers into masses of mudflow and rock, impeding the normal production of potable water.

That explanation appears to find some support in the work of René Garreaud from the University of Chile’s Geophysics department. Each storm, according to Garreaud, has its own zero isotherm which delimits areas that receive rain (below the zero isotherm) and areas that receive snow (above the zero isotherm). Snowfall stays close to its landing point, often for months, before melting during spring and summer. That seasonal flow pattern is how the city of Santiago sustains its water supplies in the dry summers with almost no precipitation. By contrast, the majority of rainfall during storm events becomes

surface water, flowing rapidly downhill and generating higher stream flow and, at times, earth movements. The average zero isotherm in central Chile is 2200m above sea level. In a storm in May 1993 the zero isotherm reached almost 4000m, quadrupling the area of rainfall contributing to surface water and increasing the volume of water in the catchment five times over. That quantity of water and associated earth movements led to over 80 fatalities and cuts in normal water service to the city (Garreaud and Rutllant 1996).

The notion that turbidity is a result of climate change may, nonetheless, be an oversimplification. In relation to recent storms, Garreaud concludes that such storms have “contributed” to turbidity issues. However, those issues cannot clearly be attributed to climate change and did not rule out alternative explanations.²⁶ A detailed report led by the University of Chile years on from the 2008 disaster noted “there exists no clear signal that would infer an increase or decrease of convective activity (and as a consequence, extreme turbidity events) in the Maipo River” (Bravo et al. 2014).

The response from the SISS to the May 2008 emergency was, in the first instance, to investigate and fine Aguas Andinas (approx. US\$ 65,000) for failing to inform its clients in due time (SISS 2008b). By December 2008, the SISS had launched a national-level oversight program aimed at guaranteeing an end to cuts in water service (National Program of Water Source Monitoring, “*Programa Nacional de Fiscalización de Fuentes*

[26] Several interviewees, including within Aguas Andinas, doubted the centrality of climate change as the principal cause of turbidity, given that the Andes and its sub-cordillera in which the Maipo River runs constitute a highly active mountain range in terms of earth movement and geological activity. Others, as covered in detail later in this chapter, attribute turbidity principally to the ongoing human-derived interventions upstream in the Maipo basin. (Interviews with Aguas Andinas staff and members of social movements, Santiago, April 2018).

de Agua Potable”) (SISS 2009a). Magaly Espinosa, then director of the SISS, explained that the program would inspect and monitor water sources as well as water treatment plants (Ibid). It was not clear at that time, beyond the application of fines and additional oversight, whether the SISS had any intention of instructing Aguas Andinas to find a more long-term way out of the problem. Indeed, in November 2009, the SISS announced that tariffs in the Santiago metropolitan region would decrease 1.3 percent, in an agreement they had reached with the water company on the investment plan for the period 2010-2015 (SISS 2009b). No long-term solution was yet apparent.

By 2009 it was evident that serious considerations were taking place about the recurrence of turbidity extremes (SISS 2009 report). Based on the possibility of a repeat of the events of May 2008, the SISS conducted studies to examine ways to ensure continuity of service. The report (SISS 2009; 91) says that the turbidity events were the result of intense winter storms of extraordinary magnitude, beyond the historical average. The report noted that the duration of the crisis was 5 days, seeing peak turbidity of 45,000 NTU and an estimated earth movement of 97,000 tons of suspended solids. The total deficit of potable water was estimated at 1 million cubic meters. Citing an October 2008 report from Aguas Andinas, the SISS report moves abruptly from reported deficits of potable water to ideas on the infrastructure that would be required to overcome those deficits. A first alternative examined the installation of new groundwater wells that could offer up to 3.64 m³/s, together with backup generators at installations with electromechanical hardware and water towers throughout the city’s distribution network.

A second alternative explored a scenario in which a controversial run-of-river hydroelectric plant (the Alto Maipo project operated by the U.S. energy firm AES Gener) completes construction in the upper stretches of the catchment. In that scenario, water of very low turbidity could be released from the Yeso Dam, passed through the Alto Maipo penstock generating electricity for AES Gener, then returned to Aguas Andinas at the end of the penstock, which discharges around 5km above the *Toma Independiente* (Aguas Andinas' main intake structure before treatment). Aguas Andinas would, subsequently, channel water in a new steel pipe from that discharge point, 5km downstream to its water treatment plant. In that scenario, Aguas Andinas would take in water of much lower turbidity than if the water had flowed down the river's surface water channels.

It was not until three years after the disaster, in May 2011, that Aguas Andinas and the SISS agreed on the first concrete actions the company would take to prevent another crisis. "Taking into account the emergency and cut-off of water supply that affected the population in May 2008", it announced, the company had updated its development plans to handle "events of extreme water turbidity" through incorporating new infrastructure works (Aguas Andinas 2011). Infrastructure planning in the Chilean water sector operates on 5-year cycles, whereby private companies and the SISS estimate separately, then agree on, infrastructural needs that the companies will construct. Once the works are inaugurated, the companies can pass the full costs onto consumers.

That agreement, known as “Emergency Works, Phase I”, comprised investments that would double the backup capacity of the system to 8 hours.²⁷ In other words, if extreme turbidity were to occur and last for fewer than 8 hours, these investments would allow Aguas Andinas to guarantee an uninterrupted supply. The investments comprised 14 tanks to store 225,000 m³ of water and seven new subterranean wells that would supply 300 liters/second. Additionally, Aguas Andinas constructed a new duct to channel 3.5 m³/s from the Yeso Dam to the Laguna Negra, increasing the flow of low turbidity water.

3.3.2 Deciphering disaster: the view from where the rains fall

Aguas Andinas and the regulator rationalized the 2008 urban water crisis as a result of climate-related convective storms that could be controlled through new infrastructure. In January 2013, however, an extreme event lasting 96 hours saw turbidity reach a maximum of 180,000 NTU, breaking all recorded levels. Notably it was over 400 percent more extreme than the May 2008 “design scenario” the Phase I infrastructure plan was preparing for. According to a consulting engineering firm hired by Aguas Andinas, that event caused a deficit of 760,000 m³ (IFARLE 2013). Just 18 days later, in February 2013, the records were broken once more as another extreme event occurred, with turbidity reaching a maximum of 382,500 NTU, a factor of 10 greater than the design scenario the new infrastructural works were prepared for (Ibid). The company announced that “mud and high turbidity” had caused it to close off the water supplies, which it restored after 24 hours (Agence France Press 2013)

[27] Interview with member of planning staff, Aguas Andinas, Santiago, April 2018

While the company and authorities never deviated from their explanations for the high turbidity, the view was quite different where the rains fell. For residents in the upper catchment, it was astounding that Aguas Andinas and the regulator neglected to mention the rapidly intensifying extractivist development, namely through the ongoing degradation of the upper catchment from the construction of the Alto Maipo hydroelectric project, which began construction in 2013.²⁸ The project would force the Maipo River through a network of drill and blasted tunnels, significantly disrupting existing flow patterns both during construction and operation (CIEL 2017). Organizations from the territory, including the *Coordinadora No Alto Maipo* and *Ecosistemas*, saw the Alto Maipo project as a direct threat to the water supply of 7 million people in Santiago (see e.g. *Instituto de Ecología Política* 2013; ChileSustentable 2014).

Alto Maipo is owned by AES Gener—a joint venture between U.S. utility AES Corporation and Chilean mining company Antofagasta Minerals (CIEL 2017). The project, financed by nine banks including the International Finance Corporation (IFC) and Inter-American Development Bank (IDB), would comprise two turbines (Alfalfal II and Las Lajas) in series, generating a maximum of 531 MW, primarily for mining in Chile (Ibid). It would divert water from the Volcán, Yeso and Colorado tributaries of the Maipo basin through a network of 70km, 8m diameter tunnels. Since its inception, the project has been mired by controversy due to insufficient consultations, a flawed environmental impact assessment process and concerns over technical and financial viability. By 2017, 14 legal complaints were filed at the government’s office of the

[28] Interviews with residents of San José de Maipo, *Cajón del Maipo*, February 2018.

environment, with many cases ongoing (CIEL 2017). That same year, the owner of the project declared it to be in technical default. Since 2008, costs have risen from US\$ 600 million to above US \$3 billion, making it one of the most expensive hydroelectric projects in Latin America and the cost per megawatt almost four times higher than other hydro projects and double the cost of solar projects (Ibid).



Figure 8: Map of tunneling for Alto Maipo hydropower project (www.ejatlas.org)

According to environmental and neighborhood groups in the upper catchment, Alto Maipo is directly contributing to episodes of extreme turbidity that lead to cuts in water to Santiago. For Juan Pablo Orrego, president of *Ecosistemas*, the *Cajón del Maipo* is

“extremely fragile”, following decades of deforestation (ChileSustentable 2016).²⁹ With Alto Maipo now using heavy machinery to strip trees, tunnel, and excavate earth, the despoilment of the upper catchment is intensifying. Marcela Mella, spokesperson for the *Coordinadora Ciudadana Ríos del Maipo*, went further, implying a causal relationship between Alto Maipo and Santiago’s water cuts:

We have images and videos that show the large quantities of earth that Alto Maipo has excavated during its tunnel, road and encampment construction. That material is now more exposed to being washed downstream in bad weather, ending up in the rivers that supply the *Cajón del Maipo*... Alto Maipo also redirected the natural flow of rivers, but the water returns to its natural trajectory... although the climatic phenomenon has some responsibility, we are emphatic in stating that the origin of the turbidity is the construction works of the project (Revista Energética de Chile 2016).

In November 2015, Mella’s claims were lent support when Dr. Andrei Tchertnitchin of Santiago’s *Colegio Médico* published a report on water quality in the catchment.³⁰ The report, totaling 17 pages, discussed the testing of water samples from household taps throughout the *Cajón del Maipo*, from wells, and surface water from springs and ponds. The samples, tested using inductively coupled plasma mass spectrometry observed that construction works in the upper catchment had released concentrations of toxic substances, including arsenic, molybdenum, iron and lead, far in excess of limits

[29] The *Cajón del Maipo* refers to Maipo Canyon, located in the southeastern part of the Santiago Metropolitan Region. It encompasses the upper Maipo River basin, and its tributaries. The main settlement is San José de Maipo, capital of the commune that includes the Andean sector of the Metropolitan Region.

[30] The report, entitled “*Informe Aguas del Cajón del Maipo y Alto Maipo – Muestras CMA*” is available through the Latin American Observatory on Environmental Conflict (OLCA) <http://olca.cl/oca/informes/Informe-contaminacion-de-aguas-Cajon-del-Maipo.pdf>

permitted by the WHO and Chilean law (NCh409 on potable water). The contaminated material, the report continued, amounted to 2.7 million cubic meters, which Alto Maipo had deposited in parts of the upper catchment. Drawing on witness testimonies from neighborhoods, Tchertnitchin discussed “accidents” that had occurred through the tunneling and earthworks that contaminated the water supply. In some instances, days passed before emergency water trucks were brought in for populations in the neighboring villages. Tchertnitchin warned that, “within our future, in the next 50 years, the waters in the Maipo catchment will not be fit for human consumption” (El Desconcierto 2016).

Alto Maipo retorted, denying the water cuts had anything to do with construction work in the upper catchment. The cuts in water service to the city, they insisted, were due to a “strictly climatic phenomenon”. Alto Maipo’s spokesperson discredited the *Colegio Medico* report, framing it as anti-development propaganda “lacking scientific rigor” (Electricidad 2016). However, studies undertaken by Aguas Andinas, between November 2015 and April 2016, confirmed Tchertnitchin’s findings that surface water in the area contained excessive levels of aluminum, iron, and manganese (Álvarez 2016). The company insisted, however, that those contaminants were removed during the production of potable water. While Alto Maipo had said during its environmental impact assessment that the water quality of the Maipo River met the drinking water norms (NCh409), during construction, it later revised its view to state that higher than normal values of minerals, such as aluminum and iron, were *naturally* occurring, especially during the months of high glacial meltwater. In May 2016, the Court of Appeals of San Miguel (located in the Santiago region) ordered the *Superintendencia de Medio Ambiente* (SMA) to explain the

causes of the high metals/minerals, and if it was detected that it was caused by Alto Maipo, that construction be suspended.

A highly public disagreement ensued between, on the one hand, Santiago's authorities, Aguas Andinas and Alto Maipo, and on the other, resident organizations in the upper catchment. The disagreement would not reach easy resolution. It would, however, sow seeds of doubt about the causes of the continuing water cuts and trust in the company and the authorities to find a solution. By 2017, the Minister of Public Works, Alberto Undurraga, ordered the SISS to examine whether the Alto Maipo project was in fact the cause of water turbidity (Awake Chile 2017). Several politicians seized on the water cuts to call for radical change in the way Santiago's water was managed. The politicization of urban water management is captured well in comments by Senator Navarro (who ran for president in 2017 and won only a miniscule percentage of the vote), who remarked:

To say [the cuts] are a product of climate change is a flagrant lie to cover up the real causes: on one hand, pollution from Alto Maipo and the other, lack of investments from the Spanish-owned Aguas Andinas... Property over water and water use should be a central theme in the presidential debate, as with electricity, copper, and lithium. I believe the solution to the water crisis is to return its ownership to the state... that way, profits generated from the service can be reinvested in works that benefit users... to end the constant ordeal of water cuts each time it rains (Navarro 2017).

The re-centering of water issues in politics and legal change is taken up in the next chapter. For now, it is worth continuing to examine how competing knowledge claims on the water cuts and its potential solutions played out.

3.4 Water HQ's volte-face: from fierce opposition to silence

Aguas Andinas and the authorities' explanation that nature was to blame—in the form of climate-related turbidity—was not entirely consistent with their positions in prior years. As recent as July 2008, in fact, after the first disaster, Aguas Andinas drew on the full weight of its experts and lawyers to make a very different case.³¹ In that month, Felipe Larraín, general manager of the company, submitted to Alejandro Smythe, Director of the National Environmental Commission at the Santiago Metropolitan Region level a detailed document expressing the company's concerns, which echoed many of those later expressed by neighborhood and environmental groups.³²

Referring to the Alto Maipo project, Larraín expressed in that document his concerns that the water supplies to the population of Santiago were not dealt with adequately in the planning process. Independent of environmental impacts and risk management, he said, the project would affect water rights, infrastructure and other facilities of Aguas Andinas, and crucially, threatened the company's ability to guarantee continuous water supply to the city. Citing Chilean Law 19,300, the report expressed concern that Alto Maipo's developers had not taken seriously the impacts on the city's water supply through a proper environmental impact assessment and management plan. The project, the report continues, should take into consideration impacts on basic social wellbeing, especially given that it interacts directly with water supply infrastructure and the city's water supply itself. There were two major risks, according to the company: first, the risk that future

[31] Interviews with planning staff, Aguas Andinas, Santiago, April 2018

[32] That document (available from author on request) was made public online (at www.awake-chile.com) but does not appear to be currently available. Aguas Andinas' public position in 2010 reflected its concerns expressed in that document. See e.g. *Diario Financiero* (2010).

populations may not be able to access water services; secondly, that existing users could experience changes in water supply. If these risks could not be assessed and addressed, it claimed, “the project should be rejected”.

Specifically, in a section entitled “effects on the continuity of water provision to the Metropolitan Region” the report cites numerous instances in which Alto Maipo’s operation could jeopardize water supplies. These included during (i) commissioning and filling the 70km of tunnels, channels, recharge chambers, etc., which could detract from the flow needed to satisfy urban water demand (ii) periods of maintenance when the turbines close and water flows downstream, very slowly, on its natural channels, causing a delay in Aguas Andinas receiving it at their intake structure. Such issues were not, according to the report, examined or mitigated during the EIA.

In a section on water quality and infrastructure, Aguas Andinas’ report challenged Alto Maipo’s qualitative judgment in its EIA that changing water flows in certain sections of the Maipo River would “provoke an effect on the sediment transport regime” of low significance. Aguas Andinas insisted that a more detailed evaluation be made. “Whatsoever movement of rock or material”, the report continued “could affect Aguas Andinas’ infrastructure”. In light of the 2.7 million cubic meters that were planned to be moved, mainly through tunneling, it was of concern to the water company that the Alto Maipo project did not state where it planned to relocate that material. At this stage in the planning process, for Aguas Andinas, it was not clear that the earthworks plan had demonstrated comprehensiveness and safety. It was “inconceivable”, the report

concluded, that a project situated in the headwaters of the main water reservoir for the largest city in the country did not examine adequately its effects on the basic systems of support for the city's life.

Aguas Andinas' concerns were shared by the lower house of the Chilean Congress, which described the EIA process approved in 2009 as "faulty" and "misinformed". Roberto Sepúlveda, president of a special investigative commission on Alto Maipo, characterized the project's approval process as irregular and blighted by political pressure and intervention. In his public comments following the commission's report, he said:

The environmental institutionality of the country is embarrassing. Numerous public services looked the other way so the company could do what it wanted and to approve a project that does not comply with basic environmental law (Radio U Chile 2009).

By 2011, however, Aguas Andinas' concerns appeared to evaporate. The company "fierce opposition" of the project, on the grounds of threats to water supplies, went silent (Urquieta Ch 2013). Two years later, a private contract, dubbed a "secret agreement" (Awake Chile 2017) between AES Gener and Aguas Andinas was uncovered through a court decision. The Coordinator of the Maipo River had become aware of the agreement and forced the SISS to make it public by turning to the Court of Transparency and later Santiago's Court of Appeals. It was following the record-breaking turbidity event in January 2013, which lasted 96 hours and left four million people without water, that Santiago's Court of Appeals found against the companies and in favor of the population, stating that the water security of the Metropolitan Region was an issue of such

importance that the document must be made public (Francisco 2014). Neither AES Gener, Aguas Andinas nor the SISS challenged the decision in the Supreme Court.

The secret agreement, signed on 6 June 2011, guaranteed for a period of 40 years that Aguas Andinas provide a flow of 2.5 m³ of non-consumptive use to AES Gener to use in its hydroelectric generation, on the understanding AES Gener would return the waters downstream (Aguas Andinas and AES Gener, 2011; p.12). Aguas Andinas also agreed that a proposed duct it wanted to construct would only be used in cases of “high turbidity” in the Maipo River, understood as turbidity levels in excess of 3,000 NTU measures at its intake point. In such events, the agreement states that AES Gener will be granted full information of all instantaneous measures of turbidity, which can be verified by third parties. In effect, decisions taken by Aguas Andinas on the use of the new duct in cases of high turbidity would be subject to additional verification and oversight by the U.S energy firm. Violations of the agreement would imply that the energy firm would charge Aguas Andinas (and presumably its customers) fines, plus interest, based on lost energy output. Detractors of the Alto Maipo project soon highlighted a conflict of interest on company ownership that may explain the water company’s change of heart. The Luksic Group, a Chilean business conglomerate and shareholder in Aguas Andinas, had come into 40 percent of Alto Maipo ownership in 2012.

It is worth considering the political environment in which the AES Gener and Aguas Andinas agreement was reached. Cables released by Wikileaks (2011) reveal the pressures that the Chilean state was under to find in favor of AES Gener’s projects in the

country in the years preceding the agreement. In June 2009, Chile's Supreme Court invalidated an environmental permit for a US\$ 500 million coal fired power plant owned by AES Gener based on zoning problems, which the company had begun construction of without permission. The company soon applied significant pressure to the organs of the Chilean state. In a 23 July 2009 meeting with U.S. Ambassador Paul Simons, AES Gener's General Manager Felipe Cerón and Chairman Andrés Gluski expressed concerns that the Supreme Court had acted with an "activist signal" that put in doubt the legal basis of other energy plants (Cable No. 221,119). The Chilean government, via President Bachelet's chief of staff, expressed its support for the company, concerned that the Supreme Court judgment threatened not only the project but "could undermine Chile's image as a stable investment environment" (US Embassy in Chile 2009).

In August 2009, the U.S. threw its weight behind its economic interests in Chile, sending Ambassador Simons to meet with various ministers and identifying Patricia Poblete, Minister of Housing and Urbanism, as the key decision-maker in finding a solution to AES Gener's dilemma. In November 2009, Poblete met with Ambassador Simons, informing him she had received pressure, including from President Bachelet and foreign governments who had interests in the Chilean energy sector, to find a solution in favor of AES Gener. Ultimately, the Chilean government was ready to do whatever it took, including issuing an executive order, to protect foreign investment in the energy sector (Ibid). That proved not to be necessary, with Poblete adjusting the legal interpretation of zoning laws through Decree 68 on 31 December 2009 to allow AES Gener's coal fired power plant to go ahead. Those events help to situate the agreement between Aguas

Andinas and AES Gener and may suggest an explanation as to the water company's about turn on its previously expressed concerns on the impact of upstream developments in the catchment on the safety of water supplies to Santiago.

3.5 Engineering a way out of the crisis?

Early 2013 was a rough time for Santiago's water company. Business News Americas ran with the headline "Aguas Andinas' terrible month of January" as it documented floods, water cuts and judicial decisions that went against the company (Abarca 2013). The company supplemented its financial statements in its annual report informing its investors that a "significant event" occurred that they should be aware of, noting:

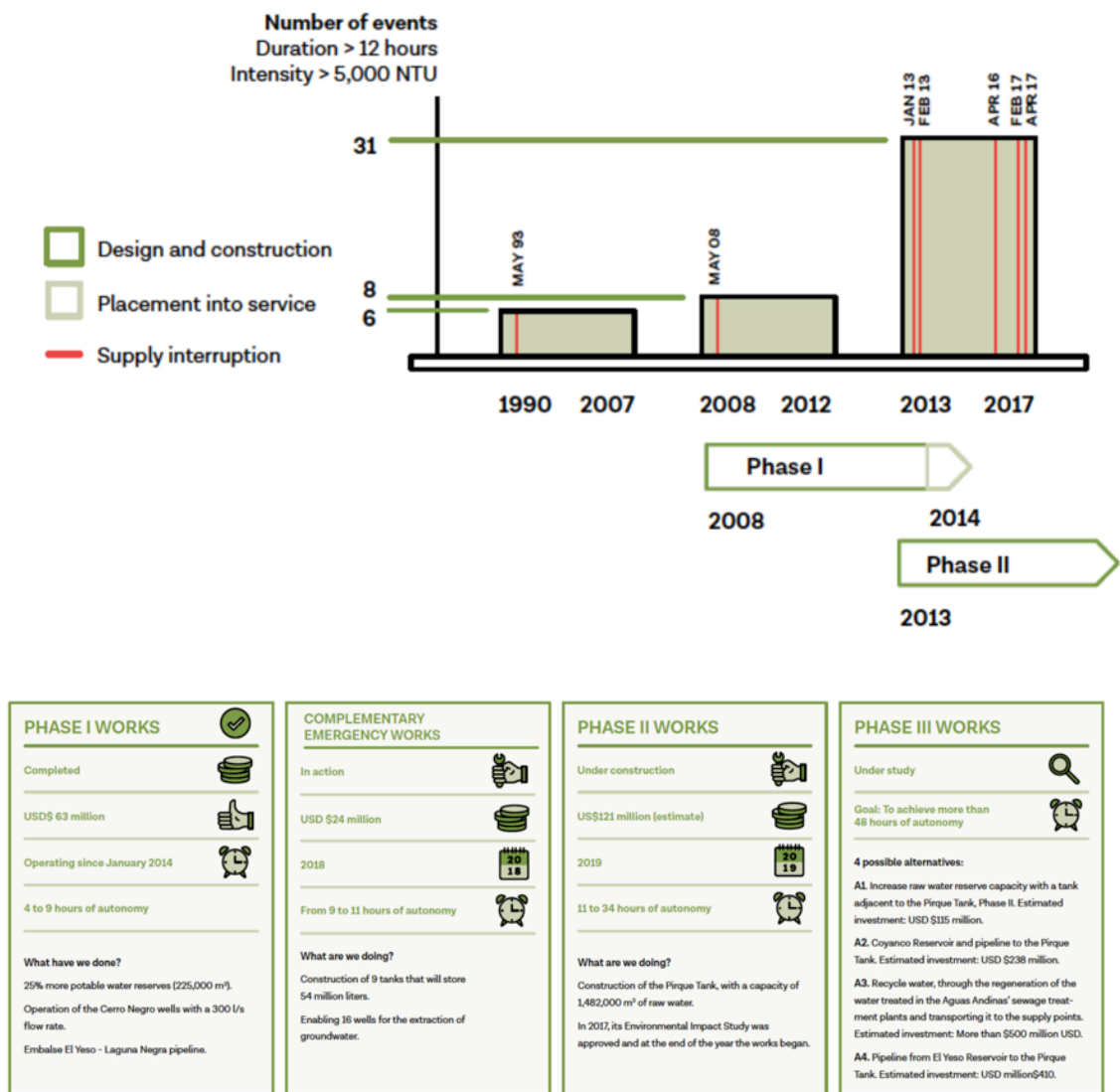
On January 21, 2013, as a result of a series of landslides in the *Cajón del Maipo* which affected the turbidity of the river, one of the Company's main sources of raw water for producing drinking water for most of the districts of Santiago, the principal water treatment plants were paralyzed as these are not designed to treat water with the degree of turbidity present on that occasion. The turbidity recorded and the duration of the event caused the Company's volumes of reserve water to be consumed during the evening and night of Monday 21 and the dawn of Tuesday 22, thus producing cuts in supplies (Aguas Andinas 2012).

It continued, noting that the SISS had brought sanctions against the company for not informing users in a timely manner, though the SISS accepted the events were caused by "force majeure". The company presented its appeal requesting it be cleared on the charges based on the events being "inevitable". The company again reported confidently, however, that it had "sufficient water rights" to ensure an adequate production of water, including in "adverse weather conditions" as well as the "technical and human capacities

necessary for overcoming critical situations.” But the US\$ 70 million “Phase I Emergency Works” had not prevented dramatic cuts in water service early 2013 and had proven inadequate in dealing with interventions and disruptions in the upper catchment.

From March 2014, when the Phase I works were complete, Santiago’s water users began to finance the works in their monthly water bills by contributing an annual total of around US\$ 5 million to Aguas Andinas through a 1.2 percent tariff increase (Fernández 2013). The continuing water cuts led the SISS to instruct Aguas Andinas find a more ambitious solution. Under the name “Phase II”, it decided that reserve capacity in the system should increase to 32 hours by 2017, hopefully allowing the city to withstand events of the scale and severity of those experienced in 2013.³³

[33] Interviews with Aguas Andinas planning staff, Santiago, February and March 2018.



PHASE I WORKS	COMPLEMENTARY EMERGENCY WORKS	PHASE II WORKS	PHASE III WORKS
<p>Completed</p> <p>USD\$ 63 million</p> <p>Operating since January 2014</p> <p>4 to 9 hours of autonomy</p> <p>What have we done?</p> <p>25% more potable water reserves (225,000 m³). Operation of the Cerro Negro wells with a 300 l/s flow rate. Embalse El Yeso - Laguna Negra pipeline.</p>	<p>In action</p> <p>USD \$24 million</p> <p>2018</p> <p>From 9 to 11 hours of autonomy</p> <p>What are we doing?</p> <p>Construction of 9 tanks that will store 54 million liters. Enabling 36 wells for the extraction of groundwater.</p>	<p>Under construction</p> <p>US\$121 million (estimate)</p> <p>2019</p> <p>11 to 34 hours of autonomy</p> <p>What are we doing?</p> <p>Construction of the Pirque Tank, with a capacity of 1,482,000 m³ of raw water. In 2017, its Environmental Impact Study was approved and at the end of the year the works began.</p>	<p>Under study</p> <p>Goal: To achieve more than 48 hours of autonomy</p> <p>4 possible alternatives:</p> <p>A1. Increase raw water reserve capacity with a tank adjacent to the Pirque Tank, Phase II. Estimated investment: USD \$115 million. A2. Coyanco Reservoir and pipeline to the Pirque Tank. Estimated investment: USD \$238 million. A3. Recycle water, through the regeneration of the water treated in the Aguas Andinas' sewage treatment plants and transporting it to the supply points. Estimated investment: More than \$500 million USD. A4. Pipeline from El Yeso Reservoir to the Pirque Tank. Estimated investment: USD million\$410.</p>

Figure 9: Supply interruptions over time and phases of emergency works designed to respond to cuts in water service in Santiago, Chile. Aguas Andinas (2017).

Back in headquarters, a senior engineer in the planning department talked me through the company's planning thinking at that time to increase the resistance of the system to disruption. A first option (A1) was to increase the reserve capacity with tanks adjacent to

those constructed in Phase II, at an estimated cost of US\$ 115 million. A second option (A2) was to construct a new reservoir and pipeline at an estimated cost of US\$ 238 million. A third option (A3)—the most legally complex and costly at around US\$ 500 million—was to transport downstream treated sewage water back upstream for redistribution, which downstream farmers perceived as an infringement on their customary and registered water rights.³⁴ A fourth option (A4) was to construct a 60km pipeline from the Yeso dam in the upper reaches of the catchment, with capacity to carry 16 m³/s at an estimated cost of US\$ 410 million. In a visit I undertook to the Yeso dam, engineers from Aguas Andinas explained to me that it was increasingly vulnerable to drought due to the melting of glaciers in the Andean sub-cordillera.³⁵ The company has made that position public, noting that in the face of its exposure to drought and climate changes, “focusing all the backup in one single source [did] not appear reasonable” (Carvajal 2016). As of the time of writing, no decision appears to have been taken on the longer-term Phase III infrastructural works.

In its framing of the planning discussions for Phase II works, Aguas Andinas continued to insist that climate change, not any upstream developments, was the sole cause of the water crisis. In a November 2015 meeting with the mayor and municipal board of Pirque, (an area of Santiago where the company sought to construct new mega-infrastructures) representatives from Aguas Andinas framed the water crisis affecting the capital thus:

[34] Interview with lawyer in Aguas Andinas, Santiago, March 2018.

[35] Interview with engineers from Aguas Andinas at the Yeso Dam, April 2018

As a society, and as a company, we have to adapt to climate change. It's essential that we can store water and overcome drought scenarios. It's fundamental that—as a society—we can prevent turbidity events resulting from torrential rains and landslides. It's key to be prepared and anticipate future events that climate change will result in (Concejo Municipalidad de Pirque 2015).

The SISS doubled down on a rhetoric of shared responsibility for the water crisis, before revealing its preferred solution. “We asked Aguas Andinas to find a solution to guarantee water supply and to prevent these turbidity events”, the official announced to the assembled group in Pirque. It was “not Aguas Andinas’ problem” she continued, but “a problem for the whole region and society” (Concejo Municipalidad de Pirque 2015).

Aguas Andinas had discussed several options with the SISS, which announced its preference for a series of six mega-tanks totaling 1.5 million cubic meters in the Pirque area. The solution would once and for all “avoid Santiago going without water”. Seeking citizen participation from October 2015 to May 2016 in the EIA process, a SISS official told those assembled in a planning meeting in Pirque:

We want to reach the maximum number of people in each neighborhood. So we can have a project that not only gets a good environmental evaluation... but also the citizenry is in favor of and supportive of (Ibid).

Aguas Andinas had, that same month, acquired a 72-hectare parcel of land in Pirque, which the *Departamento de Obras Hidraulicas* (DOH) expropriated on their behalf. In August 2016, the company submitted its EIA for the six mega-tanks. In the EIA process, numerous comments from worried citizens express concerns that the Alto Maipo construction was at least partially behind the extreme turbidity events due to depositing

massive volumes of earth and dirt and that the construction of the mega-tanks would not overcome those issues (*Servicio de Evaluación Ambiental* 2017).

In a comment echoing Aguas Andinas' letter to the National Environmental Commission in 2008, one Santiago resident expressed concern that when Alto Maipo has to undertake maintenance on its turbines or tunnels, "the [Maipo tributary] channels of El Volcán, El Yeso, El Colorado, will transform into [larger] rivers, carrying large amounts of fine sediment to Aguas Andinas' water treatment plant downstream." In a separate comment concerning earthworks, another resident noted:

We know that the Alto Maipo deposits have contributed to the turbidity of water during recent climatic events, so having additional earth deposits does no favors to the potable water for Santiago, nor for our community (*Servicio de Evaluación Ambiental* 2017).

Other concerns related to risk of collapse of the tank walls during earthquakes, loss of agricultural land and interruptions of vehicles, noise and dust during construction. While the degree to which infrastructural developments ultimately contribute to turbidity in the Maipo River remains a question of dispute, these comments confirm that many of the city's population doubted the veracity of the official climate-related explanation.

3.6 The importance of a glass half full

During 2016 and 2017, when extreme levels of turbidity again hit the Maipo River, forcing Aguas Andinas to close the valves that supply water to the city, protests against

the company began to escalate. When I began my period of observation in the company's headquarters in early 2018, I was keen to understand how the company had rationalized the protests in the streets and how protestors—vast majority of whom were customers of Aguas Andinas—felt about the company and its efforts to contain the crisis. In April 2018, at the eighth annual “plurinational march for the recovery of water”, I had a chance to hear firsthand from customers of Aguas Andinas protesting against the company.

The organizers of the protest claimed to bring together over eighty social and ecological organizations, including student groups that had become politically active in the preceding years, to campaign for the protection of water throughout the nation and an end to Chile's neoliberal model of water management. Several thousand people marched on the streets that day. A notable number drew direct links between Aguas Andinas and the unpopular developments in the upper catchment, perhaps best exemplified by the banner demanding: “*Aguas Andinas, get out! No Alto Maipo*”.

I later spoke with Francisca Fernandez, a spokesperson of the water justice movement in Chile's central region, who perceived the water cuts as an opportunity to challenge the company's authority.³⁶ In April 2017, she said, “there was a moment when we gained huge visibility in Santiago, when the water was cut to some 70 percent of the city's residents”. She explained that urban residents became far more informed about water issues at that time. The main problems that the movement put forth included the high price of water for poor service, and sustained profiteering through the water crisis that the

[36] Interview with Francisca Fernandez, Santiago, November 2018.

current regulatory system allows (See Figure 10). Relatedly, the movement is against the “hands off” regulatory framework that permits Aguas Andinas to extract high profits from its users through investing its profits in a series of unregulated companies. The movement is insistent that water crises throughout the country are not solely or predominantly a climatic issue but a result of Pinochet’s water laws that permit accumulation and speculation in water rights.

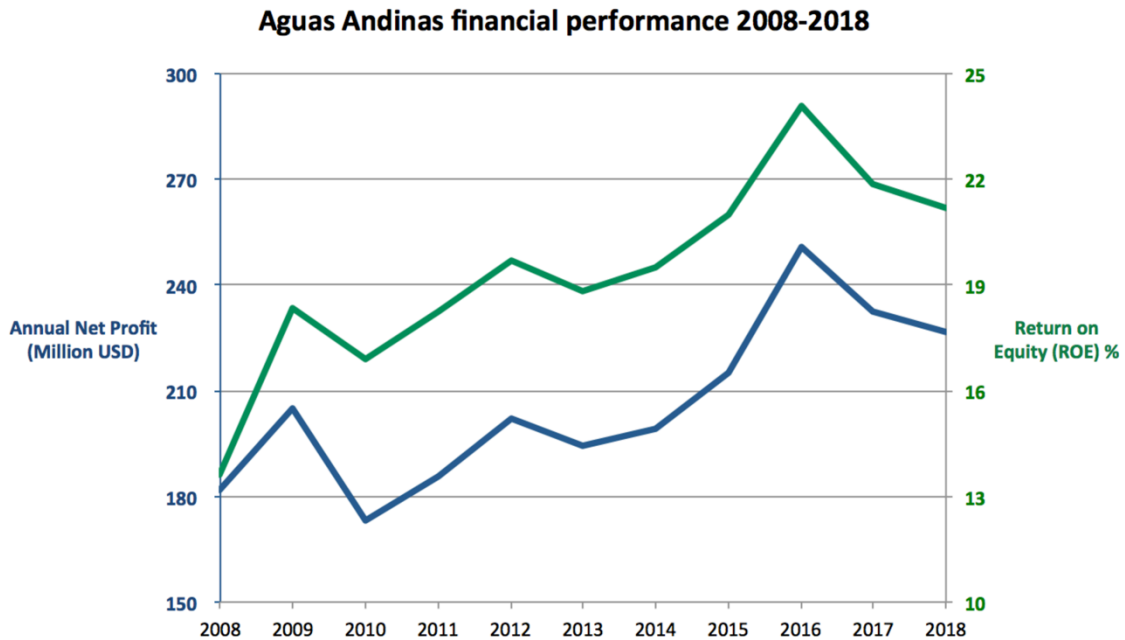


Figure 10: Aguas Andinas financial performance 2008-2018 (own elaboration using company annual reports)



Figure 11: Protest against Aguas Andinas, Santiago, April 2017 (Photo by author).

Back in the office, I searched through recent public statements by Aguas Andinas to try to find out how the company formally responded to claims that the crisis was a legal and institutional one. I was not surprised to find that the company continued to focus its framing of the crises as climate-related. The company’s president, Guillermo Pickering, doubled down on the climatic explanation, noting in 2017 that, “It’s evident that there’s an unquestionable climate change” due to the “frequency and intensity of these [turbidity] episodes” that were very different to the prior decades of hydrological behavior (Gutierrez 2017). The new infrastructure works, he said, completed in 2013 at a cost of US\$ 74 million and raising the reserve capacity to 9 hours, had enabled the company to avert 30 events from 2013 to 2017 without cutting water service (Ibid).

I asked several members of the planning staff how convinced they were that the turbidity issues could be overcome with the new mega-infrastructures. The company's research arm, they told me, had not ruled out that Alto Maipo could be contributing to the problem. "During Alto Maipo's construction, it's become clear that a lot of dust and earth has been released and that's affected the glaciers [where the freshwater comes from]", one told me. It would be a "serious problem", they continued "if [they] remove earth, a rainstorm comes, and washes it all downstream".³⁷ While the company's public narrative was consistent, it was less clear within the company that its planning staff shared the view that turbidity was unrelated to developments in the upper catchment.

I asked a senior analyst in the planning team how the company analyzed the causes of the crisis. Many studies had pointed to worsening drought under a changing climate, he told me, but the dozens of turbidity spikes since 2008 had taken the company completely by shock. A decade on, discussion was continuing in the scientific community, but there was not yet any agreement that turbidity events could be attributed to climate change.³⁸ With regards to the possibility of other causes, the staff member told me:

Every time we've had one of these turbidity events, we go over the whole basin. We've also asked the opinion of geologists. We've gone in helicopter, done analyses, gone to see the Alto Maipo works each time this has happened.

[37] Interview with planning staff of Aguas Andinas, Santiago, April 2018.

[38] Interview with planning staff of Aguas Andinas, Santiago, April 2018.

The earth movements that led to recent turbidity events, he explained, occurred in the Colorado and Volcán tributaries to the Maipo River; the same tributaries that the Alto Maipo project intends to channel into tunnels. The scale of the turbidity, however, appeared to be “disproportionate” to draw significant causality:

If the construction works perhaps cause, perhaps some movement, 5 percent of what is occurring, it’s possible. But from what we have seen here internally, we’ve ruled out that the works are having any impact. The [Andean] mountain range is indeed still growing—it’s the only one in the world that is growing more than it is eroding.

Another employee recounted to me the impact the water cuts had on the reputation of the company. By 2016, after eight years of water cuts in the capital, the company’s frontline workers urged management to take measures to address its image problem. “For many years”, she explained, “our main client was the regulator, the ministry”, but that had all changed following the crisis. Due to the multi-day outages, the reaction of the city’s residents was so “extreme and toxic” on social and in mainstream media that the company had an “internal crisis”.³⁹ At that point, there was concern within the company that public perception could pave the way for an opening for politicians to pursue changes that would affect the company’s regulatory environment. (The relationship between the company, the Congress, and public perception is discussed in the next chapter). In order to respond adequately to the crisis and prevent such a challenge, the company decided that it would have to engineer a new relationship with the public, primarily through a new communications strategy.

[39] Interview with planning staff of Aguas Andinas, Santiago, May 2018.

A new tone in company messaging is evident in its communication campaign that began in 2017. Striking an optimistic note, a campaign entitled “glass half full” began appearing across platforms including Facebook, Instagram, the payment hall in headquarters and on the screens in the corners of the elevators in headquarters, announcing:

Aguas Andinas is working in full force to overcome climate change and protect your family... If we see the glass half empty, we see that climate change is provoking hard-to-predict storms in the high cordillera, causing rivers to carry tons of mud and rock, preventing the production of potable water... that is why Santiago has faced massive interruptions in water service in recent years. Adapting to climate change will be a big challenge (Aguas Andinas 2018b).

It then switches, to say “Let’s see the positive side”, announcing that when we view the glass half full, we can see that new investments in emergency infrastructure have prevented 25 cuts in water to the city in 2018 alone. By 2019, when the Pirque tanks are projected to be finished, Santiago would have 32 hours of reserve capacity for water production, allowing the city to weather bigger storms.



Figure 12: Snapshots from Aguas Andinas’ 2017-18 social media campaign stating that frequent water cuts in Santiago are a direct result of climate change

Throughout 2017, Aguas Andinas “strengthened its digital strategy in social media... to build a horizontal story between the company and its clients”, producing a minimum of two messages per day with “specialized information” curated for each of several social media platforms (Aguas Andinas 2017). At a time when the company was reducing its labor costs through staff cuts across many departments, communications and marketing was one of the only parts of the company to increase its staffing and its expenditure.⁴⁰ At

[40] Interview with staff of planning department, Aguas Andinas, Santiago, May 2018.

the end of the year, the company had grown its Facebook following by 313 percent and its Twitter following by 290 percent (Aguas Andinas 2017).

Despite such communicational efforts, the climate-as-villain discourse that Aguas Andinas and the SISS stood by was increasingly challenged. One source of opposition to that narrative was a newly invigorated independent media. A June 2017 report by Prensa Irreverente—a self acclaimed alternative journalistic outlet founded in 2012 in the wake of urban uprisings—notes how Claudio Orrego, Santiago’s city manager, framed the continuing cuts as “uniquely and exclusively due to climate change”. It cites the corporate manager of client services at Aguas Andinas, Eugenio Rodríguez also attributing the service interruptions to “worsening of climatic conditions” before casting doubt on these perspectives. It notes:

The government and the transnational corporation blame climate change, and yes, it could be completely true, but both actors have completely forgotten the Alto Maipo hydroelectric project, which is intervening in a large section of the river basin, with changes in the trajectory of the natural channel (Cáceres 2017).

The report gives voice to Marcela Mella, coordinator of the Citizen Coordination of No Alto Maipo, who had for several years put forth the alternative view that turbidity was principally due to interventions in the upper catchment. According to the *Santiago Times*, Mella had made trips to Washington, D.C. to talk with U.S. senators and to file formal complaints against the IFC and the IDB, both of which launched formal reviews into their combined US\$ 350 million in financing to Alto Maipo (Lefew and Brook 2017).

Although “one of the causes of water turbidity is climate change”, Mella explained, “the [tunneling] has removed solid material and displaced it to the banks of the channel”, leaving it exposed to flows in the main channel, with the “consequences of turbidity that we all now know”. While climate change was a proximate contributor, she argued, “we must keep in mind that this is caused by an extractive development model that has, as an objective, the commodification, intervention, and privatization, of all natural resources that have not been touched by the human race” (Cáceres 2017). The “extractivist development model”, according to the article, is the true cause of the disruption to Santiago’s water supplies. It is “no longer enough” to challenge individual projects, but that it was essential to struggle against the profiteering development model that placed in jeopardy Chile’s water supplies and all natural resources (Cáceres 2017).

Supporting those claims, news outlets picked up on a congressional investigation that highlighted that the Alto Maipo project would lead to “irreversible degradation of the Maipo River basin” and “destruction of the sub-basins of the Volcán, Yeso and Colorado (rivers) that feed it”, putting at risk the main source of drinking water for Santiago’s seven million residents (teleSUR 2017). “We are able to confirm that numerous public agencies looked the other way in order to let [AES Gener] simply do what it pleased,” stated Roberto Sepúlveda, head of the Natural Resources Commission in the lower house of Congress during an 11-month investigation. “[The] project does not comply with the Base Environmental Law,” he wrote (Lefew and Brook 2017).

Additional counter-claims to the authoritative narrative on the turbidity crisis were framed around the foreign nature of the U.S. energy firm AES Gener and the Franco-Spanish transnational water company Aguas Andinas, pitting “the Chilean people” against the threats posed by foreign capital.⁴¹ It has additionally involved opposition to Chilean oligarchy, in the form of the Luksic group, which had significant investments in both Aguas Andinas and in Alto Maipo. In January 2017, Andronico Luksic, figurehead of the family, made an emotional YouTube appeal to Chileans in which he announced the group’s withdrawal from the ill-fated hydropower project at a loss of US\$ 350 million, noting that critiques and insults had been “tremendously painful” to him personally.

Despite the doubts that residents and journalists cast on the climate-as-villain narrative, the EIA for the Pirque Tanks was approved on 20 September 2017. Slated to be ready for late 2019, the US\$ 90 million investment would see six tanks constructed with a capacity of 1,500 million liters, and a surface area equivalent to 50 football pitches. When the Maipo River experiences high turbidity, Aguas Andinas proposes to draw from fresh water stored in the tanks, which it claims is enough to supply the capital city for 34 hours. The new infrastructure to deal with the turbidity crisis was financed partially through new green bonds: Aguas Andinas issued the first such bonds in the Chilean market in April 2018, selling US\$ 68m in inflation-linked notes at 1.8 per cent (Aguas Andinas 2018a).

[41] Interviews with “No Alto Maipo” protestors, Santiago, April 2018



Figure 13: Graphic representation of Emergency Works Phase II (Valencia 2017)

Water crises, like public problems more generally (F. Fischer 2003; Gusfield 1984; Jasanoff 2011), are not objectively given phenomenon but rather come to take on definition through human effort (Bakker 2002; Swyngedouw 2004; Linton and Budds 2014). The official crisis discourse in Santiago, promoted by Aguas Andinas in planning meetings, repeatedly uncritically by mainstream media, and validated by the SISS, focused attention on a mode of explanation that privileged nature as the problem. That climate-as-villain discourse reduced complex socio-natural relations into freak,

potentially controllable problems, pitting society against nature and technology as savior. It did so with sufficient credibility to facilitate the planning and construction of US\$ 200 million of mega-infrastructures during the decade following 2008. The discursive battle over the causes and dealings with the water crisis, however, escalated as alternative voices questioned the company's support for extractive-based development in the upper catchment. Ultimately, Aguas Andinas' support for the Alto Maipo project and its failure to contain massive cuts in water service would lead to growing discontent and political action not only in the streets but also in the formal political arena. The company's efforts to depoliticize the crisis would not, ultimately, be enough to prevent demands for change to water laws entering Congress.

CHAPTER 4: COUNTERING RUPTURE IN POLITICIZING TIMES

Following the 2008 cuts in water service to Santiago, Aguas Andinas struggled to convince the city's population that it had been transparent about the nature of the problem, or that it could provide an adequate solution. Beyond Santiago, too, surveys undertaken by the national regulator appear to suggest that urban water providers throughout the nation found it challenging to convince an increasingly frustrated population that they had users' interests at heart while profits continued to accumulate and service quality declined. From 2009 to 2015, for instance, net customer approval rating for water companies declined from 47 percent to 19 percent (SISS 2017). In that period, fines applied by the regulator for non-compliance with laws and standards increased from US\$ 1.2 million to US\$ 9 million (Ibid). Some operators found themselves the focus of sustained protest for poor water service and were accused of profiteering from a period of prolonged drought (Doray and Velásquez 2017; SERNAC 2011). Almost a decade after the water crisis had hit the capital city, frustration at the status quo on urban water provision was evident across the nation.

As the largest water firm in the nation supplying almost 40 percent of the national population, Aguas Andinas would bear the brunt of the storm. The company found itself under scrutiny not only by water users (as discussed in the last chapter) but increasingly by a new wave of left-leaning politicians. Following the student uprisings in Santiago in 2011, the politically-active leaders of the student movement had continued to reshape the contours of local and national politics, before in the presidential and congressional elections of 2013, four of the student leaders were elected to Congress. That election,

representing a translation of outrage from the streets to the formal political realm, saw two deputies elected as independents (Gabriel Boric and Giorgio Jackson) and two elected with the Communist Party (Camila Vallejo and Karol Cariola), which joined Bachelet's governing coalition in 2014.



Figure 14: Camila Vallejo (left foreground) and Giorgio Jackson (second from left foreground) during the 2011 urban uprisings in Santiago (Photo: Mario Tellez)



Figure 15: Vallejo and Jackson on congressional committee duty, 2016
(<https://www.radioagricultura.cl/>)

In the face of recurring cuts in water service to Santiago, that new generation of political representatives was quick to seize on the political moment to challenge the continued dominance of private water providers. Camila Vallejo, elected as a representative of Santiago (Biblioteca del Congreso Nacional 2018) came out strongly questioning whether Aguas Andinas deserved to maintain its contract with the city (Mostrador 2017).

Vallejo remarked publicly, “the company has been fined more than 18 times in the six years from 2010. Most of the fines were related to cuts in service or poor water quality... it’s clear that profits are more important than a good service to the people of Santiago”. Many people, she continued, associated the water cuts with the Alto Maipo project, pointing to the continued lack of trust in the authorities’ version of events that blamed

climate change. In light of six years of non-compliance with its contract, she warned, an appropriate public policy approach would be to consider cancelling Aguas Andinas' contract (Mostrador 2017).

The attacks on the company came not only from the left of the political spectrum. In a radio debate with Vallejo following severe water cuts in April 2017, María José Hoffman from the right wing UDI party suggested complicity between the state and the company, with the city manager Claudio Orrego in her view effectively acting as a “spokesperson for Aguas Andinas”. Orrego had supported Aguas Andinas' claim that the issue of water cuts was purely climatic and unrelated to infrastructural developments in the upper catchment. Along with other public officials, Orrego was one of the people in 2010 for whom Aguas Andinas had financed an “all expense paid” trip to the Shanghai Expo world fair, leading to questions about his independence from the company and objectivity in his public support for their position (Miranda and Ahumada 2017).

While Aguas Andinas had long enjoyed the support of center-left and center-right governments, politicians across the ideological spectrum increasingly saw the company's affairs as fair game for debate. An explanation for that shift may be found in the so-called *platas políticas* (political financing) scandal that came to light in 2016. The scandal uncovered a multi-year systematic illegal campaign financing system by several major companies including commercial banks *Banco de Crédito e Inversiones* and *Banco CorpBanca* along with petroleum and energy firm *Coppec* (Urquieta Ch 2016). Aguas Andinas was also among those accused. In an *exposé* entitled “*Political finance: the*

generous wallet of Aguas Andinas” Sepúlveda and Arellano (2016) recounted the generous contributions the water company had made to major political parties and almost a dozen think tanks from across the political spectrum between 2009 to 2014. Among the alleged irregularities were fees paid by Aguas Andinas to presidential campaigns, to Hernan Büchi’s libertarian think tank *Libertad y Desarrollo*, to center-left think tanks *Chile21* and *Proyectamerica*, and to media and news organizations for services never provided. Following an internal audit, the company later made “correctional payments” to the Chilean authorities to atone for payments for which they had no paper trail. In 2017, against the wishes of the public prosecutor, the Chilean authorities controversially decided not to investigate the scandal (Weissman 2017).

In the aftermath of the *platas políticas* scandal, Aguas Andinas appointed Guillermo Pickering as its president in April 2016. According to my interviews with the company’s senior staff, Pickering’s long experience as a lobbyist and consultant to the water sector made him especially suitable to navigate the company through complex political times.⁴² In media interviews, Pickering addressed the company’s ailing reputation head on. The company had made “grave errors” in the past, he admitted, and had “learned its lessons” as it prepared to face the future (Weissman 2017). Pickering added that “the citizenry today is tremendously critical”, noting that there was a mistrust of both the private and public sector, that it was crucial for the company to take public opinion seriously, and get to grips with the new demands of Santiago’s residents (Ibid).

[42] Interviews with staff of Aguas Andinas, Santiago, May 2018. It is relevant to note that Pickering was the sub-secretary of public works in the late 1990s and signed the 1998 privatization law into law. He ran the failed election campaign of Frei in 2009 and was considered by my interviewees as highly astute politically.

4.1 Politicizing profits in the pursuit of legal reform

Aguas Andinas' new leadership addressed the political campaign financing and the water cuts publicly, pointing to the significant investments the company was now making to prepare the city for worsening extreme weather events. But the charm offensive would not be enough to stave off challenges to the company's continued operation in Chile.

By July 2016, dramatic changes were in the air. That month, Daniel Nuñez of the Communist Party (PC), who was elected in November 2013, introduced *Boletín* 10795-33 in the lower house of Congress (*Cámara de Diputados*), together with ministers from the center to radical left (Vargas 2016).⁴³ Nuñez, a sociologist by training, laid out the goals of the project to “modify the legislation for water companies relating to unregulated services, tariff setting and compliance with development plans” (Cámara de Diputados de Chile 2016).⁴⁴ In the congressional session of 13 July 2016, Nuñez explained that the reform was motivated by a desire to improve the quality and transparency of water service, through a range of regulatory reforms (Ibid). The reform project proposed six substantive changes to the laws governing water providers dating from the 1980s and 1990s, including Frei Ruiz-Tagle's 1998 law, signed into force by Guillermo Pickering,

[43] The motion was supported by ministers Carmona (PC: *Partido Comunista*), Carvajal (PPD; *Partido por la Democracia*), Fuentes (PDC; *Partido Demócrata Cristiano*), Provoste (PDC) and Teillier (PC).

[44] Law-making in Chile follows a three-step process. There are two houses in Congress: the lower house (*Cámara de Diputados*) and the upper house (*Senado*). An initiative that aims to reform an existing law must be developed in the originating house, before being examined and passed in the other house, and returning for approval in the originating house. In the event of significant disagreement between the houses, a combined commission examines the proposal in its final stage. Law-making or reforming can originate from Congress itself through a motion (*moción*) or through presidential decree (*mensaje*).

the sub-secretary of Public Works who would go on to become president of Aguas Andinas.⁴⁵ That 1998 law, discussed in Chapter 2, permitted the transfer of ownership of water utilities from the Chilean state to transnational companies.

The 2016 reform that Nuñez proposed would impact Aguas Andinas and its shareholders, Agbar/Suez, as the largest water company in the country with 35 percent market share. Also affected would be Essbio (which has 12 percent market share and provides services to the O'Higgins, Ñuble and Biobío regions), Esval (which has 4 percent market share and provides services in Valparaíso) controlled by the Ontario Teachers' Pension Plan, (Ontario Teachers' Pension Plan 2011; Superintendencia de Servicios Sanitarios 2015) and smaller entities throughout the country. The proposal for legal reform, with the proponents' justification, is summarized in what follows.

1. Regulation of unregulated services with equitable participation.

Water companies in Chile offer a whole suite of “non-regulated services”, including strategic planning and consultancy services. According to the reform proposal, these services should be included in tariff calculation. It was unclear, the proposal argued, whether public investments—i.e. water users' tariffs that pay for infrastructure—are subsidizing non-regulated services such as water treatment and re-use, whose benefits accrue to

[45] The principal laws affected by the motion are *Decreto con Fuerza de Ley (Ley de Tarifas de Servicios Sanitarios*, DFL 70 of 1988; *Ley General de Servicios Sanitarios*, DFL 382 of 1989). The *Decreto con Fuerza de Ley* (DFL) is a legislative decree with force of law, emanating from executive power.

private service providers. The proposal cites several situations where such a problem was arising and proposed that profits from non-regulated services be shared equitably by providing tariff discounts to water users.

2. Citizen participation and transparency in tariff setting. Currently, the proposal states, the participation of water users is very limited and no formal process exists for the public to raise concerns to the companies or authorities. Given that water companies are natural monopolies, with no competitors, making the tariff negotiation process public does not constitute a threat, according to the proposal. Public knowledge of the process would, in fact, contribute to improved quality of service as a result of public scrutiny. While DFL 70 provides for documents and information to be made public *after* tariffs are periodically agreed upon, the proposal demands that these materials be made public *during* the process.

3. Increased state presence in expert commission for tariff setting. When there is disagreement between private companies and the SISS in setting tariffs, a panel of three experts is hired to adjudicate. The proposal argues that the state should appoint two of the three members of the expert commission to ensure that recourse to the commission is not a negotiation strategy. The commission should serve to protect the public interest by ensuring tariffs are set by the law, avoiding negotiation when possible between the state and a monopolistic company.

4. Improved investment. Under current law, private companies are obliged to ensure a quality service based on investment plans agreed with the regulator. The average compliance with these plans was 78 percent in 2013 and 74 percent in 2014. The proposal states that investments are required to adapt to emerging risks such as unexpected cuts in water service and that the companies should be held to account to fulfill their agreed investment plans.

5. Objective valuation of related companies. In some instances, costs of subcontracted services can be inflated, resulting in higher tariffs for water users. Those should be regulated, the proposal argues, to prevent fraud in cost inflation. Such subcontracted services are currently not regulated.

6. Increase in fines to water companies. With the legal framework for water companies now almost three decades old, the existing fines for infractions are not effective as they are very low. The proposal suggests a modification in the fines and new powers to adjudicate on their application (Cámara de Diputados de Chile 2016).

The reform was assigned to the Commission of Water Resources (*Comisión de Recursos Hídricos y Desertificación*), which debated the merits of the proposal over a period of several months. The Commission—a cross-party body founded in 2012 and comprising

members from across the political spectrum—came back to the lower chamber on December 19, 2016 with its report, signaling the range of authorities and individuals it interacted with on the proposal during those months. Those consulted included the Minister of Public Works, the SISS, ANDESS (the national lobby working on behalf of urban water companies) and various organizations that represent consumers (Cámara de Diputados de Chile 2016).

The increasingly politicized issue of Aguas Andinas’ secret agreement with AES Gener, discussed in the last chapter, was increasingly dragged from the back stage of politics to the front stage in public view. During the months of debate, members of the committee and invited experts raised the illegality of the sale of water rights by Andinas to the U.S. energy company as a motivating factor for legal change. Several committee members raised the view that, if water is legally a national good (*bien nacional de uso público*) and not property of the companies, then the companies have no legal basis to do more than manage the rights for the public good. Others raised the concern that a water company is legally allowed to only provide water services and not to profit from energy-related projects. The SISS committed to reviewing the agreement. In either case, the SISS held firm to its position that Andinas’ sale of water rights “would not have affected water service” to Santiago (Cámara de Diputados de Chile 2016).

Those consulted were broadly supportive of the legal change, with dissenting views originating primarily from the companies that would be affected. Hernán Calderón, president of the national water users’ group, expressed concern that water companies

such as Aguas Andinas were straying from their unique legal *raison d'être* of providing urban water services. On the issue of bringing non-regulated services under regulation, the president of the ECONSSA (*Empresa Concesionaria de Servicios Sanitarios S.A*), the state entity that administers private contracts throughout much of the country, said that the unique legal *raison d'être* had relaxed over time, and that, assuming the non-regulated services did not break monopoly rules, the profits should be shared so that tariffs could be reduced. Minister of Public Works, Alberto Undurraga, noted this had already happened in the case of the city of Santiago, where Aguas Andinas profited from the Alto Maipo project and passed on some savings to its water users. The ex-president of ECONSSA, Gabriel Caldes, noted that without non-regulated services, the city of Antofagasta in the north could not have provided water through the use of a desalination plant (Cámara de Diputados de Chile 2016).

The superintendent of the SISS, Ronaldo Bruna, confirmed that the regulator had only partial information on the income that water companies derived from non-regulated activities, but that these were significant and could reduce tariffs for water users if brought under regulation. He expressed concern, however, that the legal change would mean a significant increase in responsibilities for the SISS, which would need to strengthen its investigative, oversight and auditing capacities. For its part, ANDESS, presided by Víctor Galilea, did not comment on the legality or morality of water companies moving into non-regulated activities, but did say that those activities already contributed to tariff reductions and suggested that setting a legal share of profits could

shift economic incentives and ultimately harm water users (Cámara de Diputados de Chile 2016).

On the issue of citizen participation, there was broad support from those consulted, though concerns about the complexity and technical nature of the process. The SISS expressed support for the notion of a pilot program for citizen participation in tariff setting, to increase legitimacy of the private water sector (Cámara de Diputados de Chile 2016). Calderón noted that funding may be a major challenge for citizen participation but expressed a desire to see citizens have a say in the final tariff setting. State authorities, including ECONSSA, suggested that due to the complexity of the tariff setting process, the user associations should contract with expert consultants to advocate on their behalf. In Caldes' view, the tariff process should be reformed entirely, as it was overly complex, extremely costly to undertake, lacked transparency, and was incomprehensible not only to water users but to management and directors of water companies.

On the issue of the panel of experts, ANDESS opined that the existing system worked well to resolve differences in tariff projections between companies and the regulator. The SISS disagreed, expressing that the water sector had much weaker state representation than industries such as telecommunications, electricity, and transport. The SISS was broadly in favor of rebalancing representation on the panel of experts, to protect the public interest in adjudicating between the state and private companies in the tariff setting process. The ECONSSA expressed the view that existing legislation on the panel of experts resulted in one person—the expert not aligned with the SISS or the company—

having a huge degree of influence in setting tariffs. Meanwhile, Calderón proposed having a citizen representative on the panel (Cámara de Diputados de Chile 2016).

In terms of planning and investment, the SISS reminded the committee that the SISS regulates but does not undertake any planning activities; the private companies are legally responsible for maintaining quality and quantity of service and resolving any risks that water service faces. The asymmetry of information was a major problem for regulation, according to some of those who the committee met with, as the present legal framework provided substantial leeway for companies to hide their profits, inflate subcontracted costs and channel funds through third-party subsidiaries (Cámara de Diputados de Chile 2016).

ANDESS protested increased fines, noting that the baseline was 100,000 percent higher and the ceiling 2000 percent higher than existing fines. Based on the 107 fines applied by the regulator in 2015, ANDESS projected that the range of fines under the new laws would have amounted to approximately US\$ 100 to 500 million, which it considered disproportionate. Its legal specialist noted that the SISS already has a large degree of power to regulate, audit, and even cancel the concession of any private entity for non-compliance. Given the range of size among water companies—there are 52 in the nation and some serve only 500 clients—the SISS said that it did not appear reasonable to set large minimum fines for non-compliance on the part of private water companies.

By the time the Commission produced its report to the lower house of Congress in December 2016, the proposal had been amended to make the reform in some ways more ambitious. Among these developments was the proposal to oblige water companies to expand services to peripheral urban areas and to compensate users financially in the case of water cuts. The most drastic measure, by accounts of the reaction it elicited, was the removal of the guaranteed return on investment (*tasa de costo de capital*) of 7 percent that water companies enjoyed under existing laws. The new legislation proposed a much-reduced profit margin based on the actual tariff calculation with a small risk premium of 1.5 percent. For comparison, under existing laws, Aguas Andinas' income had increased 38 percent since the first water cuts in 2008, rising from US\$ 180 to 250 million by the end of 2016. During that period, its profits to shareholders (*rentabilidad del patrimonio*) increased from 14 percent to 24 percent.

On the issue of potential tariff disputes between company and regulator, the Commission voted in favor of having a panel of experts composed of two representatives from the SISS and one from the company, drastically altering the balance of power in adjudicating disputes. In its comments on financial statements to investors, Aguas Andinas (2016) noted that: "The most important factor that determines the Company's results of operations and financial condition are the tariffs set for regulated services" in line with the tariff law DFL 70 of 1988. By way of example of the existing dynamic that the reform proposed to change, we can consider the tariff negotiation of 2009, which set tariffs for the period 2010-2015. In that instance, the SISS calculated that a fairer tariff should be set, reducing the then current tariff by some 21 percent. Aguas Andinas

objected and the process went to negotiation with the expert panel. After negotiation and adjudication by the three-member panel of experts, the SISS and Aguas Andinas concluded on a tariff cut for Santiago residents of a mere 1.3 percent (N. Sepúlveda and Arellano 2016). The discrepancy between the cut in tariff proposed by the SISS, and the ultimate agreement which benefits the company much more, demonstrates the advantage to the private companies of maintaining the panel composition as is, and resorting to it tactically to protect their preferred tariff structures.

When it was clear that a vote would take place in December 2016, investors were quick to examine what the legal changes could mean for the industry. The ratings agency ICR (2016), now an affiliate of Moody's Investors Service, noted, that if approved, the proposal would affect both the financial performance of private water companies and the continued feasibility of the overall private water service industry. It took confidence, however, from a press release from the Ministry of Public Works signaling that the project "did not have the backing of the Executive" (ICR 2016).

4.2 The possibility of losing everything

The lower house of Congress (which is both more democratic and more progressive than the Senate, which continued until recently to host lifelong conservative and military senators appointed by Pinochet) passed the reform (*Boletín* 10795-33) on 21 December 2016 with 108 votes in favor, no votes against and no abstentions. Through that action, the reform proposal advanced to the upper house. The reaction from market analysts and the private water community was one of extreme shock. Reports by Santander Chile and

the investment management firm BICE cautioned that under the reform, the state regulator would take on new powers and that water could become much more affordable for users (Weissman 2016).

On 23 December, Aguas Andinas shares, and that of Suez and Agbar's holding company IAM, plummeted 14 percent and 16 percent respectively, eliminating their 2016 gains (Weissman 2016). In a press release that day Aguas Andinas (2016) said:

The congressional initiative that has been approved implies drastic changes to current legislation introducing great uncertainties in the financing of investments needed in order to ensure that the company can provide potable water to Chileans in a scenario of water scarcity and climate change... the project politicizes the tariff setting process by letting the government determine two out of the three members of the Committee of Experts... in a process which, to date, has been known for its technical nature and independence.

The Ministry of Public Works, that same day, made an announcement which Aguas Andinas posted on its website (Aguas Andinas 2016b) in which the center-left government distanced itself from the reform. After "consultation with market stakeholders", the ministry highlighted that the reform process was "not sponsored by the Government", reminded investors that the reform was introduced through a congressional motion, and appealed to Congress to maintain pro-investment water laws in upcoming legislative steps (Ibid).

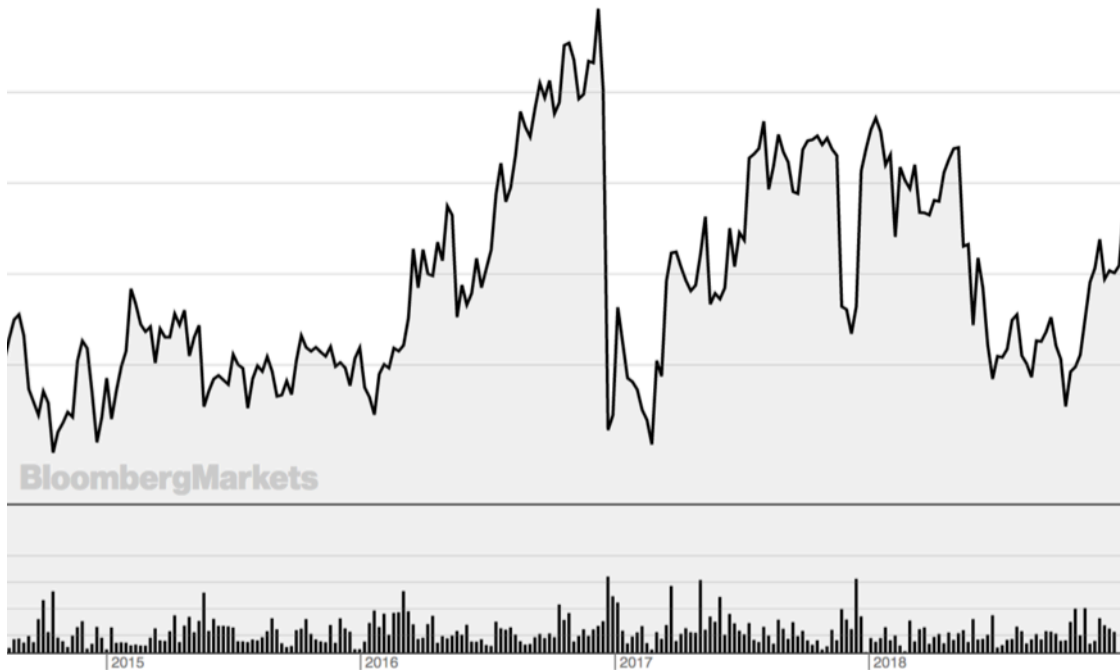


Figure 16: Aguas Andinas’ (AGUAS/A:CI) share price collapse in December 2016 (center, when the lower house of Congress approved a legal reform) from which it is yet to fully recover (<https://www.bloomberg.com/>).

In the Aguas Andinas office, the reaction was one of alarm and outrage. How could Chile’s politicians have passed a legal reform that threatened their continued presence in the water business? If the proposal passed, a director of Aguas Andinas told me, long-term infrastructural investments would no longer be viable. As they put it, “Suez simply couldn’t stay in the country with this regulatory change”.⁴⁶

[46] Interview with staff of Aguas Andinas, Santiago, May 2018

In the view of the company's leadership, the reform was not driven by rationality, nor by popular demand but, as in certain European cities, through "increasing politicization".⁴⁷ The company's management had witnessed the impact of re-municipalization in Paris, where Suez and Veolia lost their contract for water service provision in 2010, delivering on the promise of Socialist Mayor Bertrand Delanoë some years earlier. In that year, Parisian water returned to public ownership through the company *Eau de Paris*. As highlighted by Kishimoto et al. (2015), a global trend emerged between 2000-2015 where hundreds of cities around the world, including the European cities Berlin (2013), Budapest (2012) and Lille (2015) turned their backs on private water service provision by Veolia, Suez and RWE. Over that time, they report, the number of people served by remunicipalized water services grew to over 100 million.

What happened in Europe, and in French cities in particular, was a "huge shock to Suez".⁴⁸ In light of that experience, the group was more convinced of the importance of maintaining social legitimacy and exposing the way that they work to the public. In the view of the company's management, their sudden loss of the contracts was a result of a "very political lobby group" deploying a human rights discourse to push for public ownership, without regard to the technical reality of service provision. Although Parisians saw their tariffs significantly reduced, *Eau de Paris* subsequently contracted private firms to fill technical capacity gaps, potentially leading to dependencies on expensive consultancy contracts.

[47] Interview with Angel Simón, Chief Executive Officer of Agbar, Barcelona, June 2018

[48] Interview with staff of Aguas Andinas, Santiago, May 2018

Back in Chile, Aguas Andinas and its allies moved quickly to block the motion. “We went to see the ministers, one by one”, a director of the company told me, “with ANDESS, the president of Aguas Andinas and myself representing foreign capital”.⁴⁹ It was fortunate, they told me, that the company was traded on the stock market, so as to demonstrate to the Minister of Finance and Minister of Public works to the uncertainty and fear that the reform generated for investors. Pointing to the larger impacts the reform could have, the director warned of wider effects:

For us, as Suez, the change would be catastrophic, since Chile is a huge part of our business globally. But it’s not just the water sector. The Minister of Finance saw that he would no longer be able to attract foreign investment to Chile.

The company mobilized a number of foreign embassies, including that of France, Spain, Canada, Japan and Colombia, to remonstrate on behalf of the companies from their nations whose investments would be affected. Aguas Andinas made the case that the lack of debate in Congress demonstrated a lack of professionalism in politics and threatened to send the video recording of the session to other foreign investors.⁵⁰

The company developed a dual strategy of appealing directly to the fears of government leaders while seeking to improve its social legitimacy through rebranding its image. Ultimately, the reform was prevented based on a claim of unconstitutionality—in the end,

[49] Interview with staff of Aguas Andinas, Santiago, May 2018. Note that the taking place of some, though not all, of these meetings are recorded through the provisions of the Ley de Lobby. See for example Ministerio de Obras Públicas (2017).

[50] Interview with staff of Aguas Andinas, Santiago, May 2018

only the President of the nation had the power to make a change as drastic as eliminating the profitability floor for private water companies. The motion then languished in the Senate until the new center-right administration came into power in March 2018.

In April 2018, the new Minister of Public Works, Juan Andrés Fontaine laid out the new administration's vision for the regulation of water companies (Barrientos Dörner 2018). The new government, he said, shared the view of Bachelet's ex-minister of public works, Alberto Undurraga, who saw the reform as unconstitutional. But rather than allow the bill to remain dormant, when it could come back to threaten the privatized water sector, the government reactivated the project and pushed it in a new direction (El Mercurio 2018b). Instead of drastic change, it wanted to encourage more foreign investment in infrastructure. Whereas previously the reform sought to eliminate the 7 percent profit floor, the new government pushed for maintaining that floor and attracting new investment to provide more robust infrastructure to prepare for the new reality of climate change. Summing up the new government's rejection of any broader reform, the director of the SISS, Ronaldo Bruna, remarked: "the regulatory framework has worked well" (El Mercurio 2018a).

"Ultimately, we managed to prevent the reform", said a relieved Aguas Andinas director, noting that the Chilean government was convinced it could not guarantee Chileans a continued water supply without foreign investment due to its own fiscal constraints.⁵¹ The success of Suez in Chile was, however, contingent on combating populist tendencies

[51] Interview with staff of Aguas Andinas, Santiago, May 2018

through “strong government”. If a left-leaning government had been elected in 2016, for instance, the company was concerned that the reform would have passed. Looking to the future elections in 2021, however, the director at Aguas Andinas was not confident that political circumstances would work out in their favor:

After Piñera, Beatriz Sanchez could become president. In five years, we have this same risk again, and from one day to the next we could lose everything.

4.3 Countering water democratization in relational context

The ability to counter democratizing reforms and to protect profits in Santiago must be understood in relation to the global forces that Aguas Andinas called upon to sustain its interests. As an important component of the Agbar Suez family, the company enjoys the financial, technical and political backing of the second largest water conglomerate in the world. In 2010, Suez took over Agbar, which was formed in 1882 and specializes in water management in Spain. The group’s experience over the past decade in understanding and seeking to counter political efforts to return water to public hands in France (unsuccessfully) and Spain (somewhat successfully) proved central in its strategy of counteract efforts to democratize the water industry in Chile.

Chile’s importance to the Agbar group can be understood not only in terms of its hard numbers but also for its symbolism. It is true that Aguas Andinas is one of the strongest performing entities in the conglomerate: its water supply operations in Santiago are practically the largest by volume across the Suez group (surpassed only marginally by water supply operations in Perth, Australia) producing 2,900,000 m³/day in Santiago

compared to 900,000 m³/day in Barcelona where Agbar was founded and remains headquartered (Suez 2017; 134). Wastewater operations in Santiago, too, are the largest in the Suez family; Aguas Andinas constructed *La Farfana*, the largest wastewater treatment plant in Latin America, which has capacity to treat all of Santiago's wastewater. Beyond the quantitative contribution to the Agbar and Suez group, the history of Santiago's water supply has a symbolic and personal connection, through individual professionals, that continues to sustain the leadership of the group today.

In the late 1990s, at a time of uncertainty for the private water industry, Agbar's expansion into South America was cemented through the acquisition of EMOS, which would become Aguas Andinas, in Santiago. The first head of Aguas Andinas was the Catalan civil engineer Angel Simón, who oversaw the early years of the company's corporate restructuring and its expansion of infrastructural investments. In 2004, Simón became CEO of the Agbar group. Since 2010, he has served as chairman of Agbar and deputy CEO in charge of Spain, North America, and Latin American markets. Simón knows and understands the Chilean political landscape and sees the political challenges to the company's continued existence in Santiago as part of a wider global trend. I traveled to Barcelona in June 2018 to interview Simón and a number of other Agbar employees involved in the transnational relationship with Santiago as I sought to understand political events in Santiago in the broader context of efforts to reshape the urban water industry.

The *Ciutat de l'Aigua* is a modern square building clad in green and grey glass that houses Agbar's global headquarters in Barcelona, several kilometers from the 38-storey

tower that the company occupied until 2017. I met with Simón over chilled water and coffee in his eighth floor office in the new building to discuss the company's understanding of the new political challenges to Aguas Andinas and Agbar. In Barcelona at that time, water ownership was also going through turbulent times: when the citizen platform *Barcelona En Comú* crowdsourced its manifesto for the Barcelona city elections in 2015, its most popular proposal was to remunicipalize the city's water (Bertran 2018). A citizen-led initiative for remunicipalization gathered enough signatures to compel a non-binding city-wide referendum in June 2018, which Agbar sought to stop in the courts alleging the proposed question was unclear and illegal.

For Simón, the move towards public ownership has arisen independently of the performance of the company in fulfilling its objectives of providing universal water and wastewater services.⁵² In other words, Agbar may be doing a fine job and meeting all its obligations, but external political forces act against the company. Simón noted that there was a wider structural problem, especially in Europe, of the frustration of the middle classes in the aftermath of the 2008 financial crisis, which has led to a social crisis. In Spain through *Podemos*, or in Barcelona through *Barcelona en Comú*, leftist political interests were seizing on that social crisis and intent on pushing for change in water ownership, independent of the company's good performance. In Chile, Simón saw the 2016 move towards regulatory reform as driven by "an ideological force of the Chilean left and extreme left" seizing on similar frustrations to those felt in European cities. Efforts towards remunicipalization across the world, according to Simón, were being

[52] Interview with Angel Simón, Chief Executive Officer of Agbar, Barcelona, June 2018

pushed by politicians seizing on wider discontent. The reforms that the politicians were pushing for, in his view, did not have the backing of the citizens themselves.

I continued to interview Agbar's staff and managers while in Barcelona and began to appreciate how the group had learned from what they saw as a "politicization of water" in France and Spain. The Parisian transformation had been an embarrassment for the company that it attributed to not being more vocal and transparent about the company's achievements. In Barcelona, Agbar was waging a communicational battle against the leftist administration now controlling city hall. Its marketing campaign, which "flood[ed] advertising space on local TV, radio and billboards" was seeking to convince the city's population of the value of continuing the private water concession. In the event that Agbar was unsuccessful in challenging the referendum on ownership, it had the beginnings of its ground campaign in place (Bertran 2018). If leftist politicians were waging a campaign that Simón characterized to me as "distortion and demonization", the company would combat that image through a campaign of its own.

Back in Santiago, it was clear that Suez and Agbar's experiences in Europe informed Aguas Andinas' approach to combating political challenges to its legitimacy. The 2016 reform effort in the Chilean Congress had proved a catalyst for change at the company. In an interview with me in 2018, an Aguas Andinas director remarked:

We decided two years ago to change our outlook completely. We didn't have the legitimacy to operate and said, 'if we continue cutting off the water, the people are going to demand a return to public water'. They will

say that *we* are the problem, that it's not climate change. We need to have legitimacy: people need to know what we are doing inside the company.⁵³

In addition to its immediate step of cautioning Chile's ministers about capital flight if they entertained the bill that had passed the lower house of Congress, image control emerged as a central strategy across the Agbar group to combat political challenges. The appointment of Guillermo Pickering as president in 2016—known for his political astuteness and talent in the lobbying realm—was a first important signal that the company was taking the changing political environment seriously. Its increased investments in social media since 2016 were another. These latter two steps formed part of the evolution of the Franco-Spanish private water industry as it aimed to shore up its businesses abroad and weather the storm of politicizing times.

The apparent confidence that Suez has in its strategy for continued profitable growth from Chile can be understood by examining dialogue between its executives and investors. In several meetings during 2017, Suez executives and financial analysts discussed the evolving political and climatic situation in Chile. In early 2017, Chief Financial Officer Christophe Cros informed investors of “short adverse climatic events” forcing the company to cut water service to the capital, incurring costs to the company. In response to a question from a JP Morgan analyst on regulatory instability, Jean-Louis Chaussade, CEO of Suez and former Director of Aguas de Barcelona, held firm that no legal change would occur. The proposed reform that passed the lower house of Congress had been blocked by the government, he said, and the dependency of Chile on foreign

[53] Interview with staff of Aguas Andinas, Santiago, May 2018

investment made any significant change unlikely. Six months later, Chaussade noted that 2017 had been a challenging year for Suez due to, among other difficulties, the political situation in Spain and declines in tariffs in Barcelona. Looking to the international context, Chaussade confirmed the group's ambitions to reach profitability of 4-6 percent outside of Europe and that Chile would continue to play a role in offsetting weakness in profits in Spain and France. Looking to the future, he continued, "We are positive on Chile. Chile will continue to grow."

The process of urban politicization has been framed in numerous ways as scholars aim to make sense of patterns of uprising around the globe. The pursuit of legal reforms to the laws that govern urban water companies in Chile, though it was neither revolutionary nor counter-hegemonic, constitute an important example of the new political challenges to market fundamentalism in a politicized city. While urban water in Santiago can be understood to have been politicized for decades—in that Aguas Andinas was enmeshed in personal and financial relations with political parties—a definitive shift took place in the wake of the failure of the company to get water cuts under control in a wider context of political unrest. That shift opened the possibilities of imagining alternative futures for water management, leading to the water company deploying the defensive strategy of mobilizing foreign capital and investing in remaking its image to protect its continued existence. The strategies that the company deployed to prevent legal change provide important lessons on an instance where efforts to significantly reform the urban water industry failed. As McDonald and Swyngedouw (2019) have recently argued in the context of the *New Water Wars* around urban water ownership, there is an urgent need for

empirical research on “failed” cases of taking water back into public hands or otherwise radically challenging private water ownership models, in order to learn more about the forces acting to counter progressive reforms. The exploration of Aguas Andinas’ strategies to prevent legal change in Chile, an emblematic global model of private water management, makes an important contribution to that emerging literature.

A vignette: The view from the grassroots looking outwards

In the lead-up to the annual *March for the Recovery of Water* in April 2018, I was curious to hear some firsthand perspectives from inside the water justice movement. My gaze had for many months, admittedly, been relatively fixed on the urban region of Santiago, from the upper reaches of the Maipo River basin to distant sites including Barcelona that also exerted influence over Santiago's waters. Tensions over Santiago's water supply problems appeared critical, particularly due to the sheer scale of the problem. Water cuts continued to affect millions of urban residents each time heavy rains struck the mountains. But it was becoming clear to me that the capital's water woes told an incomplete account of a wider political crisis. Some weeks before the march, I began to attend a series of public meetings in the evenings in Santiago where speakers from a multitude of social organizations discussed how water crises were affecting their families and communities throughout the nation. They painted a stark picture of an unfolding national crisis that tied together the state, business interests, nature, and the law.

A 'mega-drought' had gripped the northern, central, and central-southern regions of the nation for several years. To make matters worse, the Chilean state had given away more rights to extract water than water that was physically available. According to some accounts, it had given away *six times* more rights than physical water existed. Many of those rights went unused. Their owners were holding onto them until a buyer came along willing to pay a handsome price. Throughout the nation, water rights hoarders preferred to pay the non-use fines rather than part with their valuable rights. What the speakers emphasized, again and again, was that such behavior was legally sanctioned and that

without a change to Chile's water laws, future conflicts would be increasingly explosive. Already, the government had declared more than one third of the principal river basins throughout the nation exhausted. It also admitted that in more than 100 of the principal groundwater aquifers across the nation, extraction was vastly exceeding recharge.

One meeting I attended drew my attention to a region in Chile I had read about years earlier in a graduate seminar. At the headquarters of the *Partido Humanista*, together with a small audience, I listened to Rodrigo Mundaca, an impassioned agricultural engineer and activist, who was leading a national socio-political movement opposing Chile's water management model. That model, according to Mundaca, had transformed the valleys of the Petorca region into a mass agro-export region, particularly for avocados, and led to the widespread violation of the human right to water. Those who spoke up against the reality of dispossession and deprivation had been intimidated and criminalized. Mundaca remained firm in stating that the country was suffering from a widespread structural crisis due to the 1980/81 water laws. Scholars of neoliberal urban governance and urban political ecology have suggested that much is to be gained from troubling traditional distinctions between urban/rural and society/nature by exploring urbanization as a global process (Angelo and Wachsmuth 2015; Brenner 2018; Brenner and Schmid 2017). What might be gained from tracing the water crisis beyond the Chilean capital, into the seemingly non-urban spaces, where water, land, and labor were enclosed and extracted for the benefit of cosmopolitan urban consumers overseas?

Along with other scholars (e.g. Harvey 2012; Mayer, Thörn, and Thörn 2016), Dikeç and Swyngedouw (2017) have called attention to the wide range of urban protests and rebellions in the post-2011 moment, suggesting that discontent with socio-economic and ecological conditions had reached boiling point throughout diverse cities. From that rupture, new forms of urban politicization may be emerging both in cities and beyond them. If such rebellions marked a “return of the political”—however partial and varied across space—we may expect to see, if not yet transformational institutional change, then at least a destabilization of the governance forms accepted as natural, to render them a matter of public concern, and to seek a reappraisal and open the way for change. That may be the case in the territories that sustain Santiago, where water laws have produced destitution and, for the first time in decades, become the subject of wide-reaching protest.

An understanding of the Chilean water crisis—as well as political efforts to overhaul the nation’s water laws—turns out to be vastly incomplete without attention to the distant forces that mobilize territories of extraction in wider processes of urbanization. From 2000 to 2017, global trade and production of avocados—of which Chile is the third largest global producer—rose from 2.7 to 5.9 million metric tons (Statista 2019). A worldwide hysteria for avocados had seen specialist stores such as *The Avocado Show* open in Amsterdam’s trendy *De Pijp* district, and other dedicated avocado establishments appear in Brooklyn, Melbourne and beyond. Those events articulated closely with the politicization of water law and extractive development in Santiago and the Chilean territory. Indeed, by 2017, tensions over water used for avocado export would come to symbolize the increasingly contentious efforts to transform water laws in Congress. It is

in examining those symbols of politicization, and the resistance to change in and beyond the formal political arena, that we come to more completely understand the forces of hegemony and counter-hegemony at play in reshaping Chilean water law today.

CHAPTER 5: RE-POLITICIZING WATER BEYOND THE CITY

The enclosure and extraction of people and material things across the Chilean territory has long facilitated and sustained economic development in distant lands (Barton, Gwynne, and Murray 2008; Cerda 2016; Murray 1998). The legal framework of present-day Chile, mostly forged under dictatorship, has proven central in furthering contemporary processes of extraction. The 1981 Water Code is one key part of that framework. In sanctioning the commodification of water and the accumulation of water rights, it facilitates an intensive export-oriented production for a market of consumers in Europe, the United States and China. In the Petorca province, that accumulation is premised on dispossession, where smallholders are compelled to relinquish their lands and waters to large avocado agro-export firms (Budds 2016). As the Chilean Supreme Court has attested, those agro-export firms also acquire additional water through informal and illegal pipe networks (Arellano 2017). The entanglement of global agriculture markets with the water conflict in Chile raises a series of questions. What are the interconnections between the global avocado industry and the politicization of water law in Chile? What are the strategies of socio-political movements to destabilize key national-level laws inherited from dictatorship? How are the laws contested politically in Congress and in the public domain? Does the politicization of water law ultimately hold promise for a more harmonious and humane future social relationship with water?

5.1 Accumulation and deprivation in Petorca

In the 1980s, water flowed in the rivers of Petorca Province. In the valleys of the La Ligua and Petorca rivers, smallholders cultivated corn, bean, and potato for the domestic market, despite the periodic droughts that hit the region approximately every seven years (Budds 2016). In contrast to the rivers further south, which are fed by Andean snowmelt, the province's rivers are sustained by low amounts of rainfall. In the 1990s, export-oriented farmers began to move in and drill wells to grow produce on the dusty mountainsides, which were formerly used as pasture for cows, sheep, and goats. With less water available to them due to over-abstraction of groundwater, small farms ended up indebted due to falling yields and smallholders sold off their land to larger landowners. Between 1997 and 2002, the area in the province under cultivation with fruit trees, especially avocados, more than doubled. According to Budds (2016), who has studied hydro-social relations in the region in detail, the land on the hillsides was cheap, the water was free, and the growing global price of avocados created the conditions for an explosion in export-oriented avocado production in the relatively water-scarce region. Petorca is now home to 60 percent of all avocado plantations in the country and the market price for the right to extract 1 l/s water there can reach US\$ 14,500 (Voller 2017a). By 2014, over 4,000 hectares of smallholders' land had been abandoned due to lack of water, and some 2,000 small avocado farmers had given up their plantations. Some 60 percent of people in Petorca are now reportedly supplied water for domestic needs with emergency water tankers (The Clinic 2019). Hundreds of families have fallen ill due to its questionable quality (Arellano 2014).



Figure 17: Petorca Region, 3 hours drive north of Santiago (Source: The Guardian)



Figure 18: La Ligua, Petorca, where water no longer flows (Source: INDH)



Figure 19: Storage ponds for large-scale agriculture in the semi-desert landscape of Petorca, while adjacent rivers no longer flow (Source: HBS)

Several factors have been suggested to explain how Petorca got into such a situation. In a human rights report prepared by the University of Diego Portales, Guiloff (2013) noted that while climate-related drought had caused a deficit of groundwater recharge and water stored in upstream reservoirs, a “series of structural factors” in the institutional design for water use had contributed to the problematic situation. Among these factors are (1) the weak powers in the 1981 Water Code for the state to intervene and manage water beyond granting water rights, and (2) limited technical and financial resources the DGA has for overseeing private water users. The Water Code, through Articles 22 and 140, dictates

that the DGA constitutes water rights and grants them to private individuals, so long as water is available and the granting of new rights does not affect third parties. Water rights are granted for free and in perpetuity, independent of the intended use. Water rights can exist for both surface and groundwater. No distinction is made between uses; competing uses are to be resolved through the market, so water flows to its highest economic use.

The DGA dedicates resources to only a handful of inspectors throughout the whole country and oversight is widely seen as inadequate.⁵⁴ Evidence of the lack of oversight is found in Petorca: in 2011, the DGA found a number of illegal drains used by large agriculture firms to divert water from other users. For the whole region of Valparaíso (which spans an area of 16,000 sq.km; of which Petorca province is 4,500 sq.km), the oversight office has four regulatory officials (*fiscalizadores*) and one technical expert.⁵⁵ The DGA's normal practices did not detect the illegal drains—they were found only after social pressure forced the governor to begin an investigation into potentially illegal extraction (Voller 2017a). When the DGA subcontracted with a consulting agency to undertake remote sensing as part of its investigation, it found 65 instances of illegal extraction, for which it can only apply fines of approximately US\$ 1,600 (Ibid).

Another issue in Petorca is the extent to which the Chilean state has over-allocated water rights. In 1996, a technical study (DGA *minuta técnica* No.13) reported that too many water rights had been granted and the Petorca aquifer level was dropping (Arellano

[54] Interview with J. Barton, by phone, June 2016; Interviews with DGA officials, Santiago, November 2018

[55] Interviews with DGA officials, Santiago, November 2018

2017). The next year, the DGA announced that the aquifer was in “condition of overexploitation,” and in 2004, it announced that no new groundwater rights could be granted (Budds 2016). Since 2012, the La Ligua aquifer, too, was declared a “scarcity zone” (*zona de escasez*). The DGA did not, however, heed its own technical warnings. It continued to give away water rights for groundwater extraction, on a “provisional basis,” amounting to 2,352 l/s between the Petorca and La Ligua valleys, which continued the trend of over-abstraction. By 2013, many Petorca residents had to dig holes to use as latrines, or defecate in plastic bags, with no water to flush the toilets (Mundaca 2015).

The ways in which water scarcity hit smallholders in Petorca, and the lack of action by the Chilean state, gave rise to the radical social mobilization known as the *Movimiento de Defensa por el Acceso al Agua, la Tierra y la Protección del Medio Ambiente* (Movement for the Defense of Water, Land, and Environment, Modatima). Starting in February 2011, Modatima comprised a group of local leaders that sought to call out the hoarding, speculation, and water theft that it saw as central causes of relative water scarcity. But instead of focusing only on the immediate issue of water scarcity, the movement zeroed in on what it saw as the structural roots of the crisis: the agro-export development model pushed by the Chilean state and the 1980/81 water laws that underpin it (Mundaca 2015).

From the beginning, Modatima opted to channel its message of radical change to the streets, to the state, and to Congress. In its first two years, the movement made three complaints to the Human Rights Commission of the lower house of Congress, giving

testimony on water theft by politicians and businesses (Mundaca 2015). The movement also made its demands more highly visible through performance and protest such as a blockade of the Route 5 Highway, Chile's longest road that forms part of the Pan-American Highway. The state responded by sending in police in riot gear, with water cannons and teargas, and confiscating the banner that read "*All of us, united, for one cause: water*" (Mundaca 2015; El Martutino 2012).

In later years of the escalating crisis, Rodrigo Mundaca, spokesperson for the movement, would become a prominent figure, participating in hundreds of citizen assemblies and dozens of congressional sessions. He was also featured in international media and documentaries. Along with others in the movement, Mundaca was the subject of criminal prosecution, appearing in court 24 times on counts of defamation and disruption of public order (Menares 2018). He received numerous death threats after speaking out against politicians profiting from the crisis and for a period, lived in hiding with the protection of Amnesty International.⁵⁶ For his work on water justice, Mundaca was awarded the 2019 Nuremberg International Human Rights Award (City of Nuremberg 2018).

5.2 Petorca and the agricultural export state in global perspective

Any explanation as to how Petorca ended up in its predicament today is incomplete without reference to the global restructuring of agriculture, particularly since the 1980s. Fresh fruit and vegetables—one of the most intensively globalized parts of agricultural systems—were one of the principal avenues through which Latin American countries

[56] Interview with staff of Heinrich Böll Foundation, Santiago, November 2018

were increasingly enmeshed into the global networks that now link virtually all regions of the world (Murray 1999). The increasing mobility of global finance, coupled with the spread of market-friendly agricultural policies in states of the Global South, facilitated an increasingly voluminous and complex globalization of agriculture that provided new frontiers of accumulation for capital. While Latin American territories had been integrated into global commodity chains and finance networks since at least the colonial expansion of the sixteenth century, the region underwent massive transformations following the debt crisis of the 1980s, which precipitated free-market reforms and free trade agreements that made the region one of the most economically open in the world. A central pillar in that economic restructuring was the turn to agricultural export as a basis for a new extractive and outward-oriented model of development (Barham et al. 1992; Thrupp 1995). Under that model, localities were exposed to the volatility of global forces and agricultural riches were exported for value-adding and sale in the global North (Barton, Gwynne, and Murray 2008; Faber 1992; Kay 2018). Chile was thrust deeper into the global agricultural system through the fruit export boom of the 1980s, becoming the main fruit exporter of the Southern Hemisphere by the end of the century (Murray 1999).

Scholars of Chile's articulation with agricultural globalization have given relatively little attention to the role of the 1980/81 water laws in promoting export-led agriculture. One exception is Budds (2004), who draws direct links between the agricultural boom in recent decades and the mode of water management implemented within the framework of the 1981 Water Code, which gradually gave large-scale farmers greater control over water at the expense of peasant farmers. While the shift to an outward-oriented

agriculture started in the 1970s, it intensified significantly during the four center-left administrations elected since 1989 (Barton, Gwynne, and Murray 2008). During that time, the export dependence on copper—the nation’s primary export—declined from over 80 percent in 1974 to 47 percent in 2005, with production and export of renewable resources, including fruit and wine, now accounting for around 30 percent of exports. Over the last three decades, Chile’s GDP growth, which averaged 6 per cent annually, is attributed to an export-oriented economy that, according to the Central Bank of Chile, is “highly dependent on water” (Donoso 2016). The growth in natural resource extraction, particularly related to mining and agriculture, exposes a contradictory set of forces at play under contemporary capitalism. On the one hand, there are forces that seek to mobilize water materially to support capital accumulation, while on the other, to provide the water required for social reproduction. The Chilean state’s outward-looking development strategies, which were strengthened in the wake of a national economic crisis in the early 1980s, prove to be a particularly acute example of the enrolling of water into capital accumulation processes that impinge on material needs for societal reproduction.

From 1987, in the final years of the dictatorship, the Chilean state began to promote export-oriented agriculture more intensively through state-supported co-financing aid for exporters through the Ministry of Foreign Affairs’ “Export Promotion Traditional Fund” (Donoso 2016). That aid comprises market studies, promotional materials, and technological development in support of the Ministry of Agriculture’s strategic objective of diversifying and growing non-traditional exports. In the 1990s, successive administrations adopted a set of programs that sought to integrate more completely to the

world economy, by negotiating free trade agreements, lowering tariffs and thus tapping into untapped and larger markets for a diversified set of exports. Among the state support for that strategy was the “Agricultural and Forestry Exports Promotion” program, run by the Ministry of Agriculture, which undertook trade missions, participation in networks of conferences and information exchange (Donoso 2016). Today, the trade agreements that Chile has with 64 countries worldwide give the country’s exporters access to 86 per cent of the global economy (Xinhua 2019).

In the decades that followed the shift to export-led agriculture, the legal transformations in water that had been approved in the early 1980s empowered a small group of Chilean families active in agricultural export. The presence of some of those families’ businesses in the Petorca region would thrust them into a series of legal disputes in the 2000s. The agricultural firm *Agrícola Pililén*, for instance, was fined in 2011 for eleven violations of the Water Code, including extracting water at a rate 600 percent higher than permitted and extracting water from unauthorized locations (Arellano 2014). *Agrícola Pililén* is owned by Eduardo Cerda García, an ex-member of Congress and part of the Cerda family, which has a strong agricultural history. *Agrícola Condor*, owned by former minister, Edmundo Pérez Yoma, was convicted of illegal extractions from the riverbed in Petorca. Pérez Yoma contested the ruling, but the Supreme Court in 2017 upheld it (*El Desconcierto* 2017a). The former minister later confirmed that illegal behaviors are widespread, but maintains that his firm does not participate in them (Voller 2017a). Others who have found themselves subject to legal action by the DGA, for alleged violations of the Water Code in the area, include: *Agrícola Liguana*, property of the ex-

Intendent of Santiago, Marcelona Trivelli Oyarzún; and *Agrícola Los Graneros*, owned by Pérez Yoma's son-in-law, Osvaldo Jünemann Gazmuri (di Girolamo 2016). Several of the families attempted to have their convictions overturned, without success (Voller 2017a). The involvement of Chilean elites in criminal proceedings, together with the protests led by Modatima, provide some clues as to the actors and territories that are central in efforts to radically reform, or to uphold, the water laws inherited from the dictatorship years.

5.3 Seizing on discontent to pursue legal reforms in Congress

From the first governments of the transition to democracy in 1990, Congress and the Executive had failed in numerous attempts to reform the 1980 Constitution to more adequately deal with water resources in changing times. Correa (2013) identifies eight reform efforts that arose between 2008 and 2012. Seven of those originated in Congress and one was initiated by President Bachelet in her first term. All of those efforts referred to the private property clause (Article 19/24) of the 1980 Constitution, aiming to recover the public nature of property in water by declaring waters to be national goods of public use (*bien nacional de uso público*). When it comes to the 1981 Water Code itself, more than a dozen reform proposals were presented between 2008 and 2012, covering issues such as oversight, water rights, and management of water resources (Correa 2013).

In March 2011, Diputada Adriana Muñoz introduced an ambitious reform to the Water Code (*Reforma al Código de Aguas; Boletín N° 7543-12*) through a congressional motion. The proposal sought to promote equity in access and to protect water as a common good. On World Water Day (22 March) 2012, a group of 12 mostly female

legislators in the lower house of Congress established a cross-party caucus for water (*bancada transversal del agua*). The caucus spanned the political spectrum, from the socialist *Partido Socialista* to the conservative *Union Democrática Independiente*.⁵⁷

Muñoz represented the Coquimbo region, some 400 km north of the capital Santiago, and by many accounts the most devastated region in the nation from the 15-year drought (Guajardo 2018). In the region, towns had “disappeared” as crops and plants died and inhabitants were forced from the area due to lack of water.⁵⁸ Together with other legislators who had witnessed their home territories being devastated during the drought, Muñoz reflected on the shared perceptions and rationale for seeking legal change:

We began to look for an explanation; climate change was the most immediate explanation but we began to realize, together with our researchers and advisers, that there was something much deeper at play. I began to realize that there was a much deeper level than climate change, in the realm of laws, institutions and the Constitution.⁵⁹

In its first session in April 2012, the water caucus invited Modatima to present its experiences on how water laws translated from text to the ground (Correa 2013). The Chilean non-governmental organization *Chile Sustentable* was also invited and took on a technical secretariat role. In later rounds, the caucus met with and heard testimonies of people affected by the impacts of water laws throughout the country (Correa 2013).

[57] Along with Muñoz (PPD), the caucus included Cristina Girardi (PPD), Denise Pascal (PS), Alejandra Sepúlveda (PRI), Andrea Molina (UDI), Alberto Robles, and Marcos Espinosa (PRSD).

[58] Interview with Muñoz, Santiago, November 2018.

[59] Interview with Muñoz, Santiago, November 2018.

In August 2012, five months after its inception, the water caucus was formalized as a permanent congressional committee: the Commission of Water Resources, Desertification and Drought (*Comisión de Recursos Hídricos, Desertificación y Sequía*) with 70 votes in favor, 9 against, and 8 abstentions. The initial aim of the group was to reform the 1981 Water Code to incorporate the human right to water, which it interpreted as giving priority to human consumption of water over competing uses. The Commission was formally assigned Muñoz's reform project to consider in December 2012.

Back on the ground in Petorca, some relief was found when president Piñera's outgoing 2010-2014 administration revoked the temporary water rights assigned to water users since 2008 (Arellano 2014). That measure affected 27 water rights owners, including agro-export businesses and individuals, amounting to more than 1,000 l/s of water. Justifying the measure, the DGA reasoned that the extractions through the temporary water rights had impinged on the rights of other owners that had prior registered rights. Chilean investigative journalist outlet CIPER reported that the revocation affected several incoming ministers of Bachelet's administration, including ex-minister of the interior, Edmundo Pérez Yoma. Local leaders in Petorca saw the DGA's decision as a 'small triumph' but questioned whether the incoming government—Bachelet's second—had the political will to apply the measure and pursue the reforms required (Arellano 2014).

When Bachelet came into her second term in March 2014, her administration quickly seized on the growing political momentum for change in water governance. In her first public speech, the president announced her administration's intention to strengthen the

legal framework on water resources by “substantially modifying the Water Code” and declaring water to be national public property (Larraín 2015). By October, the Executive introduced an amendment (*indicación sustitutiva; Cuenta oficio N° 459-362*) to the reform that had been in process since 2011. According to those in the DGA who drafted it, the amendment made the reform “far more ambitious”.⁶⁰ They explained to me the government’s two main priorities for the reform:

(a) **Anti-speculation measures.** To modify the property rights regime from permanent “use rights” to thirty-year renewable “concessions”. Establishment of an expiration for non-use or non-regularization, and limitations of the use of water rights, in line with the public interest.

(b) **Measures to guarantee the human right to water.** Recognizing the human right to water and sanitation, and ecosystem services, by legally recognizing that human consumption takes precedence over other water uses, in the assignment of new water rights, provision of water storage facilities, and strengthening of regulations in terms of minimum ecological flows. This would override the obligation of auction for competing uses under current laws.

Though the architects of the amended reform characterized it as more ambitious, they admitted in interviews with me that it tempered legislators’ more radical ideas. According

[60] Interview with ex-Director of DGA, Carlos Estévez, Santiago, November 2018

to then-Director of the DGA, Carlos Estévez, the original proposal introduced by Diputada Muñoz in 2011 was “much more radical than what [Bachelet’s administration] was proposing, and what we were proposing already frightened a significant part of the country.” Despite Bachelet’s public rhetoric of transformational change, her administration was, in effect, taking a first step towards lessening the reform’s disruptive potential to challenge the status quo in neoliberal water management. Following the executive’s intervention, the modified proposal contained “gestures to specific companies”, such as a clause that laid the legal groundwork for a massive inter-basin transfer of water proposed by Chile’s conservative agricultural lobby.⁶¹ Much of the original proposal was replaced, creating tensions between the Executive and legislators already working on the initiative. Opposition political parties were not particularly concerned about it from 2011 to 2014. They did not, apparently, think it had a realistic prospect of advancing; a reasonable position given the practically null success rate of attempted reforms to the Water Code since the return to democracy. When Bachelet’s administration presented its amendment in 2014, the debate on the future of water law sparked to life and two clearly opposed political blocs began to emerge: those acting in pursuit of ambitious reforms and those seeking to retain the status quo.⁶²

The proposed reform, even in its tempered version after Bachelet’s amendment, encountered fierce opposition from the *Sociedad Nacional de Agricultura* (SNA) and irrigation organizations, which embarked on a campaign drawing attention to what they framed as a potential expropriation of water rights. For Estévez, the agriculturalists’

[61] Interview with political adviser, Santiago, April 2018

[62] Interview with political adviser, Santiago, April 2018

campaign promoted a series of falsehoods that continued to dominate the debate thereafter.⁶³ The debate on expropriation was primarily related to ecological flow: the reform proposed stronger enforcement of (already legally recognized) ecological flows, which agriculturalists saw as potentially reducing their already limited water allocations in times of drought (El Mercurio 2016). In protected areas, the enforcement of ecological flows would lower the volume of water that farmers could extract without punishment. Under significant pressure from the SNA and irrigation organizations, the administration soon eliminated the compliance with ecological flows from the reform process. The expropriatory rhetoric was awoken, however, and would not go away.

The Water Resources Commission approved the reform project in November 2015 when it was sent on to Agricultural Commission (*Cámara de Diputados* 2015), where it remained until November 2016. It was then dispatched to the Senate, where politicians and business elites who benefit, personally and collectively from existing water laws, escalated tensions significantly.

[63] Interview with Estévez, Santiago, November 2018

TIMELINE OF THE WATER CODE REFORM IN CONGRESS (2011-2018):

First constitutional process (lower house of Congress / Cámara de Diputados)

- 17 March 2011 Reform project introduced (*Boletín* 7543-12)
Assigned to Environment Commission
- 14 August 2012 Water Resources Commission established
- 20 December 2012 Assigned to Water Resources Commission
- 11 March 2014 Bachelet inaugurated as President of Chile
- 8 October 2014 Presidential amendment introduced to reform
- 3 November 2015 Approved by Water Resources Commission
Assigned to Agricultural Commission
- 21 June 2016 Approved by Agriculture Commission
Assigned to Finance Commission
- 12 October 2016 Approved by Finance Commission
- 26 October 2016 Constitutional Commission requests it (denied)
- 22 November 2016 Approved by lower house of Congress

Second constitutional process (upper house of Congress / Senado)

- 24 November 2016 Assigned to Water Resources Commission
- 22 August 2017 Approved by Water Resources Commission
Assigned to Agricultural Commission
- 2 October 2017 Minister of Agriculture announces postponement of reform
- 11 March 2018 Piñera inaugurated as President of Chile
- 24 April 2018 Minister of Agriculture announces the new administration will veto any reforms that challenge private property rights in water

Once it was clear that the water law reform would advance to the Senate, its opponents reacted swiftly. Agricultural lobby groups began a media campaign in the conservative newspapers *La Tercera* and *El Mercurio*, as well radio programs throughout the center and south of the country.⁶⁴ At the same time, those groups began to lobby members of Congress and ministers, especially those of economy and finance. A centerpiece of the public face of the campaign focused on the fear of expropriation. The Confederation of Irrigators (Confederación de Canalistas de Chile 2016) unfurled a campaign entitled “don’t let them fool you” (*no dejes que te engañan*) with billboards on the main expressways that run through Santiago.⁶⁵ From the perspective of those developing the reform proposal, the campaign was disingenuous but highly effective. As Estévez put it:

It was intelligent of them, in their campaign, to install billboards saying, “they are going to expropriate your water.” The reform didn’t contain that proposal. It wasn’t real. The reform basically said, if you speculate with water, if you have water [rights] and don’t use them, and wait until there is water stress to begin to sell and profit from it... the reform would put in place measures that would prevent you from doing so.⁶⁶

Though the proposal did not contain expropriatory measures, it did contemplate higher fines for non-use of water rights, doubling fines every four or five years, infinitely, to disincentivize hoarding and speculation in water markets. That measure would not have affected agriculturalists, according to Estévez, as genuine agriculturalists would be using

[64] Interview with agricultural lobbyist, Santiago, April 2018.

[65] Interview with political adviser, April 2018 and with Estévez, Santiago, November 2018.

[66] Interview with Estevez, Santiago, November 2018.

their water rights to grow crops.⁶⁷ The measure would have affected speculators and international holding companies that owned large quantities of non-consumptive rights.

5.4 Agricultural elites and the politics of fear

The campaign made available for download 20 different billboard posters from their website at a size of two by three meters, with printing instructions and suggested printing companies.⁶⁸ A political adviser who contributed technical and legal advice to the reform process described the campaign as a “terror campaign” that was detached from the reality of the reform. While most rural water users and some smallholder farmers were “completely in favor of the reform”, large agro-export firms succeeded in generalizing their particular interests across a wider constituency, targeting smallholders in the center and south of the country by perpetuating falsehoods and fears around expropriation.⁶⁹ In its campaign, the large agro-export firms claimed to be dispelling a number of myths that government and Congress was promoting. Among those were the following:


[67] Interview with Estévez, Santiago, November 2018

[68] <http://www.canalistas.cl/codigo-de-aguas>

[69] Interview with political adviser, Santiago, April 2018

LOS 20 MITOS DEL AGUA

<p>MITO # 6</p> <p>La reforma al Código de Aguas no expropia Derechos de Agua ya otorgados</p>	<p>VERDAD</p> <p>La reforma sí expropia los Derechos de Agua en 3 casos</p>
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CANALISTAS POR UNA BUENA REFORMA AL CÓDIGO DE AGUAS

Participa en www.canalistas.cl

Myth #6: The Water Code reform does not expropriate existing water rights
Truth: The reform does expropriate water rights in three cases

LOS 20 MITOS DEL AGUA

<p>MITO # 10</p> <p>El actual Código de Aguas permite el acaparamiento de Derechos de Agua</p>	<p>VERDAD</p> <p>El actual Código de Aguas castiga con multas a quienes acaparan</p>
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CANALISTAS POR UNA BUENA REFORMA AL CÓDIGO DE AGUAS

Participa en www.canalistas.cl

Myth #10: The current Water Code allows hoarding of water rights
Truth: The current Water Code punishes with fines those who hoard

Figure 20: Selection of posters produced by conservative agricultural interests

The influence of agriculturalists in national political affairs in 2016 was not new. The SNA had, in fact, played a crucial role in the historical construction of Chilean society.⁷⁰ According to Avendaño and Escudero (2016), the SNA has long represented an elite with a particularly close relationship with the conservative political class. As in other countries in Latin America, large landowners, and large agriculturalists, constituted some of the most influential political actors since the origins of the republic, exerting power over rural populations, state building, and national development strategies (Ibid.). The SNA was first established as the *Sociedad Chilena de Agricultura* in 1838 (Bengoia 1988) and has demonstrated an impressive versatility to maintain influence through the downfall of the traditional oligarchy in the second half of the twentieth century, the socialist Agrarian Reform, the neoliberal restructuring, and the insertion of the economy in international free trade agreements (Avendaño and Escudero 2016). The links between agriculture and politics is evident in political representation in Congress: in the early 1960s, agriculturalists made up 60 percent of all conservative *diputados* and an average 30 percent of all *diputados* (Ibid). That influence declined over time: by 2014, members of Congress who identified as agriculturalists accounted for less than 10 percent.

The SNA has a particularly strong track record in obtaining the consent of the general population through influencing public opinion. In 1936, it established the radio station *Radio Agricultura*, to complement its newspaper *El Agricultor*, in operation since 1838. The radio station, according to Avendaño and Escudero (2016), allowed huge advances in the socialization of the rural population, whose literacy rates were low. Today, the SNA

[70] For more on the SNA's relationship with institutions of political power during the 19th and 20th century, see e.g. Arriagada (1970); Izquierdo (1968); Loveman (1976).

has particularly painful memories of Frei's 1967 Agrarian Reform and Constitutional reform, which allowed the expropriation of land from large landholders to redistribute among the peasant population.⁷¹ When Allende was elected in 1970, the SNA undertook three years of intense actions against the continuing implementation of the Agrarian Reform. From 1973, the SNA had a tumultuous relationship with the military dictatorship, especially in 1982, when agricultural exports felt the harsh downturn of a new market economy and some exporters went out of business. By 1983, the SNA had banded together with the military faction of the dictatorship to overturn the most extreme neoliberalizing logic in agrarian policies by instituting price protections to foment internal markets (Montero 1997).

The SNA's legitimacy as a political operator has been challenged throughout time, particularly by the Southern Agricultural Consortium (*Consortio Agrícola del Sur*; CAS) in the 1960s. The CAS claimed that SNA did not represent "true agriculturalists" (*verdaderos agricultores*) but rather "absentee landlords" (*terratenientes ausentistas*) (Avendaño and Escudero 2016). By the late 1960s, however, the SNA and its opponents in the agricultural sphere had agreed that their true enemy was the modernizing socialist state. Together, the SNA and other allied groups agreed on a set of demands and objectives: to protect private property at all costs, to fix higher prices to benefit producers, to access credit at low rates, and significantly, to place "greater control of the national waters in the hands of private owners" (Avendaño and Escudero 2016).

[71] Interview with political adviser, Santiago, April 2018

5.5 The Executive intervenes to water down the reform

In the Senate, the Water Code reform was examined first by the Senate Water Resources Commission in 2016. *Diputada* Muñoz, the originator of the bill in the lower house, was by then a Senator. Muñoz (PPD) was joined on the Commission by Jorge Pizarro (DC), Isabel Allende (PS), Francisco Chahuan (RN), and Víctor Pérez (UDI). For the first four months of 2017, the Commission debated the merits of the reform that had passed the lower house of Congress, listening to the views of agricultural lobbyists, water user associations, popular movements, and others. On several issues, the Water Resources Commission ended up acting far more conservatively than the lower house's originally "radical" proposal to reform water laws (Crónica Digital 2017).

Under pressure from the agricultural lobby (Sepúlveda 2017), the Executive introduced a series of modifications in April 2017. In a session where Estévez presented the amendments on behalf of Bachelet's administration, anti-speculation measures were modified to allow for automatic renewal of 30-year concessions for water rights instead of discretionary extensions. The watered-down proposal removed the term "concession" that had sought to clarify that water rights were administrative permits instead of property rights. Crucially, whereas the original reform proposal had proposed that *all water rights* would be interpreted as temporary concessions, the watered-down version proposed that only *newly granted water rights* would take on that new form. With only around 10

percent of surface water rights and 50 percent of groundwater rights remaining to be allocated, the amended proposal would have a “much-reduced impact”.⁷²

The amended proposal brought scorn from the politicians who had worked on it for years.

The president of the lower house, Aldo Cornejo (DC), remarked:

It’s concerning to us that [the Executive] wants to modify the issue of permanent [water] rights, seeking to “eliminate noise” as the Minister of Finance has signaled. We know that from the political right, there have been efforts to misinform and speak of expropriation, which is completely untrue. We hope that the Senate does not give the green light to these changes and that it respects what was approved in the first constitutional process (Hornig 2017).⁷³

Members of civil society were also outspoken about the weakening of the proposal. For Sara Larraín, director of *Chile Sustentable*, the government had “ceded to business interests” by capitulating to pressure placed on the Ministry of Finance:

The original idea of [the reform] was to guarantee the human right to water and protect water sources. However, what the government’s amendments propose is to weaken the prioritization of the public interest to guarantee business profits. It’s an aberration (Segura 2017).

It became clear that the members of the Senate Water Resources Commission had, some weeks before, received an “unexpected” memo from the Ministry of Finance, signaling

[72] Interview with Senator Muñoz, Santiago, November 2018

[73] In the context of politics, “noise” (“*ruido*”) is understood here to signal undesired disturbance or turbulence. In 2017, the Minister of Finance warned of the need to reduce noise “*reducir los ruidos*” that were affecting investor confidence. See: “*Ministro de Hacienda advierte necesidad de reducir los ruidos que afectan la confianza y la inversión para un mayor dinamismo económico*” (Mediabanco 2017)

that for reasons of economic stability, the Executive would be amending the proposed reform to protect legal certainty and existing property rights.⁷⁴ For some, the amendments the center-left government introduced represented a clear signal that it would continue to “privilege existing controllers of water rights that hoard and speculate with [those water rights]” (Coordinadora por la defensa del agua y la vida 2017).

Felipe Tapia (2016), a lawyer with the *Fundación Newenko*, called the Executive’s actions a “mutilation” of the original proposal and a threat to the pursuit of water justice and social equity. Tapia argued that Congress was acting constitutionally in pursuing the reforms, based on the fact that the 1980 Constitution allows for limitations to be placed on property rights for reasons of social function. That social function of property was justified, in his view, given that widespread structural weaknesses in the existing legal framework were being more exposed under a changing climate (Tapia 2016). When the government introduced its amendments, however, it had become clear that shifting the interpretation from “property” to “concession” and applying the change to all existing water rights would be challenged by conservative factions through the Supreme Court or Constitutional Tribunal. Though the government’s technical understanding was that the water had always been a public good, it was not confident it would win the constitutionality argument in the highest courts.⁷⁵

On 2 May 2017, Bishop Luigi Infanti della Mora sent a two-page letter to senators, making a moral appeal that they put the common good above a narrow focus on

[74] Interview with political adviser, Santiago, November 2018

[75] Interview with Estévez, Santiago, November 2018

economic interests and economic power. The bishop, who had previously protested against mega dams in Patagonia, cautioned that domestic and international businesses were seeking to prevent the reforms the lower house had advanced. He cautioned that the nation's water issues could not adequately be dealt with by lawmakers alone and that social mobilization would be key to push politicians towards a "profound change" to the Constitution that would pave the way for change on water rights (El Desconcierto 2017b).

The Senate Water Resources Commission voted on the reform, approving it with three votes in favor, one against (UDI), and one abstention (RN). Following general voting, on 9 May, it began voting individually on 91 amendments submitted by members of the Commission and by the Executive. Despite the apparent differences between the politics of the governing center-left coalition and the parties of the political right, members from both major blocks ultimately acted to protect private property rights in water. On 9 August 2017, following four months of debate, the Senate Water Resources Commission approved the Water Code reform in a highly diluted form (M. Sepúlveda 2017).

5.6 Stoking fears: additional measures to combat the reform

Conservative interests used several strategies to prevent the reform from advancing in the Senate. Chief among these, according to senators and political advisers I interviewed, was the use of a range of congressional procedures to prevent the motion from actually being discussed in Congress. In one instance, for example, after six months of consultations and detailed developments of the proposal, the Senate leader unexpectedly

called Senator Muñoz, the president of the Water Resources Commission the evening before the latter was due to present the Commission's work before the Senate.⁷⁶ In a meeting in front of the leaders of parties and independent groups, the Senate leader told Muñoz there would be no presentation, on account of a technicality. According to the Senate leader, despite the Water Resources Commission having full powers to draft and consider legislation, it had not yet been technically formalized. Muñoz found the silencing tactic to be a “very violent” affront to established Senate processes and insisted on going ahead with her presentation.⁷⁷ Ultimately, the Senate leader made a small concession: Muñoz was allowed to present the findings and legislative motion to change the Water Code, but the Senate was not allowed to debate it nor take a vote on it. In a defiant speech to the full Senate, Muñoz spoke for nearly two hours and conveyed to the Senate what she perceived to be a high degree of cross-party support for reforms to the Water Code.⁷⁸ Another part of that congressional procedure that those opposed to the reforms deployed was to insist that the project be examined by numerous committees, where it would be detained until more favorable political circumstances prevailed. Following its dispatch from the Water Resources Commission in August 2017, for instance, the “legislative delay” mechanism was used to stall the project in the Agricultural Commission where it has remained since.

[76] The senate leader, Andrés Zaldívar, had close ties with the business world. From 2006-2010, before entering the Senate, he reportedly received payments of approximately US\$ 5,000 per month from Aguas Andinas in exchange for monitoring congressional initiatives related to water companies and water in general. See El Mostrador (2015); Sepúlveda (2015).

[77] Interview with Senator Muñoz, Santiago, November 2018

[78] Interview with political adviser, Santiago, November 2018

A second strategy to block the motion was to expand the media campaign of fear. The same day the president of the Water Resources Commission was prevented from presenting to the Senate, the SNA posted an advert in *El Mercurio*, Chile's largest conservative newspaper, warning of a national debacle if the debate were allowed to proceed. The article warned that export-oriented agriculture would be vastly diminished, that jobs would be lost, and that Chile would lose its global standing as South America's first and only OECD member. While *El Mercurio* has lost credibility in recent years, its anti-reform message was effective in appealing to the fears of politicians across the spectrum.⁷⁹ The communicative strategy warning of a fall in global standing reached its climax towards the end of 2017 in the presidential election. During that campaign, especially after conservative candidate Sebastian Piñera performed poorly in the first round, media conglomerates, together with the conservative political bloc, deployed the term "*Chilezuela*", fomenting fear that the triumph of the moderate center-left would lead Chile down the Venezuelan path of economic and humanitarian chaos (Benedikter, Zlosilo, and Saeger 2018; González Le Saux 2017; Ramírez Hernandez 2018).

A third strategy deployed to dismantle the reform project, when it looked like it may be advancing towards approval, was for the governing administration itself to simply delay or veto the project. In October 2017, the Minister of Agriculture, Carlos Furche, announced that the government was "deprioritizing" the project that members of Congress had developed over six years (Federación de Productores de Frutas de Chile

[79] During the dictatorship, students and progressives popularized the phrase "El Mercurio is lying" ("*El Mercurio miente*"). Many commentators and activists continue to call out the paper for its falsehoods and have re-popularized the phrase during recent years, particularly as students call out media bias.

2017; Velasquez 2017). Speaking alongside figureheads of the agricultural lobby at the XIII National Agro Meeting in Santiago, ENAGRO, Furche explained that the government was moving to prevent the reform from being influenced by the radicalization of positions that can occur during election periods:

As a government, we have taken the decision not to accelerate and not to undertake any vote on this project in the election period, because it requires a mature, calm and serene discussion (Velasquez 2017).

Neither the Commissions working on the proposal, nor the governing parties' members of Congress, were made aware of the announcement in advance. It was particularly surprising to those who had worked on the proposal that the Minister of Agriculture of a center-left coalition that had publicly supported transformational reform to water law in 2014 made the announcement hand in hand with the SNA, the most vociferous opponents against the reform.⁸⁰

Financial and business leaders echoed the Executives' concerns about radical change. Segismundo Schulín-Zeuthen, ex-President of Chile's third largest bank, had advocated for a delay several months prior, expressing concerns that Bachelet's administration had "lost the values of dialogue and consensus" that had long characterized Chilean politics, and that proposed legal changes to water rights would bring uncertainty to land markets throughout the nation (La Tercera 2017a). *Libertad y Desarrollo*, the think tank founded by 1981 Water Code author Hernan Büchi, similarly suggested that the Water Code

[80] Interview with political adviser, Santiago, November 2018

reform sought to “authorize an expropriation at any time” and could impact the provision of drinking water, the generation of power, and agriculture and mining (Torres 2017).

Business leaders and the Ministry of Finance were right about the disruption that the water reform could give rise to. Indeed, water became one of the central political issues in the 2017 presidential election (Ojo con el Parlamento 2017). Alejandro Guillier, the center-left’s candidate and former TV journalist, expressed support for continuing the reform (Matus 2017). Beatriz Sanchez, the surprise surge from the radical left *Frente Amplio*, promised a progressive reversal of privatization and a redefinition of water as a common good. Eduardo Artes, of the *Union Patriótica*, promised water would become national property and “no longer be the banquet for extractive companies that leave no profits in Chile.” In the first round of the election, 56 percent of Chileans voted for candidates that supported reforms to water laws that were more ambitious than those being discussed in Congress (Ojo con el Parlamento 2017).




During his 2017 campaign, Sebastian Piñera, who would go on to win the election for a second non-consecutive presidential term, took a different view. Promising to reestablish legal certainty in private property rights over water, Piñera positioned the agricultural sector as central to continued economic growth and national success on the global stage (Piñera 2017). Many political advisers and commentators likened his campaign to the post-truth politics of Trump’s presidential campaign in the United States (Arostegui 2018; La Tercera 2017). In Chile, the fear tactics of his political campaign are widely credited as carrying Piñera to the presidency, following a run-off vote in December 2017.

Following Piñera's inauguration in March 2018, his administration took the immediate step of pouring scorn on the reform work that had taken place in prior years, essentially putting to its death the reform that in 2011 had sought to radically change the property regime around water throughout the country. Piñera's public works minister, Juan Andres Fontaine, put forth his government's view in March 2018 that the whole reform initiative was based on an ideological positioning that offered little benefit while threatening legal certainty and water security (López y Fuentes 2018). As the final nail in the coffin for the reform proposal, Piñera's agriculture minister, Antonio Walker, proclaimed in April 2018 that the existing Water Code was "friendly" (*amigable*) and that his administration would veto the reform by introducing an amendment (*indicación sustitutiva*) to reverse any challenges to the fundamentals of private property rights in water (El Desconcierto 2018).

Business elites seized on the discourse of legal certainty in water, amidst a continuing water crisis throughout much of the nation, to push for a very different future to that envisioned in the legal reform: an eco-modernist dream of mega-infrastructure to convey water from the south to the north of Chile, which several international boosters had lent support to. In the 2017 infrastructure forum "Projects for a better Chile", for instance, Sarge Green, director of the California Water Institute, said that a US\$ 20 billion water highway (*carretera hídrica*) was "essential for the country due to climate change" (Coagra 2018). Pointing to comparisons with the California water highway built 40 years prior—the largest infrastructure project of its time in the U.S.—Green suggested that the

Chilean case was more favorable due to its physical geography and that the country could see a boom in land values in the north if the project were to be realized (Musquiz 2017).

AQUATACAMA, LA CARRETERA DEL AGUA: CON LOS EXCEDENTES HÍDRICOS DEL SUR, IMPULSAR EL DESARROLLO DEL NORTE DE CHILE.

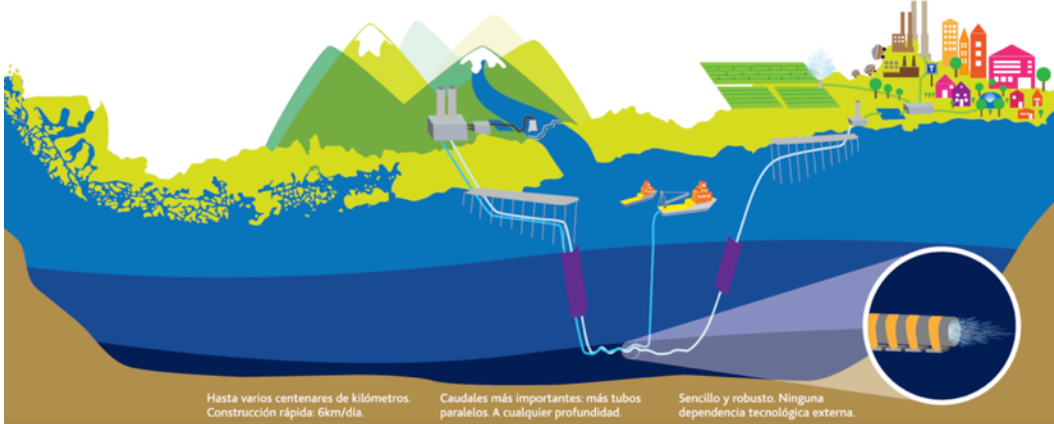
Chile dispone de más agua por habitante –en promedio– que la mayoría de los países del mundo. Pero ese promedio da cuenta de dos situaciones opuestas: en el sur los excedentes de los usos se vierten al mar y en el norte, la escasez local impide que el potencial de sus regiones se exprese plenamente.

¿Para qué producir agua dulce regionalmente cuando basta con transportar la que está disponible en las desembocaduras de los ríos sureños hacia las regiones norteñas necesitadas?

- Aquatacama constituye una solución social, particularmente ecológica y económica, a los problemas de agua del norte de Chile, permitiéndole al país incrementar su riqueza.
- La industria y la minería realizarán las inversiones pendientes.
- Transformando el desierto en vergel, Chile será una potencia alimentaria mundial.

- El abastecimiento de agua dulce de las poblaciones norteñas mejorará.
- Los servicios turísticos se desarrollarán aprovechándose del excelente clima.
- Todo ello redundará en más y mejores empleos en el Norte Chico y Grande, particularmente en mejoras significativas de la pequeña agricultura.

El nivel y calidad de vida de todos los hombres y mujeres de esas regiones crecerá.




Hasta varios centenares de kilómetros. Construcción rápida: 6km/día.

Caudales más importantes: más tubos paralelos. A cualquier profundidad.

Sencillo y robusto. Ninguna dependencia tecnológica externa.


Proyectos de traslado de agua hacia el norte de Chile

1 Proyecto terrestre



- Ambos proyectos consideran el uso de energías renovables para la elevación del agua.
- Los estudios económico-financieros de ambos proyectos muestran altos valores de rentabilidad social y económica. El sector agrícola sería el gran beneficiado.

2 Proyecto submarino



	Aquatacama	Va hídrica del norte de Chile
Proponente	Vía Marina, filial del grupo francés Vinci (Francia)	Euro Engineering Group (España/Chile)
Monto inversión	US\$15.000 millones para 60m ³ /s	US\$18.000 millones para 25m ³ /s
Lugar donde se toma el agua	En la desembocadura luego de que todos los dueños de derechos usaron sus aguas	En la desembocadura luego de que todos los dueños de derechos usaron sus aguas
Red	Galvanizada	Tenidos por trazo fijo principalmente al lado Norte S
Diámetro cañería	4 metros. En algunos tramos iban varios tubos paralelos según caudal.	Una o dos tuberías de 4 metros de diámetro con 4 tramos cada una.

Figure 21: Images of undersea and overland water highways that form one of the preferred solutions of Piñera’s conservative government and the agricultural lobby to the ongoing water crisis the country faces (<http://www.aquatacama.com/>).

As is clear from the foregoing, there are many veto powers in play and any comprehensive reform of Chile's Water Code still has only a remote chance of becoming reality. For water governance to be truly transformed, a constitutional amendment will likely be required to remove or amend the infamous private property clause (Article 19/24) that prevents reforms to the 1981 Water Code. That would require, according to several of my interlocutors, a more complete generational shift in politics, where those who worked under the dictatorship retire or die. Without a shift away from the ideology that upholds private property and market fundamentalism above all else, the required changes remain unlikely. Post-authoritarian water politics in Chile has been deeply constrained by the legacy of institutions that stifle legal reforms today. The new demands of citizens in Chile have moved faster and further than what legislative politics can keep up with. It has fallen, as Siavelis (2016) suggests, to social movements to set the agenda for change aimed at addressing the deeper problems of political and social inequality.

5.7 Beyond Congress: going global in the pursuit of legal change

For Modatima, the pursuit of change through Congress was but one component of their strategy to pursue an end to the dictatorship's water laws. Indeed, its leaders told me that they were far from convinced that participating in congressional politics alone could yield the desired reform, or abolition, of the private property clause in the 1980 Constitution and the rules that facilitated dispossession of water and speculation in water markets in the 1981 Water Code.⁸¹ Other pillars of the movement's strategy included mobilizing smallholders and their families in Petorca, such as the barricading of Highway 5—the

[81] Interview with member of Modatima, Santiago, November 2018.

longest road in Chile and part of the Pan-American Highway (Mundaca 2015). Such efforts were part of their larger strategy to draw attention to the relationship between extractive development in the countryside and the maintenance of cosmopolitan urban consumerism. If far off consumers could be made aware that their avocado consumption was premised on dispossession and suffering in the Chilean hinterlands, they hoped, public opinion and pressure may escalate the radical opposition to existing water laws.

By the time the lower house of Congress was close to advancing the Water Code reform to the Senate in late 2016, local leaders in Petorca had succeeded in popularizing the water crisis in national news. In May 2016, a team from the international journalism outlet Danwatch arrived in Petorca to document the water crisis there (Voller 2017a). Danwatch is an independent media and research center, specializing in investigative journalism on global issues, and part of a journalistic network with The Guardian and Al Jazeera. In researching the crisis, Danwatch's journalists spoke to citizens, local politicians, researchers and movement leaders. One of Modatima's members pointed the team to speak with the Heinrich Böll Foundation (HBS), which had trained citizens on legal issues on water rights.⁸² HBS would later be an important source of advice for the movement's leaders after the investigation went into publication.

Danwatch published its investigation, "*Avocados and stolen water*," in March 2017 (Voller 2017a). The investigation traced the links between avocados sold to Danish

[82] The Heinrich Böll Foundation is a think tank that maintains close ties to the German Green Party (Alliance 90/The Greens). It is part of an international network encompassing over 100 partner projects in approximately 60 countries. According to its website, it is concerned with "ecology and sustainability, democracy and human rights, self-determination and justice". <https://www.boell.de/en/who-we-are>

consumers and violations of the human right to water in Petorca, where an increasing number of citizens were deprived of water and supplied by emergency water tankers. The investigation reported that, because of Chile's Water Code, the avocado plantations in Petorca province have "legally been able to empty the rivers of water", that a number of avocado growers have been "accused of illegal water extraction, and several have been convicted of violating the Water Code." It reported further that Danish supermarket chains had expressed their intention to change their purchasing policies for avocados from Chile's Petorca province following the investigation. The reporters approached the largest supermarkets in Denmark, which provided responses on whether they had sourced avocados from Petorca, with the major supermarket chains Lidl and Aldi committing to ensuring that no avocados from Petorca would be sourced in the future.

Chilean villagers claim British appetite for avocados is draining region dry

UK demand for fruit increased by 27% last year alone, prompting accusations that growers are illegally diverting rivers and leaving locals without water



▲ Demand for avocados in the UK has soared in recent years, and 67% of those avocados come from the Valparaíso region in Chile. Photograph: FotografiaBasica/Getty Images

Figure 22: International media in 2017-18 focused on the relationship between European consumers of Chilean avocados and the social, ecological and political nature of the water crisis in Chile. From The Guardian, May 2018.

The news of impoverishment and water deprivation did not stop at Danish consumers and Danish supermarkets, but soon circulated throughout Europe. In May 2018, The Guardian published an article entitled “*Chilean villagers claim British appetite for avocados is draining region dry,*” highlighting that 67 percent of the UK’s Chilean avocados come from the region where Petorca is located (Facchini and Laville 2018). Supermarkets in the UK sourcing avocados from Petorca included Tesco, Morrisons, Waitrose, Aldi, and Lidl. As a direct result of the reporting, the British Retail Consortium, which represents the supermarkets, announced it would begin an investigation into its sourcing of Chilean

avocados. Similar news articles were published in French and German news networks (France 24 2018; Weltspiegel 2018). In late April 2018, the issue reached its largest global audience through the online launch of the Deutsche Welle documentary “*Avocado – Superfood and Environmental Killer*” (Deutsche Welle 2018).

The investigations published in continental Europe, 8,000 miles away from the Chilean hinterlands, provoked strong reactions from the conservative bloc back in Chile. Several members of Modatima were subject to aggression and intimidation, with its leader Rodrigo Mundaca receiving credible death threats from anonymous callers (Voller 2017b). Amnesty International initiated an urgent action to protect Mundaca and other members of Modatima who had received such threats for exposing the crisis to international audiences (Amnesty International 2018). The Chilean National Human Rights Institute, too, issued protection measures including police protection for the movement’s members, some of whom who went into hiding.⁸³ The avocado lobby, representing large land, agriculture, and water owners, threatened to sue Danwatch, though it never followed through on its threats.

[83] Interview with staff of Heinrich Böll Foundation, Santiago, November 2018

NEWS
THEMES
INVESTIGATIONS

Danwatch

Danwatch is an independent Danish prize winning investigative media and research centre, specialized in investigative journalism on global issues.

We investigate states', companies' and investors' impacts on human rights and the environment, and hold power to account in the public interest.

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How we are financed
Om Fonden Danwatch

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News

Activist receives death threats following Danwatch avocado investigation

30. MAR 2017

The life of a Chilean activist was threatened last week as a result of his involvement in a Danwatch investigation into avocado production and water theft in Chile. "Absolutely reprehensible," say supermarkets that have been buying avocados from Chile.

By: Louise Voller, Norma J. Martinez and Louise Maria Skotte Møller.

Picture of Rodrigo Mundaca, by Uffe Weng

On Monday, March 20, Rodrigo Mundaca received an anonymous call on his mobile phone.

"The voice on the phone just said that I should keep my mouth shut and then asked, 'What size are you? We have to find your *traje de madera* (wooden suit, *ed.*).' In Spanish, that refers to a coffin," explains Mundaca.

INVESTIGATION
AVOCADOS AND STOLEN WATER

Avocado production in Chile is draining water resources to such a degree that local residents now lack water. In the area where most of Chile's avocados are grown, a battle is being waged over water rights. At least one supermarket chain has indicated it will change its purchasing policy for avocados from this area.

Figure 23: Danwatch reports on death threats to Rodrigo Mundaca, activist with Modatima, following publication of Danwatch's investigation into water theft

Thereafter, the avocado lobby mobilized the levers of control that landowners in Chile had used to maintain political dominance for centuries: discrediting their critics in conservative-owned media and communicating their demands directly to politicians. In an effort to discredit Modatima in Chile, the lobby labeled its members "extremists" and "eco-terrorists" that damaged Chile's reputation on the world stage, where the conflict was now being played out.⁸⁴ In an attack on the European investigations, the lobby undertook a European tour seeking to make the case to supermarkets and consumers that the reporting comprised "fake news" based on unreliable sources and the testimonies of eco-terrorists (Leahy 2018). The group, which included the President of the Fruit

[84] Interview with staff of Heinrich Böll Foundation, Santiago, November 2018

Exporters Association (ASOEX in Spanish) and the President of the Hass Avocado Committee, refuted claims made in European media regarding human rights violations and the water crisis in Petorca, insisting that the water shortage was the result of climate change, a prolonged drought, and state mismanagement on the part of the DGA.

According to Ingrid Wehr, head of HBS, the tour reinforced the impression that the lobby represented the views of feudal landowners (*latifundistas*) unwilling to respond to the human rights concerns of middle-class European consumers or the people in Petorca (Wehr 2018). The lobby attacked prestigious European media outlets, labeling them liars, without presenting information to disprove the reports. Additionally, the lobby had the Chilean minister of foreign affairs, Heraldo Muñoz, urge the Danish foreign ministry to take down Danwatch's investigation. The Danish minister responded that the government would not meddle with the Danish press, as the press was independent. Such events reinforce the notion that the Chilean agricultural lobby—the most vociferous opponents of the Water Code reform—maintains favorable relations in media control and direct influence over politicians in Chile. While these connections have long proven indispensable to further the interests of Chilean elites domestically, they have proven to be less effective internationally. In a commentary in *El Mostrador* in mid-2018, Wehr called out the Chilean agricultural lobby for being out of touch on global social issues:

The message that has not yet reached the large avocado exporting companies is that in a world increasingly integrated by international trade, human rights standards are also globalized... what escaped the Chilean business elite was the fact that global markets are not only composed of capital and product flows, but also increasingly demanding consumers in terms of human rights and environmental standards (Wehr 2018).

According to my interviews with members of Modatima, the internationalization of the water crisis in Petorca was a highly effective component in pressuring members of Congress and the Chilean government into taking action, though it places its hopes on the long game and the reality that the hegemony of national law is increasingly precarious. The pains of the water conflict have reached national and international news, drawn condemnation from European consumers, and been closely tied to the efforts to reform national water laws in Congress. The desired outcome of those suffering in Petorca—the abolition of the dictatorship’s water laws and the democratization of water governance—has little prospects of being realized under the current administration. Yet still, things are not as they were and ‘the art of the impossible’ remains a rallying call for the collective pursuit of political transformation. Through the years since Modatima’s founding in 2011—the same year that the water law reform entered its journey through Congress—Chile has witnessed one of its most fervent challenges to the consensual governance of the neoliberal order that displaced genuine politics for several decades. Modatima and its political allies have made clear inroads in re-politicizing questions of resource extraction and national development, until now silenced, in their pursuit of radical transformation.

CHAPTER 6: CONCLUSION

If the ruling class has lost its consensus, i.e. is no longer “leading” but only “dominant”, exercising coercive force alone, this means precisely that the great masses have become detached from their traditional ideologies, and no longer believe what they used to believe previously, etc. The crisis consists precisely in the fact that the old is dying and the new cannot be born; in this interregnum a great variety of morbid symptoms appear.

— Antonio Gramsci 1971:275-6)

6.1 Seeing politicization in practice

This study was motivated by the seemingly permanent condition of crisis that grips major cities worldwide in their struggle to guarantee water supplies for urban residents, as well as a concurrent global wave of uprisings over the past decade against governing authorities. These phenomena, as I have demonstrated, are manifest strongly together in Santiago, Chile, where a post-2011 wave of political action threatens to destabilize the political economic hegemony inherited from the nation’s 1973-90 military dictatorship. Through the dissertation, I have sought to understand why politicization takes the form it does in Chile, as well as to examine the extent to which politicization is having any real effect on reconfiguring the institutions of urban governance. Practically and methodologically, I was fortunate to gain a high degree of access to some of the corridors of power in Santiago, first in the private water utility, and later in Congress and the offices of political parties. Those opportunities allowed me to study up close how an elite class of politicians and professionals responds to times of political change. I also roamed the streets of Santiago during protests and met a new generation of politically active youth disillusioned with the inherited political economic order and determined to change it. The position I took up, straddling a chasm between those social groups, at times led

me to discoveries of highly contentious views. But it was in the more mundane day-to-day activities, on the twelfth-floor planning department of the water company, and in public fora, that I came to understand firsthand many of the diverse worldviews that exist on water, development and politics in Chile. It was in *seeing* a chapter of the nation's political change through the lens of water across territories and scales that I came to appreciate why politicization takes the form it does in Chile. Through the study, I gained insights into the effects of politicization on planning for the future of urban water, how protest and uprising translates to the formal political arena, and last but not least, why, despite a clear opening in the bounds of acceptable political discourse and imagination, the efforts of socio-political movements have thus far failed to yield any transformative effect to the inherited institutions of water law. Through processes of re-politicization, the old institutional order appears to be suffering a fall from grace. But as I demonstrate, the political class across both major governing coalitions remains fearful of deviating from the political economic project instituted under dictatorship. That political economic project is both celebrated and infamous, locally and internationally. The ideological commitment of the political class to that legacy, and its pride in Chile's economic global standing, contribute to preventing a new institutional order in water from emerging, despite efforts by socio-political movements and the arrival of new, leftist political representatives into legislative bodies following the 2011 urban uprising.

The ideological success of the civico-military dictatorship (and the cadre of economic technocrats that it empowered) to radically evacuate politics from social life has been ruptured in Chile. Those depoliticizing dreams were largely realized following the return

to formal democracy, through the consolidation of a narrow, consensual form of post-political water governance. In the 1990s, efforts to democratize water laws and remove the hangover of juridical incoherency from the pre-democratic era were blocked by a political and business elite that those laws had empowered. However, as I show, political opposition to that model of water governance had intensified dramatically since around 2011, when a number of factors combined to enable a politicization of the inherited institutions of water law. Those factors include (i) the failure of a private water firm to depoliticize disruptions in water supply to the nation's capital (ii) the hyper-inequality in water access across the national territory produced by legally-sanctioned processes of accumulation by dispossession and (iii) a loss of fear of political disagreement in a new generation of youth, which translated from urban protest in 2011 to institutional politics.

What remains at stake in this water conflict, which I interpret as a political conflict, is much more than debates about optimizing water management. Rather, the politicized struggle over water represents a larger rejection of post-political neoliberal governance in which genuine contention and dissensus was sidelined for several decades. The post-2011 political moment represents the return of confrontation, antagonism, and questioning of the inherited order. Some of the semblances of politicization include the delegitimization of the capital city's private water company, the pursuit of reforms to the laws that govern private water companies, the challenging of constitutional-level protections on property rights, and continuing unrest on the streets amidst continuing discontent with a seemingly unchanging neoliberal development model.

This dissertation forwards two central arguments in unpacking how shifts in urban politics and planning are shaping Chile's water futures. First, I suggested that the knowledge that planning staff at Aguas Andinas constructed on the crises was deployed publicly by the company to promote a reductionist discourse that artificially pits "nature" against "society". The company's strategy to define the "problem" of Santiago's water crisis as a "natural" one demonstrates the depoliticizing power of climate change as a framing discourse. In contrast to other transnational and domestic corporations that may be understood as climate *delayers*—including AES Gener and industrial groups slowing down action on national climate policy (Cárdenas 2019)—Aguas Andinas can better be understood as a climate *profiteer*. Indeed, Aguas Andinas' embrace of climate change proved effective initially in deflecting attention away from their sustained annual profits during the crisis (which reached upwards of 20 per cent in 2015-2018) and onto the "need" for US\$ 200 of emergency infrastructures provided by novel finance mechanisms. That narrative strategy proved to be only partially successful in neutralizing political claims against the company, which found itself mired in controversy during the crisis.

Second, I demonstrate how, in these increasingly conflictual times, the company's response to the crisis was not enough to prevent political action against it. Despite the company's efforts to depoliticize the water supply crisis facing Santiago, leftist politicians in Congress in 2016 sparked a significant challenge to the company (and other private water suppliers throughout the nation) by seeking a reform to the laws inherited from the final years of the dictatorship. In the post-2011 moment, the planning apparatus of private companies appear to lose its ability to depoliticize contentious legal issues.

In order to situate the relevance of the Aguas Andinas case within the broader spectrum of Chilean water struggle, this dissertation also presented an examination of the relationship between Aguas Andinas and the formal political arena. I showed that the political moment of protest on the street translated to the formal political arena, when four youth leaders from the “generation without fear” were elected to Congress and some were outspoken on water issues. Drawing on an examination of congressional documents, media, and interviews with members of Congress, I argued that the formal political arena remains a challenging avenue for change to inherited institutions: in politicizing times, private companies can still turn to their well-established relationships that mostly take place on the “back stage” of politics away from public view. I traced the trajectory of a reform proposal that sought to eliminate guaranteed profits for urban water companies, involve citizens for the first time in the tariff-setting process, and increase the state’s regulatory powers over urban water services. The reform was approved unanimously by the lower house of Congress in late 2016, sending shockwaves outwards from Santiago globally, as share prices of Chilean water companies tumbled and international investors scrambled to make sense of what the reform meant for the future of private urban water provision in the country. I showed that despite this success in the lower house, a highly political relationship between the company and the formal political arena prevails. Through that relationship, the company has sought to maintain the legal status quo through a strategy that appeals to the fears of the political class (across the political spectrum of center-left and center-right governing coalitions). The company deployed several tactics in support of that strategy, including (i) directly engaging government

ministers to encourage them to veto congressional reform proposals (ii) mobilizing foreign embassies to threaten capital flight across multiple industries beyond water and (iii) remaking its public image. The examination of this relationship sheds light on the ways in which, in politicizing times, private and state actors collaborate to stave off the possibility that uprisings on the street, when they translate to the formal political arena, have any real effect on inherited institutions. As McDonald and Swyngedouw (2019) have argued in the context of new struggles around urban water ownership, there is an urgent need for empirical research on “failed” cases of taking water back into public hands or otherwise radically challenging private ownership models, in order to learn more about the forces acting to counter progressive reforms. This exploration of Aguas Andinas’ strategies to prevent legal change in Chile, an emblematic global model of private water management, makes an important contribution to that emerging literature.

Looking beyond the city, I demonstrated through the dissertation how the most intensely politicized dimension of the struggle over water law took place through the contested relationship between non-urban landscapes of extraction and the urban regions that benefit from them. The intense drought throughout Chile’s central region, the extreme levels of dispossession and accumulation of water that the state’s policies gave rise to, and the explosion of anti-establishment sentiment in the post-2011 political moment combined to create the conditions for re-politicization. As I discussed in Chapter 2, genuine political expression around water management issues had never fully recovered in the post-Pinochet years as successive neoliberal governing regimes foreclosed difference and dissent through a post-political regime of technocracy and consensus. In

the post-2011 period of re-politicization, the water laws that appeared to be settled were de-naturalized and unsettled. The smallholders' movement, through its staging of performative protest on the streets and its participation in Congress, threatened and disrupted the illusion of order that had prevailed for several decades. In light of the movement's political demands, which went beyond the immediacy of water issues to demand constitutional-level reforms to the laws on which the nation's economic activity is based, it makes sense to also view re-politicization in relation to law. As Grewal, Kapczynski, and Purdy (2017) have argued, law was central to how contemporary crises were created, and will be central to any reckoning with them. Law conditions wealth accumulation, social reproduction, and ecological destruction. It also conditions the political order through which we must respond. The impact of the re-politicization of Chilean water law was so far-reaching that it became one of the central political issues in the 2017 presidential and congressional elections. On the pro-business side, the conservative candidate Piñera promised to reestablish legal certainty in private property rights in water and uphold the water laws of the dictatorship that it deems to be economically "friendly." On the other side, radical reform to water laws became a key plank of the leftist *Frente Amplio* coalition that experienced a surge and performed far better than any mainstream commentators expected. Materially, the 2011 reform was contorted and dismantled by entrenched interests in Congress, all but meeting its demise in 2018 following Piñera's inauguration as president for a second term. At the same time that the political class was seeking to suppress reforms to water laws, agricultural elites were talking up climate change as a justification for vast new infrastructures for inter-basin water transfer from the south to north of the country. Complementing the findings

from my analysis of the struggle over urban water in Santiago, I therefore argued that the formal political arena remains a challenging avenue for changing inherited national-level water laws. In a context of seemingly favorable political conditions—where a socialist president was elected in 2014 promising wide-reaching water law reforms and political expression was on the rise—what we can learn most about is therefore the strategies at work, through entrenched interests and beyond, to *thwart* transformational change.

A first explanation for the thwarting of institutional change is the *incompleteness of generational shifts in Chile*. The “generation without fear”, born and raised after the fall of the nation’s 1973-1990 dictatorship, has been pivotal in questioning the inherited institutions that underpin the inequities in water, education, and collective consumption more broadly. That politicized generation has, in the post-2011 moment, questioned the need for “more development” in the form of massive hydropower infrastructures in Patagonia and the upstream catchment of the Maipo River, as well as extractive mining and agro-export industries. Among the dominant political class across both major governing coalitions, however, much as in the business and agro-export community, a developmentalist culture persists that views the economic reforms enacted under dictatorship as the pathway to modernization. The water laws that underlie the export-oriented agricultural reforms begun in the late 1980s and continued to present, for instance, are protected by both major governing coalitions, who join forces to perpetuate the nation’s role as an extractive territory in a globalized agricultural market. Though one of the governing coalitions (the *Concertación*) gestures towards reform in public, both coalitions work hand in hand with the agro-export lobby to foreclose a democratization of

water law due to their fears of national economic demise and personal financial loss. They do so through a range of strategies including (1) congressional procedures to delay reforms until more politically favorable conditions prevail (i.e. the conditions under Piñera's 2018-2022 administration that tends towards reinforcing the legal status quo), (2) messages of fear in media, and in Congress, to shape public and political opinion, and (3) Executive veto power. In apparently politicizing times, these strategies combine to preserve an increasingly fragile hegemony in the laws that sustain existing economic and political elites. The beneficiaries of the legal status quo appear to be ideologically committed to defending it at all costs, while popular political demands and socio-natural conditions continue to evolve in a direction of inevitable change. As several of my interlocutors put it, a more complete generational shift will be required in national politics, where those who worked under the dictatorship retire or die and are replaced by the newly politically-active generation. As the material accumulation and concentration of water rights and wealth in fewer and fewer hands continues, it seems unlikely that the politicization of water law and extractive national development will abate.

A second factor that explains why change is thwarted relates to wider *political instability across the Latin American region*. Following a period of leftist political resurgence across much of the region throughout the “pink tide” from the late 1990s, in which countries including Argentina, Brazil, Ecuador, and Venezuela pursued redistributive economic policies sustained by a global commodity boom, by 2015, that tide had ebbed. With the fall in commodity prices and ensuing economic instability, politics in the region became more fractured. Argentina and Brazil saw center-right and extreme-right factions

take control of national development, while Venezuela's authoritarian leftism became more entrenched and the nation spiraled into economic and humanitarian chaos. Throughout the 2017 presidential and congressional elections in Chile, the political right seized on wider political instability across the region to warn voters that any turn towards redistributive economics would lead the nation on a path towards "Chilezuela", a fictional dystopian future that shared living conditions with contemporary Venezuela. The SNA, a significant conservative influence in statecraft in Chile, warned that if water laws—which it sees as a key pillar in national economic growth—were reformed, export-oriented agriculture would be vastly diminished, jobs would be lost, and Chile could lose its global standing as South America's first and only OECD member. As the Chilean 2017 elections proceeded, the conservative coalition that would go on to win the presidency positioned "legal certainty" in water rights as a central pillar of maintaining a friendly investment environment for economic growth. Once inaugurated, the new administration proclaimed in April 2018 that it would veto any reform to the existing Water Code to reverse any challenges to the fundamentals of private property rights in water. Wider political instability across the region, thus, appears to be a central rationale of the political class in Chile to prevent the democratization to inherited water laws that activists and recently elected leftist political representatives are demanding.

A third factor that explains why change is thwarted relates to *Chile's deep articulation with global economic forces*. In its transition from the mid-1970s, the military dictatorship, under the guidance and market fundamentalist ideology of the "Chicago Boys", enacted state policies that transformed the country's economy from one of

primary-commodity dependence to one of the world's most emblematic examples of globally-linked diversified export-led economic growth. The water law established during that period of economic boom was, and remains, a pillar in the country's agricultural and mining export-oriented economic rise and stability. Successive administrations from the early 1990s adopted a set of programs that sought to integrate more completely to the capitalist world economy, by negotiating free trade agreements, lowering tariffs and thus tapping into untapped and larger markets for a diversified set of exports. With the Chilean economy now highly integrated into the global capitalist system, extra-local political and economic influences that operate beyond the control of Chilean domestic politics lend support to the inherited water laws central to Chile's economic boom. A clear example of extra-local forces shaping hydro-social materialities in water is in export-oriented agriculture, where the demand for avocado in foreign markets has boomed in recent decades and promoted the accumulation by dispossession of water in regions such as Petorca, the "epicenter of the violation of the human right to water". Those macro economic forces provide the Chilean state with the rationale to maintain water laws as they are and to continue processes of capital accumulation that render much of Chile a "territory of extraction" in an uneven global capitalist system. Another example of the influence of extra-local forces on society-water relations is Chile's openness to the financialization of infrastructure, where foreign investors using novel financing instruments are increasingly seeking to reshape infrastructural landscapes in Chile. The country has a history of pension funds investing in infrastructure bonds (Vives 1999) . In this dissertation, I have explored how private companies and politicians have used discourses of climate change to promote the provision of new infrastructure through

novel financial vehicles. In one instance, Aguas Andinas issued the first “green bonds” in the domestic market in April 2018. Chile followed that by becoming the first Latin American nation to issue a sovereign-backed green bond, raising \$1.42bn in 2050 notes for climate and sustainability-related infrastructure projects (Azzopardi 2019). The turn to the climate narrative to construct new mega-infrastructures should be understood in relation to the wider global ascent of institutional and private investors in infrastructure as a sub-asset class within financial vehicles (Inderst 2010) or a quasi-asset class of its own (Carolini and Cruxen 2019). Projects such as the multi-billion dollar Alto Maipo hydropower scheme, backed strongly by the U.S. government and international banks, form part of the wider global ascent of infrastructure finance. Crucially, this dissertation exposes the power of the climate narrative to facilitate infrastructural investment while deflecting from demands for change in water law. Chile’s deep articulation with global economic forces, in agricultural and infrastructural markets, provides evidence that extra-local forces continue to protect inherited water laws and work to overpower new demands for democratization of water law in domestic politics.

The material and symbolic reshaping of Chilean politics is evident in relation to the now ubiquitous presence of protest and rebellion. For decades, the people did not appear to matter in a depoliticized water politics. By 2018, however, the people had firmly challenged the Chilean state that rendered them invisible from political debate and public discourse. Socio-political movements have not, as of yet, succeeded in transforming Chile’s national water laws. They have, however, through protest and performance, made their struggle visible on the international stage, reshaped the national debate on the future

of water and institutionalized a permanent Congressional committee that must address the nation's water crisis produced in significant part by its water laws. In circumventing the Chilean state and media, and demanding that they be named and recognized by European consumers and credible investigative journalists, the Chilean activists articulated a voice that disrupted the existing order and compelled vested interests to threaten and intimidate them. Their occupation of physical space on the Panamerican Highway, and political space in international human rights fora and European documentaries, remains a powerful act of defiance that may yet play a role in paving the way for transformational change to the institutions of water law.

6.2 Implications for theory

A first original contribution of the dissertation relates to how, in politicizing times, water utilities perceive, rationalize and respond to contemporary challenges. Existing literature on contemporary challenges to water utilities comprise apolitical, technical, normative prescriptions of how water utilities *should* undertake planning. In contrast, my dissertation contributes new empirical knowledge on how water utilities *actually* understand contemporary challenges, how they rationalize and construct “problems” to solve, and the strategies they deploy to pursue their desired solutions. Specifically, I develop an understanding of the processes through which a private water utility reduces shifting socio-natural relations to a “problem” for which it has a solution. In the case that I examine, the company's socially constructed problem is an out of control nature, while its solution is the provision of vast new mega-infrastructures. Its climate-as-villain narrative is effective in promoting new infrastructure. It is less effective, however, in

stemming challenges to the laws that the company benefits from. Through an approach inspired by the hydro-social lens (Linton and Budds 2014) and a sociopolitical understanding of law (García-Villegas 2016), I explain how, in times of discontent and shifts to climatic patterns, private companies can lose their ability to protect existing laws that benefit them. This contribution builds on critical examinations of the ways that planning for climate change adaptation operates in practice often with negative effects (e.g. Anguelovski et al. 2016; Eriksen, Nightingale, and Eakin 2015) as well as the ways that private companies prevent remunicipalization (McDonald and Swyngedouw 2019).

A second original contribution relates to scholarship on post-politicization. The frame of the post-political in urban politics (see e.g. Swyngedouw 2010; Swyngedouw 2018; Wood 2016) has been of undoubted significance in exposing the mechanisms through which urban governance has been ‘hollowed-out’ in recent decades and the ways that genuine debate on political alternatives has narrowed and foreclosed. It is also, as I have demonstrated, a highly appropriate lens through which to understand the shifting political times in contexts of urban uprising and a desire for political change such as the one I examine. As is the case for any concept that seeks to make sense of emergent phenomena in a larger structural trend, politicization requires disambiguation across temporal and spatial geographies. *What* is politicized and *how* will vary from place to place and across time. It has been my intention in this dissertation to move beyond, and to complement, philosophical debates on the post-political (Beveridge and Koch 2017; Swyngedouw 2017; Li 2019) with an empirical engagement of politicization in practice within geographies traditionally neglected in such a framing. Responding to Tania Li’s call for

the study of critical politics in practice, I foregrounded the concrete, historically situated practices that seek to fracture and disassemble formations of power, and subject them to critical challenge. When I began the study, I did not know whether the critical challenge posed by socio-political movements would have real effects on the institutions of water law. As it turned out, the struggle appears to have concluded, for now, with no major change to those laws. The case that I studied represents, therefore, one where counter-hegemonic critique meets *resistance*, where potential pathways of transformation are *interrupted* and *foreclosed* by those who seek to sustain and reproduce the status quo. These findings are critical for understanding how politicization originates and evolves within geographies like Chile, with strong recent legacies of political repression and neoliberal political economy. In many ways, Chile is a poster-child for the study of this phenomenon, given the success and strong legacy of its techno-managerial governing strategy initiated under Pinochet and deepened during democratic rule. As such, the Chilean case offers theoretical contributions that help to explain the relationship between processes of politicization and the perpetuation of the way things are. First, it theorizes the importance of law as a terrain of politics, demonstrating law's centrality in the outrage at the inherited order and the contestation over future directions that opposing sides push for. Second, it theorizes the politicization strategies through which the parameters of debate are widened, the collective imagination of alternative orderings of governance is awoken, and political action that was previously conducted "back stage" is dragged on a public "front stage". Third, it explains why politicization and reform efforts fail to have any transformative effect on water laws. This last contribution is critical to building out the knowledge frontier on how politicization is shaping urban governance

and politics in countries like Chile, which are subject to “developmentalist” trajectories defined by international lending bodies and private investors. The importance of Chile’s reputation within such arenas remains a major influence on the political class under democratic rule, as that class has come of age with a naturalized fear of deviating from the political economic project and its central laws instituted under dictatorship.

The rising challenge to extractivist development is far from unique to Chile. Indeed, in other nations across Latin America, increasingly high-profile protest campaigns of different form have emerged against development paths that rely on economic growth through mining, oil, and agribusiness. In Ecuador and Bolivia, such campaigns have challenged the dependency on extractive commodity-based development through a similar attention to law as in Chile. Such resurgent waves of thought, with indigenous notions including *Buen Vivir* and the rights of Pachamama, have influenced the highest laws of the land through the rewriting of national constitutions. The experience documented here shares with other contexts a desire for an overhaul of outmoded institutions and development paths. There is great potential for continuing comparative research in the region aiming at understanding the connections between, and the potentialities of, protests, politicization, and the pursuit of legal transformation.

6.3 Counter-arguments, limitations and future research

Counter-arguments to this study are likely to originate from limitations in generalizability and in paradigms of knowledge. In the first instance, the study represents somewhat of a snapshot in time, delimited by the realities of fieldwork funding and the finite time

horizons of a career as a graduate student researcher. The story of the potential of a political reawakening in Chile to generate an institutional transformation is far from over. While one period of contestation of inherited water laws appeared to close in 2018 with a declaration to that effect by Piñera's center-right government, there are few guarantees that the hegemony of Chile's water laws will withstand future political challenges and socio-natural realities. One director that I interviewed from Aguas Andinas, relieved that the challenge to urban water laws was prevented for now, expressed concern that a leftist resurgence in 2021 could see the company "lose everything". The situation will evolve and require further empirical study. In terms of external validity, questions may be raised about the findings generated from a deeply engaged empirical study focused around one locale. Given that aspects of the Chilean model of water governance were exported globally throughout the 1990s through the efforts of the World Bank, IMF, and IBD, however, it is likely that some similar conditions to the water crisis (a political crisis) in Chile prevail elsewhere. It is also likely that the conditions of urban rage and water crisis that gripped Santiago since around 2011 exist in some of those other cities. As such, the findings expressed here may resonate with emerging political shifts in other geographies, where inherited institutions are contested through the formal political realm and beyond. Nevertheless, detailed study will be required to confirm or deny whether politicization takes similar forms and has similar effects in those more-or-less similar contexts.

A second challenge is that of counter-arguments emanating from different traditions of thought underpinned by different paradigms of knowledge. It should not be expected, for instance, that economists and legal scholars working within the confines of the global

consensus on water management pose similar questions to those in this study, or seek evidence in the places that I looked. The work of critical theoretical scholarship entails a different orientation from that orthodox worldview and responds to different concerns. Similarly, but from a vastly different standpoint, it should not be expected that indigenous scholars of politics in Chile ask similar questions or find similar answers. I make no claims to speak on behalf of any social group in Chile, but humbly hope that this study resonates with the research and activism of other individuals interested in the issues of democratization, justice, and the pursuit of institutional change.

In my own future research, I intend to explore a theoretically-oriented and comparative line of scholarship on processes of post-politicization, seeking to explain the different forms and outcomes of processes of re-politicization across post-political geographies. Whereas in the Chilean case, politicization led to a discursive political opening but no real, lasting change to inherited laws, I am interested in studying instances in which discontent and dissensus do translate into far-reaching institutional change. Ultimately, I am interested in a research agenda that explores in detail the enabling conditions for politicization to lead to transformative change in the pursuit of water justice and a more humane and ecologically sane form of urban life.

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