

2013

# Water Governance in Bolivia: Policy Options for Pro-Poor Infrastructure Reform

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## Recommended Citation

Maxwell, Daniel M., "Water Governance in Bolivia: Policy Options for Pro-Poor Infrastructure Reform" (2013). *CMC Senior Theses*. Paper 767.  
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CLAREMONT MCKENNA COLLEGE

**Water Governance in Bolivia: Policy Options for Pro-Poor Infrastructure Reform**

SUBMITTED TO

Professor William Ascher

AND

DEAN NICHOLAS WARNER

BY

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for

SENIOR THESIS

Fall 2013

December 2, 2013

## Abstract

As the case with most countries across Latin America, unprecedented migration to urban areas has strained city infrastructure systems. More particularly, the region faces a pressing crisis of water security, where rapid urbanization has outpaced water sector development. This thesis addresses the water infrastructure reform in El Alto and La Paz, Bolivia, focusing on strategies to better promote water access for the peri-urban poor. The research investigates the level of progressivity of water service expansion and pricing regimes: in other words, does the present model of water distribution positively improve the lives of the poorest groups? By investigating these social dimensions of water management, this study brings perspectives on the broader dialogue on Bolivia's economic development, along with issues of participatory governance.

**Resumen:** Como es el caso en muchos países latinoamericanos, la migración a áreas urbanas a niveles sin precedentes ha superado la capacidad de infraestructura. Concretamente, la región se enfrenta a una urgente crisis en la seguridad de agua potable dado que la rápida urbanización ha sobrepasado el desarrollo de este sector. Esta tesis aborda la reforma de la infraestructura de agua potable en El Alto y La Paz, Bolivia, enfocando en las estrategias para mejorar el acceso a agua por parte de los residentes periurbanos pobres. La investigación averigua el nivel de progresividad de los regímenes de precios y expansión de servicios de agua potable. En otras palabras, ¿contribuye el actual modelo de distribución de agua al mejoramiento de la vida de los grupos más desfavorecidos? Al investigar estas dimensiones sociales en el manejo de agua potable, este estudio ofrece perspectivas en cuanto al diálogo amplio del desarrollo económico de Bolivia, así como asuntos de gobernanza participativa.

## **Acknowledgements**

I would first like to express my wholehearted appreciation for my parents, Andrew and Sylvia, for all of their support throughout the years. I thank them for their tremendous help with my educational development, along with other facets of life.

I am also very grateful for the many people involved with this project. I acknowledge my thesis reader, Professor Bill Ascher, for his invaluable guidance and insight. I would also like to thank Professor Ellen Rentz, Professor Roderic Camp, and Professor Arthur Rosenbaum for their generous feedback and direction throughout the project's initial stages. I also appreciate the accommodating research supervision provided by the faculty of UMSA Postgrado en Ciencias del Desarrollo. In addition, I would like to thank Dr. Marisa Escobar of the Stockholm Environment Institute for her helpful consultations.

I am also indebted to Tio Antonio and Tia Rocio, who generously hosted me during my summer in La Paz. I thank them with great gratitude for offering their warm welcome.

This project was made possible under the Peter Adams International Internship Program and the Keck Center for International and Strategic Studies. I appreciate the guidance and patience of my academic advisor, Professor Minxin Pei, as I developed my proposal. I also acknowledge Mr. Laurent Anstett for fostering my interest in the field of water resource development.

Finally, I am very grateful for Coach John Goldhammer and my teammates for being involved throughout my years in Claremont.

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## List of Abbreviations

AAPS	Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento
ABD	Asian Development Bank
ANESAPA	Asociación Nacional de Empresas del Servicio de Agua Potable y Alcantarillado
BOB	Boliviano (currency)
CAF	Corporación Andina de Fomento
CGIAB	Comisión para la Gestión Integral del Agua en Bolivia
EPSAS	Empresa Pública Social de Agua y Saneamiento
FEJUVE	Federación de Juntas Vecinales
FNDR	Fondo Nacional de Desarrollo Regional
GAM	Gobierno Autónomo Municipal
IDB or IADB	Inter-American Development Bank
IBT	Increasing Block Tariff
ILO	International Labor Organization
IMF	International Monetary Fund
MAS	Movimiento al Socialismo (political party)
MMAyA	Ministro de Medio Ambiente y Agua
MNR	Movimiento Nacionalista Revolucionario (political party)
NEP	New Economic Policy
NGO	Non-governmental Organization
OECD	Organization for Economic Co-operation and Development
PMM	Plan Maestro Metropolitano de Agua Potable y Saneamiento
PSP	Private Sector Participation
SIRESE	Ley del Sistema de Regulación Sectorial
UNDP	United Nations Development Program

## **Chapter One**

As the case with most countries across Latin America, unprecedented migration to urban areas has strained city infrastructure systems. More particularly, the region faces a pressing crisis of water security, where rapid urbanization has outpaced water sector development (Rossing, 2010; Wade, 2012). Such growth has placed immense pressures on governments already struggling to deliver basic services. These demographic changes, along with climate change, have brought enormous complexities on water management, requiring a multidimensional approach to policymaking (Barraqué and Zandaryaa, 2012). In the face of these challenges, cities across the region have experimented with a mix of policy options towards water infrastructure reform. The outcomes of these strategies merit thorough analysis, as water access is intrinsically tied to poverty alleviation and the promotion of human well-being (ADB, 2004; OECD, 2012). There is also a spatial component, as peri-urban (peripheral) areas tend to receive significantly less service connectivity, disproportionately affecting the poor. In consideration of these implications, the issue of participatory decision-making holds greater salience when addressing such challenges.

This thesis addresses the peri-urban areas of El Alto and La Paz, where limitations in water access adversely affect low income groups. The city of El Alto, the neighboring

sister city of Bolivia's capital, has only been recognized as its own municipality since 1985, during a time of incredible growth.<sup>1</sup> Much of this growth has been “uncontrolled,” with illegal settlements leaving an urban sprawl over an extensive geographic area (Linden, 1996).<sup>2</sup> As a result, the young municipality lacks the institutional capacity to provide public services to meet these new demands. The water sector is no exception, where the municipalities of El Alto and La Paz have reached a crossroad on the future of water governance.<sup>3</sup> The public provider is challenged by administrative and technical incapacities; along with inefficient water use, vis-à-vis the issue of non-metered usage. Moreover, low rates of investment for have undercut service-coverage expansion goals. This issue is particularly salient for peri-urban areas, as residents often rely on alternative sources of water which may be unreliable and unsafe (Sima and Elimelech, 2011).<sup>4</sup> Inaccessibility to formal water connections is coupled with alarmingly high rates of poverty – in El Alto, 48 percent of residents live in moderate poverty, 25 percent live “on the verge” of poverty, and 17 percent live in extreme poverty.<sup>5</sup>

El Alto and La Paz are also fragmented by large disparities in socioeconomic differences, which have been reinforced by gaps in water access. Both spatially- and demographically- defined inequalities may be found in the region. The metropolitan region of La Paz, seated high in the Andes, may be divided into three sections: the wealthiest residents live within the valley, while low-income households are concentrated along the steep slopes of the valley (or “laderas”) or the expanding peri-urban El Alto area.<sup>6</sup> Disparities in basic services are remarkably noticeable between these urban subsections. Within the realm of water, in-house water connections stand at 35 percent coverage in El Alto, compared to 65 percent in La Paz.<sup>7</sup> More generally, only half of the

population has access to clean water in peri-urban areas.<sup>8</sup> If water security is understood as an intrinsic component of human well-being, these striking disparities cannot be overlooked when addressing poverty. In this local context, this thesis intends to explore the linkages of inclusive water development and the promotion of livelihoods.

Given these challenges, this study will explore trends to propose policy considerations for equitable infrastructure reform. This thesis will focus on pro-poor strategies to promote water access, concerning the affordability and enlargement of public water services. Study questions include technical and environmental considerations of expansion, as a larger system would demand increased water resource extraction. The economic issues are also explored, which encompasses project financing, long-term maintenance, overall system efficiency, and tariff structures. Tariff structures and cost recovery may first appear to be technical, but such aspects have a direct distributional effect with social repercussions.<sup>9</sup> The research focuses on the level of progressivity of water service expansion and tariff regimes: in other words, does the present model of water distribution positively improve the lives of the poorest groups? By investigating these social dimensions of water management, this study brings perspectives on the broader dialogue on Bolivia's economic development, along with issues of participatory governance.

The urban area of La Paz-El Alto provides an exceptional case study to examine the challenges of urban water provision, with a rich narrative of social and political transformation. Over the past decade, water conflicts in Cochabamba and La Paz have left an indelible legacy on water governance and the broader understanding of water rights. These social movements rejected the privatization of municipal water concessions,

with various groups invoking the right to customary practices (commonly referred to as “usos y costumbres”). Despite the subsequent re-nationalization of water services, improved water access for the poor continues to be limited. The debate on privatization comes at a time of a global water crisis, where state and private actors have reached a crossroads on water security (UNDP, 2006; World Bank, 2006). The events in Bolivia reflect the close linkages between urban water management and broader socioeconomic issues, along with environmental realities. In consideration of these implications, the issue of participatory decision-making has been at the forefront of Bolivia’s water wars. The demand for social inclusion in water management policymaking intersects with a broader national dialogue of pluralism and good governance.

### *Evolving Rights, Conflicts and Actors*

The Bolivian water wars became the first large-scale rejection of privatization in Latin America. The track record of infrastructure privatization across Latin America has been exceptionally turbulent, with its perceived failure leading to violent street riots, public demonstrations, and re-nationalization programs (Estache, Gomez-Lobo, and Leipziger, 2001; McKenzie and Mookherjee, 2003; Chong and López-de-Silanes, 2005). The regional neoliberal reforms beginning in the 1980s, and later reinforced by the Washington Consensus, have brought “a nexus” of state actors, multinational corporations, international financial institutions, and organized civil society groups into the water development sector.<sup>10</sup> In the context of Bolivia, the shift toward neoliberal structural readjustments came in 1985, with the “New Economic Policy” (NEP).<sup>11</sup> Preluding these reforms were a series of internal crises attributed to the fiscal

mismanagement of military regimes. The stagnating tin industry could no longer sustain Bolivia's massive public debt, forcing members of the government to pursue neoliberal policies. This resulted in widespread privatization of state-owned industries, namely the national tin industry and the national electric company, spearheaded by President Sánchez de Lozada. Although the World Bank and the International Monetary Fund (IMF) were strong proponents of these reforms, the initial acceptance of neoliberalism came from Bolivia's leaders.

By 1997, the Bank began pushing for the privatization of Cochabamba's water system, as a condition for a two-year loan extension.<sup>12</sup> In this context, the Bolivian government sold the concession to the only bidder, Aguas del Tunari, a subsidiary of the Bechtel corporation. This transfer to a private provider was made legal through Law 2029 (the Drinking and Sanitation Law of 1999), which passed quickly "with little public knowledge, deliberation, or public support."<sup>13</sup> It superseded the 1906 *Ley de Aguas* which gave municipality the responsibility to govern the distribution of urban water. The new law introduced the legal framework for water supply concessions, where existing water cooperatives would be forced to enter into contracts with the concessionaires (Assies, 2003). It also removed water subsidies and allowed the price of water to reflect the "true economic cost of the service," as negotiated between the private operator and the regulator.<sup>14</sup> Concessions were set for a period up to 40 years, and it was expected that the water supply of 41 cities would be brought under the concession regime.<sup>15</sup>

Within the water sector, privatization in Cochabamba would be the first to meet violent civil opposition. The 1999 contract to Aguas de Turani demanded full system cost-recovery. Not only did tariffs dramatically increase, but meters were placed on wells

that have been managed by small farmer groups. In reaction, demonstrations began in the countryside with the irrigators' movement, later unifying with the urban movement. The coalition staged three major city wide strikes, with blockades closing the two main highways entering and exiting the city. *¡El agua es nuestra, carajo!* (The water is ours, damn it!) became the new catch-phrase of the movement, which would eventually be adopted in El Alto. In an interesting twist, the revolt allied with a group of coca farmers group led by Evo Morales. With the riots escalating, President Banzer declared a "state of siege" and constitutional rights were suspended. This announcement marked a turning point in the course of the revolt. After a violent standoff between soldiers and citizens, one which left a demonstrator dead, the concessionaire abandoned the concession (Shultz, 2008).

Although the events Cochabamba should be understood separately from those in La Paz, it set an irreversible momentum toward reform across the country. By 2002, widespread protests in El Alto-La Paz challenged the Aguas del Illimani concessionaire over its failure to expand service to peri-urban areas. Despite the pro-poor features in the initial contract design, such as expansion targets, tariff increases posed a challenge in delivering water to the poor (Komives, 1999). The tariffs, indexed at the US dollar, increased with the depreciation of the national currency, the Boliviano. This brought per capita water consumption from the La Paz system to decrease from 110 to 87 liters per day.<sup>16</sup> Given these tariff hikes, affordability of water services became the central concern in low-income areas – and in order to achieve cost recovery objectives, Aguas del Illimani had to exclude the poorest neighborhoods from expansion plans. This sparked rioting throughout the Bolivian capital, largely mobilized through neighborhood

associations in excluded areas. The private operator eventually withdrew in 2005, opening a debate on the future of the city's water management.

Bolivia's water conflicts came to reorient politics at the national level, notably with the election of Evo Morales and the rise of the Movimiento al Socialismo (MAS) government. By chance, these events coincided with the ongoing "gas war," which brought protests over natural gas exportation policies.<sup>17</sup> Both the water conflict (2001-2006) and gas war (2003-2005) demonstrated an overwhelming rejection of neoliberalism within the country—a precedent that would largely come to define the politics of Evo Morales (Harten, 2011; Webber, 2011). As one commentator notes, there was a shared sense of being a "victim of neoliberal economics and unresponsive institutions."<sup>18</sup> The MAS party was successful in harnessing these uncoordinated social movements for popular support, framing these events as an indigenous struggle. This perceived struggle would be particularly salient in El Alto, one of the few cities in the world that is almost entirely indigenous.<sup>19</sup> With the MAS in power today, Bolivia's water sector has been pivoted in favor of publicly-managed models for urban infrastructure across the country.

The Morales presidency introduced a handful of reforms, namely through the nationalization of various economic sectors. Years of water conflict renewed the national dialogue on water access rights and participatory governance. This is pronounced in the constitutional referendum of 2009, which states: "Access to water and sanitation services constitutes human rights, and it is not for concession or privatization" (Artículo 20.3).<sup>20</sup> Despite this normative affirmation for water access, key legislation is lacking to govern water extraction and allocation. The National Water Law (Ley de Aguas) has not been revised since 1906, becoming irrelevant in prioritizing water users. Several pieces of the

legislation directly contradict the constitution's prohibition of water concessions. In addition, the regulatory framework for public water providers remains highly ambiguous, leaving the sector with minimal checks and balances. These legal deficits have perpetuated the country's water crisis to this day, years after the transfer to a publicly-managed system. As this thesis examines infrastructure reform in La Paz, further sections will consider the legislative framework needed to promote water access.

## Notes

<sup>1</sup> While El Alto separated from La Paz in 1985, it was not legally recognized as an autonomous municipality until 1988.

<sup>2</sup> Linden (1996) mentions El Alto among the sprawling cities of the developing world.

<sup>3</sup> As of June 2013, the Gobierno Autónomo Municipal de La Paz has proposed various reforms for the public water utility provider. In addition, the Ministerio de Medio Ambiente y Agua (MMAyA) is in the process of developing a master plan for water and sanitation services (up to year 2036).

<sup>4</sup> Refer to Sima and Elimelech (2011).

<sup>5</sup> Poverty figures are from 2001; Lazar (2008, 32).

<sup>6</sup> For a detailed account of La Paz-El Alto urban social relations, refer to Arbona and Kohl (2004).

<sup>7</sup> From Table 1 in Arbona (2007, 132).

<sup>8</sup> Coverage for clean water access is below 50 percent in the peri-urban Mecapaca and Achocalla, according to the latest 2001 census. Refer to Cuadro No 1, Objetivo No 7, pp 16 in INE (2005).

<sup>9</sup> The term “tariff” will be used interchangeably with “water price structure” and “water rates” throughout this document.

<sup>10</sup> Baer (2008, 195) suggests that “The struggle for access to potable water is at the nexus of the larger battle between states, multinational corporations, international financial institutions, and organized groups of citizens in Latin America.”

<sup>11</sup> These readjustment policies were spearheaded by the Minister of Planning, Gonzalo Sánchez de Lozada, who would later serve as President of Bolivia, 1993-1997 and 2002-2003.

<sup>12</sup> World Bank, 2002, 1.

<sup>13</sup> Baer, 2008, 201.

<sup>14</sup> Baer, 2008, 201.

<sup>15</sup> Assies, 2003, 17.

<sup>16</sup> Komives, 1999.

<sup>17</sup> The “gas wars” of Bolivia escalated in October 2003, events which some refer to as “Red October.” The protests were in response to the government’s decision to export natural gas via a Chilean port, under President “Goni” Sanchez. The gas concession was awarded to the Pacific LNG consortium, which had the expectation of transporting gas from the Margarita gas field to markets in Mexico and California. The regulatory environment had been perceived to be too much in favor of transnational firms, as the “Bolivian operations of BP Amoco and Repsol YPF benefited from the lowest operating costs for oil and gas exploration and production.” In addition, the choice of the Chilean port (the most economical) raised nationalist sentiments among the Bolivians – as the landlocked country lost its coastal territory to Chile in the War of the Pacific in the 1870s. Led Óscar Olivera, La Coordinadora Nacional por la Defensa del Gas (the National Coordinator for the Defense of Gas) was formed, in conjunction with the activities of FEJUVE and other neighborhood associations. Political pressure was also brought by Bolivia’s major labor union, the Bolivian Workers Central. What began as a

movement for “gas por Perú” (as a rejection of the Chilean port) turned into a rejection of gas exports altogether – after the military reportedly killed 20 people in El Alto in October 2003. The massacre incited 8000 miners to march through La Paz from the high plains of Altiplano. All within the day of which the miners reached La Paz, Goni had resigned and fled to the United States. Refer to Perreault (2006) and Lazar (2008).

<sup>18</sup> Harten, 2011, 107.

<sup>19</sup> From the 2001 census, 74 percent of El Alto residents defined themselves as Aymara (Lazar, 2006, 186).

<sup>20</sup> [Author’s translation from the 2009 Constitution:] “República del Bolivia: Constitución de 2009,” Political Database of the Americas, Edmund A. Walsh School of Foreign Service, Georgetown University, Online (5 Jul 2011, accessed on 26 June 2013): <<http://pdba.georgetown.edu/Constitutions/Bolivia/bolivia09.html>>

## Chapter Two

The La Paz concession of 1997 became the first major privatization of Bolivia's water sector, opening a bundle of uncertainties. Unlike Cochabamba, the water and sanitation situation in La Paz had relatively favorable conditions at the time of its privatization.<sup>1</sup> Nevertheless, infrastructure expansion to the underserved El Alto area presented the greatest challenge. Government officials decided to use the concession bidding process to maximize water service expansion to low-income neighborhoods. The Request for Proposals asked interested companies to submit bids of number of connections they would install within El Alto by the end of 2001 (Komives, 1999). This differs from typical private sector involvement, where the bidding process seeks the lowest possible tariff. In fact, tariffs increased in La Paz with the removal of water subsidies a month prior to the concession agreement – a move to disassociate tariff hikes with the introduction of a private provider.<sup>2</sup> As Komives (1999, 21) mentions, “[the] new tariff was designed with cost recovery in mind.” Tariffs were indexed to the US dollar before being converted to the local currency; with the intention of attracting investors (mitigates the risk of inflation). As a result, the bidding process was somewhat competitive, producing commitments to greatly expand coverage.<sup>3</sup> The concession was awarded to Aguas del Illimani (the consortium under the French Lyonnaise des Eaux, Suez), with a commitment to install 71,752 new in-house connections (in the El Alto

subsection alone). This bid significantly surpassed the minimum of 37,922 connections, as initially requested by the national government (Kovines, 1999).

As with most privatizations, contracts must carefully strike the balance between clear mandate specifications (with strong regulatory oversight) and flexibility for the concessionaire to ensure efficiency.<sup>4</sup> The case of La Paz is no exception, as the details in the contract design would eventually determine the success or failure of the city's water sector expansion. Several important features of the concession contract with Aguas del Illimani stand out as "pro-poor." The new-connection requirements for the El Alto subsystem, as just mentioned, had to be met by December 2001. If the company had fallen short by more than 15 percent of this goal, it would have had to pay a penalty of US\$500 per connection it fails to install. Coverage rates for the other two subsystems had to reach 100 percent for water, and 95 percent for sewage by 2021. The regulator had the authority to cancel the contract if Aguas del Illimani were to fall short by more than 25 percent for this mandate. Determining whether or not these requirements had been met would have been a challenge for the regulator (in this case, the Superintendencia de Aguas). Many homes have been constructed illegally and therefore there was no exact count of household units lacking water service. Therefore, the national regulator simply relied on population projections to negotiate new-connection requirements with the concessionaire – quotas which were determined on a five-year cycle. The contract also included expansion requirements to high-density areas, however target deadlines were not specified. This gave the private provider some flexibility to determine geographic areas which promise future cost recovery. Yet this specific provision would eventually

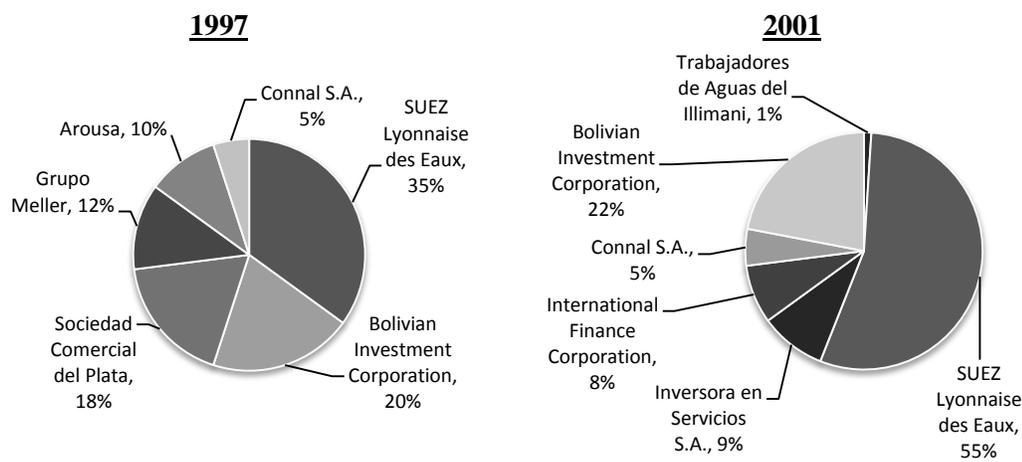
**Figure 1: Timeline of Events**

1996	1998	2000	2002	2004	2006	2008	2010	2012
<b>LA PAZ</b>								
	<b>June 1997:</b> La Paz concession awarded to Aguas del Illimani							
			<b>December 2001:</b> Deadline to meet contractual obligations for service coverage					
			<b>2002:</b> Social unrest in El Alto begins					
				<b>January 2005:</b> Aguas del Illimani cancels contract				
	<b>1999:</b> Drinking and Sanitation Law (Law 2029) is enacted							
				<b>October 2003:</b> “Gas Wars” protests and blockades				
					<b>December 2005:</b> Evo Morales elected president			
<b>COCHABAMBA</b>								
	<b>1999:</b> Cochabamba concession awarded to Aguas del Tunari							
		<b>April 2000:</b> “Final battle,” protests escalate to riots, concession agreement is terminated						

Author’s elaboration

backlash, as exclusion of certain neighborhoods from expansion projects (in many cases, areas that were the poorest) would result in civil contention.

The contractual arrangements held promising features from the perspective of service expansion and cost recovery. In hindsight, how did the private provider perform, and what led to the cancellation of the La Paz concession contract in 2005? When Aguas del Illimani assumed control in August 1997, the total concession area reached a population of 1.4 million (the concession boundaries included areas with and without service). The population of La Paz had 800,000 people, of which 48 percent were considered poor, and 21 percent self-identified as indigenous. The neighboring El Alto subsection was experiencing rapid growth, with a population of 600,000 people, and of that figure, over half self-identify as ingenious (IADB, 2007, 109). To meet the new-

**Figure 2: Aguas del Illimani Consortium Ownership**

Adapted from IADB, 2007<sup>5</sup>

connection requirements. The target coverage rates for 2001 were surpassed in El Alto, with 89 percent coverage in water connections (target at 82 percent) and 48 percent in sewer connections (target at 41 percent). In La Paz, however, the company did not reach full coverage in water services (only at 92 percent in 2001). By 2006, Aguas del Illimani brought a total of 100,000 water connections and 78,000 sewer connections (IADB, 2007, 111).

By 2002, disputes arose over *who* would receive the benefits of expansion in El Alto. This was at the time when the Superintendencia de Aguas and the concessionaire were negotiating new coverage goals for the next five year cycle. There was a mixture of claims leading to the renationalization of the water and sewage utility sector in El Alto and La Paz. First, there was dissatisfaction from neighborhoods that were within the concession area, but continued to lack coverage. The 1997 agreement included an expansion mandate, yet it never specified exactly where to expand. This gave the

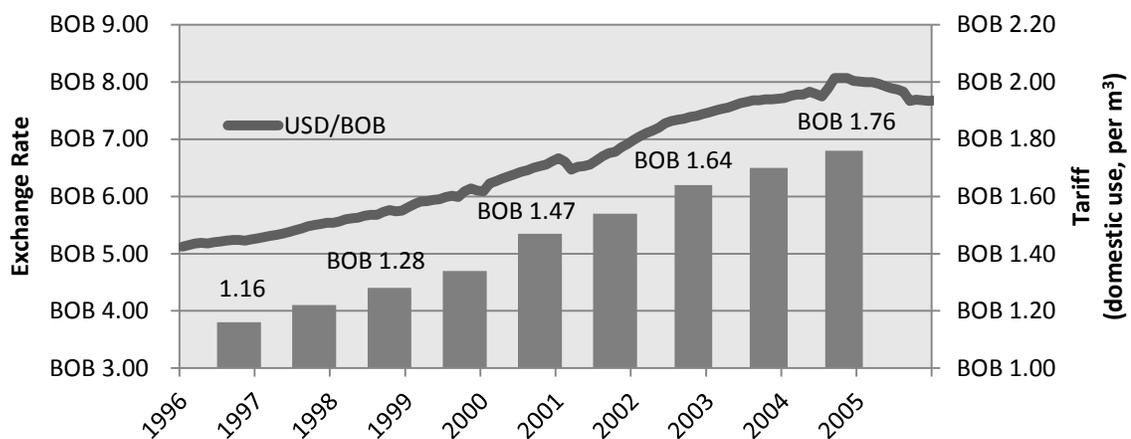
concessionaire some flexibility to optimize expansion for cost recovery. Between the expected returns on infrastructure investment, and affordability of the connection fee, one may expect that the poorest neighborhoods would be excluded from the expansion. Secondly, there was disagreement on whether service coverage should be calculated using the municipal boundaries or the concession area. The figures of 2001 refer to coverage rates within concession area, and with this interpretation, Aguas del Illimani met target coverage goals in El Alto. Nevertheless, the concessionaire did not meet its contractual obligations for new in-house connections: with only 53,000 newly installed water connections in El Alto, below the initial target of 71,752 (Marin, 2009, 49). Those outside the concession area, on the perimeter of the expanding El Alto, also began protesting for connectivity as well. There was a growing recognition that these areas would be excluded from the water system for another 30 years.<sup>6</sup> These claims fueled widespread discontent, with neighborhood associations mobilizing protest and riots across the nation's capital.

Tariff increases also became a source of contention. As previously mentioned, the concession contract had tariffs indexed to the US dollar – and therefore tariffs increased with the depreciation of the national currency, the Boliviano (BOB). The average domestic user in La Paz paid USD \$0.22 per cubic meter of water. These rates were comparable, and in some cases lower, to other urban areas within the country: in Sucre the domestic rate was set to USD \$0.26, in Santa Cruz \$0.29, and in Cochabamba \$0.27 (IADB, 2007, 113). The El Alto-La Paz tariff design had an industrial-to-residential cross subsidy, and tariffs differed with four categories of consumption. The entire service area was under the same tariff rate, except for the southern network subsection, which

received higher tariffs. This differs from the tariffs in Cochabamba, where rates vary between neighborhoods. Figure 3 illustrates that in 1997 (when Aguas del Illimani was introduced) the average domestic water user paid BOB 1.16 per cubic meter of water. By 2005, the same volume of water would cost BOB 1.76 – an astonishing 50 percent increase. This brought per capita water consumption in La Paz to decrease from 110 to 87 liters per day.<sup>7</sup> In light of these tariff increases (indexed at the national currency), affordability of water services became the central concern in low-income areas – and in order to achieve cost recovery objectives, Aguas del Illimani had to exclude the poorest neighborhoods from expansion plans.

Social unrest over the La Paz concession began in 2002, immediately after the national government renegotiated contractual obligations for the concessionaire's next five-year cycle.<sup>9</sup> At this point, there had already been contention over rising tariffs and exclusion from water coverage. As mentioned earlier, Aguas del Illimani fell short of the target new in-house water connections for the 2001 deadline. Discontent with these

**Figure 3: USD/BOB Exchange Rates and Water Tariffs**



Adapted from IADB, 2007<sup>8</sup>

outcomes was reinforced with a diminishing expansion mandate for the projected future. For the proximate five-year cycle, the regulator and the concessionaire negotiated a new target of 15,000 new water connections, which later fell to 8,000 in June 2003. Due to cost-recovery concerns, the expansion mandate was removed altogether in August 2004 (Pérez, 2006). This brought the widely heralded “pro-poor” concession into question, as the arrangement could no longer sustain expansion. Civil protest, which included road blockades, was largely mobilized through neighborhood associations in excluded areas.

At the forefront of these demonstrations was the Federación de Juntas Vecinales (FEJUVE),<sup>10</sup> led by Abel Mamani. Rioting escalated in October 2003, as the offices of Aguas del Illimani were sacked on a number of occasions (Laurie and Crespo, 2007). By chance, these events coincided with the ongoing “gas wars,” which brought opposition to President Sanchez de Lazoda’s plans to export Bolivia’s natural gas to Chile. FEJUVE’s legitimacy as a political organization was further reinforced by the concurrent contention over natural gas resources.

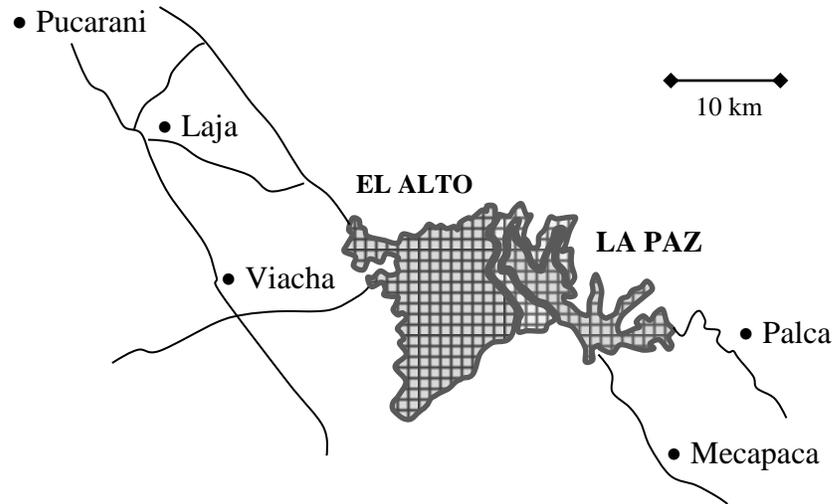
The water wars in La Paz drew international attention, as it did in Cochabamba several years earlier. Interestingly, FEJUVE received extensive transnational support through the creation of the Bolivian Integral Water Management Commission (CGIAB), formed in 2000.<sup>11</sup> The commission brought a forum of international and national NGOs, along with technical and consultative support (Laurie and Crespo, 2007). During the negotiations between government officials and FEJUVE in 2005, CGIAB played a key intermediary role. By January of that year, Aguas del Illimani declared its intentions to withdraw, opening up an entirely new debate on the conditions of withdraw and the new management of water services. Transnational auditing firms were resisted by further

protests, as the public perceived conflicts of interests with the French Suez subsidiary. In addition, the government at the time was pushing for a renewed public-private partnership, through the form of a “Sociedad Autónoma Mixta.” FEJUVE again rejected this proposal, as the neighborhood federation pushed for a publicly-managed water utility system.

### *Local Trends*

The municipality of El Alto, the neighboring sister city of Bolivia’s capital, has been expanding rapidly over the past few decades, with water services lagging behind. The combined urban area of El Alto and La Paz has been considered a *de facto* city – in which municipal institutions dynamically adjust to a reinvented social and political landscape.<sup>12</sup> Excessive urbanization has been an ongoing global trend, where local governments must confront new multifaceted pressures in response to demographic changes (Henderson, 2002; Cohen 2006). As one observer notes, and perhaps oversimplifies, “El Alto is a city traversed by problems from all sides” (Antezana, 1993). From the onset, poverty rates along the outskirts of El Alto have been alarmingly high: according to the latest census in 2001, the poverty rate in Achocalla stood at 52 percent, Pucarani 72 at percent, Laja at 74 percent, Viacha at 53 percent – compared to the national average at 40 percent.<sup>13</sup> El Alto has only been recognized as its own municipality since 1985, during a time of incredible growth. Throughout that decade, the population of El Alto increased by an annual average of 9 percent, and estimates for 2013 has the population exceeding 1 million.<sup>14</sup> Much of this growth has been “uncontrolled,” with illegal settlements leaving an urban sprawl over an extensive geographic area

**Figure 4: Map of La Paz, El Alto, and Peri-Urban Municipalities**



(Linden, 1996). As a result, the young municipality lacks the institutional capacity to provide public services to meet these new demands (refer to Table 1). The water sector is no exception, where the municipalities of El Alto and La Paz have reached a crossroads on the future of water governance.<sup>15</sup>

El Alto stands out as the only major city in Latin America which is almost entirely indigenous. More specifically, 74 percent of its residents self-identify as Aymara.<sup>16</sup> The city is also characterized by the large proportion of migrant residents from the Aymara- and Quechua-speaking rural countryside. Lazar (2004) identifies three main migratory waves: following the 1953 Agrarian Reform, the construction boom of the 1970s, and the neoliberal reforms of 1985 under President Paz. The third event brought a wave of migratory miners who were dismissed upon the closure of state-owned mine

**Table 1: Basic Services in the Metropolitan Region of La Paz**

	La Paz (%)	El Alto (%)
Houses made out of brick	53	22
Houses made out of adobe	46	77
Water service (in house)	65	35
Water service (out of house)	36	54
Households with electricity	95	85
All basic service needs satisfied	37	7

Adapted from Arbona, 2007<sup>17</sup>

operations.<sup>18</sup> Previous union leadership in mining was transplanted into street trading activities in El Alto, leading to the rise of *gremialistas* (unionized street traders), leaders who came to dominate local politics.<sup>19</sup> This style of unionism would largely shape community organization in the area, a point that will be discussed in a further section. Migration has also been attributed to crop failures following the El Niño drought of 1982-83, which affected the livelihoods of 1.6 million people in the rural areas of Potosí, Cochabamba, and Oruro (Mariscal et al, 2011).<sup>20</sup> Due to the high incidence of migration, many families establish dual residency in El Alto and their rural community.<sup>21</sup>

The displacement of miners and farmers has brought unprecedented population growth to El Alto, an area which had a population of only 11,000 in 1952. As with most cases in low-income countries, rapidly-expanding cities cannot sustain formal job growth. Taking its place is a burgeoning informal sector, visible through El Alto's crowded open street markets. Commercial activity is largely concentrated to the Ceja and 16 de Julio markets, where one commentator notes: "The Ceja, then, is a place of movement – of ebbs and flows of people, vehicles, and produce [...] It is the connecting point for the

whole city” (Lazar, 2008, 41). Street vendors also take their goods to La Paz – giving El Alto the nickname of *cuidad dormitorio* (literally translates to “bedroom city”), as Alteños commonly spend the entire day in La Paz. This aspect speaks to the embedded social integration between the two municipalities, despite their institutional separation.

The informal economy is a debated subject: on the one hand, it provides work in sectors facing underemployment, yet it compromises government regulations, job security and social protection schemes (Guha-Khasnobis et al., 2007; ILO, 2013). The predominance of street trading activity implies a certain economic vulnerability among Alteños. By working outside of the formal sector, most are not protected by worker safety laws and lack old-age pensions. There is a gendered component too, as 81 percent of working women have “extremely precarious” jobs, compared to their male counterparts, at 64 percent.<sup>22</sup> In addition, employers often extend work hours past the legal norm of eight hours. The average working day –measured in hours– is greater in El Alto, when contrasted to other major Bolivian cities.<sup>23</sup> This dimension of economic vulnerability, which some may call “living on the edge,” must not be overlooked when discussing poverty and water access in El Alto.

### *Citizen Participation and Political Organization*

From the political perspective, El Alto has a legacy rooted in popular, and sometimes militant, protest: leading Lazar (2006) to appropriately label the city as “*cuidad rebelle*.” Contemporary left-indigenous movements against neoliberalism, illustrated by the Gas Wars of 2003 and 2005, became the base of the Movimiento al Socialismo (MAS) party politics – a party which maintains a majority in the national

legislature, and holds the presidency to this day.<sup>24</sup> The MAS began in Cochabamba with a platform against the perceived American imperialism against coca growers, vis-à-vis the “war on drugs.” Evo Morales, as president, would later bring the “coca no es droga” campaign to the international level, defending the indigenous right to chew coca in various speeches before the United Nations.<sup>25</sup> The politics of MAS would lead to the renationalization of various sectors – including water and sanitation services. The party’s strong presence in El Alto has the municipality pitted against city government of La Paz, which is dominated by the Movimiento Nacionalista Revolucionario (MNR). This polarization has left efforts for integrated water resource management strained.

The young and informal municipal institutions of El Alto tend to facilitate a high incidence of clientelism (Lauth, 2000).<sup>26</sup> Here, the provision of public goods is dictated by personal exchanges between citizens and political agents. Scott (1972, 92) develops the theory of patron-client relations as:

an exchange relationship between roles [...] involving a largely instrumental friendship in which an individual of higher socioeconomic status (patron) uses his own influence and resources to provide protection on benefits, or both, for a lower status (client) who, for his part, reciprocates by offering general support and assistance, including personal services, to the patron.

In the case of El Alto, this “exchange relationship” is a crucial aspect of everyday life. Lazar (2004) notes that “family livelihoods depend on making correct calculations about party allegiance since future employment may be linked to party membership.”<sup>27</sup> The author further notes that when new politicians are elected, they usually fire most of their

civil servants and freeze wages. As a result, most Alteños understand that party allegiance may be closely tied to financial advantages, such as employment opportunities in the public sector. This style of political life largely differs from the municipality of La Paz, where institutions are much more established, and hence the provision of public goods operates under a more legalistic framework. These two styles of governance pose a challenge in integrating water management between El Alto and La Paz.

In El Alto, most citizen participation occurs through local *juntas vecinales*, or neighborhood councils, which present more of a territorial-based structure of political mobilization – a transition away from the traditional class-based unionism of the displaced miners. Some observers would argue that the councils retain organizational characteristics of the *ayllu*, or the indigenous Aymara governance system.<sup>28</sup> In 1989, there were only 166 of these neighborhood councils, a figure which increased to almost 550 in 2006.<sup>29</sup> Kohl and Farthing (2011, 179) note that these organizations play two key roles: “they press municipal governments to install basic urban services and develop clientelist relationships with political parties to gain access to those services.”<sup>30</sup> Over the past decade, these *juntas vecinales* have been organized under the FEJUVE federation, playing an instrumental role throughout the El Alto water conflicts. To this day, the federation remains an influential stakeholder within El Alto-La Paz municipal politics, as FEJUVE representatives take part in public planning and oversight initiatives. FEJUVE is especially significant within the water sector, as its former leader, Abel Mamani, was selected to become Bolivia’s first water minister in 2006. Aside from the *juntas vecinales*, school associations have become the second most important arena for political

mobilization. Interestingly, female participation stands much higher among these school associations.<sup>31</sup>

Within the scope of participatory development, non-governmental organizations (NGOs) play an important, yet debated, role in linking civil society groups with the state. Throughout the Banzer dictatorship of the 1970s, NGOs were instrumental in supporting pro-democracy groups.<sup>32</sup> Most of these organizations also affiliated with the Catholic Church for legitimacy – in a country where over 80 percent are Catholic.<sup>33</sup> NGO activity later came to a “boom” throughout the 1980s, with the return of democracy in Bolivia. Gill (1997) argues there was an emergence of new NGOs less linked to popular-leftist movements and the Catholic Church, but instead ones which took a pro-market, neoliberal character. In El Alto, there was a particular focus on supporting growth in the microenterprise sector (Arbona, 2001). Yet within the water sector, NGOs continue to play an important role in participatory development. Fundación Salón, with its “Octubre Azul” campaign, stands at the forefront in efforts to defend water rights.<sup>34</sup> While Bolivian NGOs have been credited in enhancing local capacity, critics would point toward a local-level dependency on international funding and expertise (Gill, 1997).

As illustrated in earlier sections, the intrinsic differences between El Alto and La Paz will carry implications on metropolitan water governance. The political dynamics of each city entail completely separate realities of leadership, despite their apparent economic integration. Perhaps the most pronounced feature would be El Alto’s “sprawling” growth and the new demand for water. Population growth, largely from rural-to-urban migration, has placed immense pressures on local governance – as seen through the informal labor sector. Considering that El Alto has only been an autonomous

municipality since 1988, El Alto's institutions are much more vulnerable for political manipulation. This vulnerability has facilitated a high incidence of clientelism in local politics, where patron relationships eventually determine the allocation of public resources.

Given this context, the discussion on urban water management may be better understood from the perspective of local capacity. This notion of "capacity" refers to the ability of governments and organizations to achieve desired outcomes from an implemented strategy. Within the scope of water governance, the public policy process is hampered by various constraints: and perhaps the most visible limitation comes with the politics of water tariff pricing. In theory, tariffs rates should be determined with cost-recovery in mind, in order to ensure the fiscal sustainability of the system. The normative view supporting the human right for water, however, suggests that tariffs should be reduced for the poor. Poverty rates are remarkably high in El Alto, giving the latter point overwhelmingly more salience. In addition, recent social movements toward the renationalization of water resources further defend this normative view, along with the overall promotion of universal water access.

### *Water Sector Reform at a Crossroads*

The 2006 elections and the new Evo Morales presidency brought a complete reorientation of national water policies. The Ministry of Environment and Water (MMAYA) was formed, with the former leader of FEJUVE, Abel Mamani, installed as minister. The constitutional referendum of 2009 brought a renewed focus on natural resource policy, with its recognition of customary user rights. The preamble even

acknowledges that the constitution was “inspired” by social struggles, including the “Guerra del Agua:”

El pueblo boliviano, de composición plural, desde la profundidad de la historia, inspirado en las luchas del pasado [...] en las luchas populares de liberación, en las marchas indígenas, sociales y sindicales, en las guerras del agua y de octubre [...] construimos un nuevo Estado. (Preámbulo)<sup>35</sup>

This affirmation essentially underscores the significance of Bolivia’s social unrest in defining a “new State.” Moreover, this turbulent history of natural resource contention undoubtedly set the tone for the Evo Morales presidency, and national politics as a whole.

At the national level, ANESAPA was formed to publicly-manage water services, which includes the La Paz-EL Alto subdivision (referred to as EPSAS).<sup>36</sup> The new public operator inherits the same challenges of service coverage and network expansion, in the face of rapid urbanization. Given this new political and institutional environment, it is important to investigate the current state of water service provision, with a focus on pro-poor strategies for water access and long-term sustainability.

To this day, six years after its creation, EPSAS finds itself in an incredibly precarious state: marked with poor management and an inability to fulfill contractual obligations. In an unprecedented move, the regulator took complete control of the EPSAS in April 2013.<sup>37</sup> The intervention allows the regulator to assume all of operations and management responsibilities for a period of six months – and by the end of the intervention, the central government will introduce a reformed EPSAS. This places the Government of Bolivia, more particularly the Ministerio de Medio Ambiente y Agua (MMAyA), at a crossroads on water governance reform. The key question is how to

create a more accountable and efficient public service provider, at a time of management crisis.

The regulator justified the intervention on various grounds, from poor risk management to environmental degradation. Nevertheless, a broader and more fundamental issue is yet to be addressed: as to what *form* of governance would most effectively manage water delivery for the region. This would require that stakeholders find the balance between regulatory powers at the national level, and autonomy at the local municipal level. There is also the question of integrating the municipalities in a consortium (or multiple consortia), for more optimal water management. Water governance in La Paz-El Alto must be restructured during this intervention, as required by law. For this reason, the two municipalities, along with its satellite cities, stand at a critical juncture on the future of natural resource management.

## Notes

<sup>1</sup> In Cochabamba, only 57 percent of the city's residents were connected to the system, with water available for an average of 4 hours per day – at the time of the 1999 concession award. This contrasts the La Paz water utility situation, which had relatively high coverage rates and water availability for an average of 19 hours a day. (Spronk and Webber, 2007, 39)

<sup>2</sup> According to IADB (2007), tariffs increased from 21 percent to 57 percent in every category, when compared to 1996 rates.

<sup>3</sup> The bidding process remained competitive, with International Water Limited withdrawing “at the last minute,” (Komives, 1999, 13).

<sup>4</sup> Public-private partnerships and contract arrangements will be reviewed in a further section.

<sup>5</sup> IADB, 2007, 108.

<sup>6</sup> The geographic boundaries of the concession area would have to be renegotiated after the end of the concessionaire's 30-year term.

<sup>7</sup> World Bank, 2002, 2.

<sup>8</sup> The reported tariff for domestic water use was set at USD\$0.22 (IADB, 2007, Cuadro B.3). To determine the annual tariff rate in Bolivianos, historical USD/BOB exchange rates were multiplied with the tariff.

<sup>9</sup> There were several movements prior to 2002, as water pump facilities were sabotaged in November 2000. The following month, El Alto residents also marched the streets of La Paz, announcing the beginning of the ‘second water war.’ January 2002, as explained in

this section, marked the turning point of discontent with the private provider's outcomes.

(Laurie and Crespo, 2007, 844)

<sup>10</sup> Translates to the “Federation of Neighborhood Councils [of El Alto].”

<sup>11</sup> Referred to as “La Comisión para la Gestión Integral del Agua en Bolivia”

(<<http://www.aguabolivia.org>>).

<sup>12</sup> In another context, La Paz is commonly referred to as a *de facto* capital city, as it seats the offices of the central government. The constitutional and historical capital city, on the other hand, is Sucre.

<sup>13</sup> INE, 2005.

<sup>14</sup> For population growth rate, refer to “Tabla 1.1” on pp 8; and for population estimates, refer to “Tabla 1.11” on pp 15:] MMAyA, “Informe sobre demandas futuras y estrategias de expansión: Resumen ejecutivo,” *Plan Maestro Metropolitano de Agua Potable y Saneamiento La Paz – El Alto, Bolivia*, Ministerio de Medio Ambiente y Agua (MMAyA), Junio 2013.

<sup>15</sup> As of June 2013, the Gobierno Autónomo Municipal de La Paz has proposed various reforms for the public water utility provider. In addition, the Ministerio de Medio Ambiente y Agua (MMAyA) is in the process of developing a master plan for water and sanitation services (up to year 2036).

<sup>16</sup> Lazar, 2008, 2.

<sup>17</sup> Refer to Table 1 in Arbona, 2007, 132.

<sup>18</sup> The closures of state-owned mines were part of the economic restructuring under Supreme Decree 21060, and the “New Economic Policy (NEP)”. These reforms were part of an agreement with the International Monetary Fund for \$57 million in credit.

<sup>19</sup> Lazar, 2008, 244.

<sup>20</sup> In Bolivia, an estimated 85 percent of the potato crop and 50 percent of quinoa and broad bean crops were lost in the El Niño drought of 1982-83 (Mariscal et al., 2011, 14).

<sup>21</sup> Mariscal et al., 2011, 40.

<sup>22</sup> Weber, 2011, 212.

<sup>23</sup> Weber, 2011, 212.

<sup>24</sup> Officially referred to as “Movimiento al Socialismo – Instrumento Político por la Soberanía de los Pueblos” (MAS-IPSP).

<sup>25</sup> Morales Ayma, 2009.

<sup>26</sup> Lauth (2000) describes how informal institutions are often characterized by clientelism and corruption.

<sup>27</sup> Lazar, 2008, 229.

<sup>28</sup> Similarities between the El Alto neighborhood councils and the *ayllu* system are briefly mentioned by Arbona (2007, 132); Kohl and Farthing (2011, 179).

<sup>29</sup> Kohl and Farthing, 2011, 179.

<sup>30</sup> Kohl and Farthing, 2011, 179.

<sup>31</sup> According to Lazar (2008), there is an approximate two-thirds female participation rate in school associations, where the inverse is true for neighborhood council participation.

<sup>32</sup> Gill, 1997.

<sup>33</sup> LAPOP, “Perspectivas,” *Barómetro de las Américas*, Vanderbilt University (2009),  
online: < <http://www.americiasbarometer.org> >

<sup>34</sup> Fundación Salón, 2010.

<sup>35</sup> [Author’s translation:] “The people of Bolivia, of plural composition, ever since the depth of history, inspired by past struggles [...] and popular struggles for liberty, in indigenous, social and labor marches, in the water wars and the October war [...] we have built a new state.”

<sup>36</sup> “Asociación Nacional de Empresas del Servicio de Agua Potable y Alcantarillado” (ANESAPA) and “Empresa Pública Social de Agua y Saneamiento” (EPSAS).

<sup>37</sup> “Intervención de EPSAS,” *La Razón*, sección editorial (03 Apr 2013), Online, accessed 01 Aug 2013:

< [http://www.la-razon.com/opinion/editorial/Intervencion-EPSAS\\_0\\_1808219171.html](http://www.la-razon.com/opinion/editorial/Intervencion-EPSAS_0_1808219171.html) >

## **Chapter Three**

The recent water conflicts in La Paz and El Alto demonstrate the demands for inclusive infrastructure systems, with an emphasis on meeting the needs of marginalized urban areas. Furthermore, this backlash against water privatization reveals an inherent paradox in infrastructure reform. From the normative level, there is a provocative proposition that defends the human right to water – one which separates water resources from other economic goods. Nevertheless, water pricing regimes should be designed for system cost recovery, in order to ensure long-term resource viability. This is what makes water management so complex: policymakers must strike a careful balance in expanding service coverage without undermining the overall sustainability of the system. Raising water tariffs to meet cost recovery objectives will have a direct impact on low-income groups, engaging the issue of water affordability. In this scenario, the poor are often left to seek alternative means of water access, which are usually become unreliable and of poor quality. Water underpricing, on the other hand, poses several problems in ensuring water access, despite the promises of affordability. Lower utility charges increase water demand and, in some cases, may even encourage wasteful usage. Moreover, the infrastructure system as a whole becomes underfinanced, often leading to leakage and an incapacity for future expansion. These system inefficiencies may undercut efforts to

make water more accessible for the poor. In this respect, water policy must adopt a dynamic approach to reconcile expansion mandates with infrastructure viability.

The Aguas del Illimani agreement became internationally heralded for its “pro-poor” features to promote water access. The contract specified system expansion mandates (measured by the number of in-house connections), a feature which became particularly salient for the underserved peri-urban areas. Despite the initial optimism, the La Paz water privatization resulted with coverage obligations unmet, leading to the eventual cancellation of the concession agreement. Here, the concessionaire determined that low density areas offered little cost recovery potential and, therefore, expansion projects excluded such neighborhoods accordingly. These excluded areas, on the outskirts of the city, often have higher rates of poverty with limited water access; undermining the “pro-poor” optimism of the concession agreement. In addition, regarding those connected to the system, the government did not provide targeted transfers to make water affordable for the poor. In this sense, the oriented tariff structure –oriented towards cost recovery objectives– was highly regressive. The combination of these factors led to public dissatisfaction toward the concessionaire, and perceived sense of its failure. This begs the question of whether this agreement “planted the seeds of its own failure” *per se*, and perhaps these expansion goals were too ambitious or unrealistic. In other words, was this failure a result of unforeseen risk or, instead, the result of a poorly designed agreement? With the benefit of hindsight, how could outcomes have turned out differently? These questions pertain to a larger debate on whether private sector involvement appropriately meets the challenges of water infrastructure reform.

The events in Bolivia had a ripple-effect on the international scale, as they challenged the conventional wisdom of privatization reforms. At center stage of this debate is the World Bank, and its post-Washington Consensus doctrine. This “consensus” was introduced in the early 1990s to define a coherent set of goals for Latin American reform (Williamson, 1990). These included ten central propositions, including fiscal discipline, liberalization and deregulation to name a few. At its core, the consensus made poverty reduction a priority for policymaking. Reforms for privatization would also be an important component to the Williamsonian model of macroeconomic adjustment. In a retrospective review of the original intent of the consensus, Williamson (2000, 258) remarks that “the impact of privatization depends very much on how is done” – and the case of La Paz provides a case in point. Moreover, critics of the consensus would point out the objectives are too narrow, and ends were confused with means. What has emerged is a growing acceptance that “countries should be given room to experiment, use their own judgment, and to explore what might work best for them” (Stiglitz 2008, 54). This proposition is particularly evident in the Bolivian experience, as the external push for natural resource privatization brought a reemergence of nationalism.

The record of water privatization in Latin America is quite mixed. The region’s crises of the 1980s, marked with high inflation and debt, led governments to pursue liberalization programs to reform various sectors of the economy (Lora 2001; Teichman 2001). These reforms fundamentally shifted the relationship between citizens and the state, as Baer (2008, 199) notes:

The implementation of privatization of services in Latin America is attributed to a mixture of state inefficiency, changing norms about the role

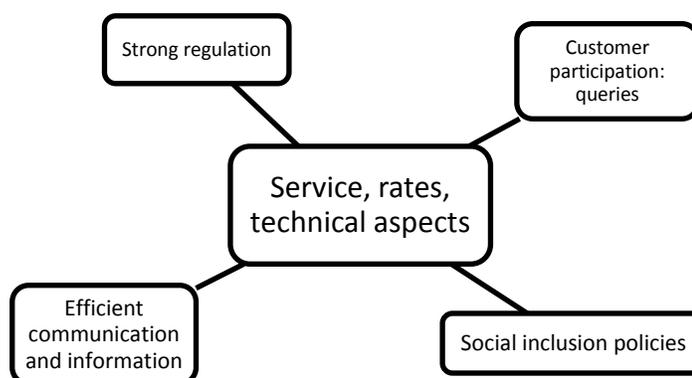
of the state in the economy, the lack of resources in some countries, and the acceptance of the market as an appropriate venue for providing services to citizens.

By 1988, Chile became the first to embrace private sector participation (PSP) in water; followed by Argentina and Mexico in 1991; and Peru, Columbia and Bolivia in the mid-1990s. Along with PSP initiatives, reforms in most countries decentralized water governance to fragmented municipal-level entities. It is important to note that these reforms were not exclusively motivated by problems within the water sector, but the state's macroeconomic structure as a whole.

The incorporation of PSP into water sector reflected a common dissatisfaction with national-level provision of water resources at the time. As Foster (2005, 1) suggests, this trend was a departure from the dysfunctional “clientelist” model of management, where “state-owned companies were often being treated as part of the political apparatus than allowed to function as service providers.” In this arrangement, water companies secure political patronage through various means – such as artificially low tariffs and overemployment. As a result, state-owned water companies have been subject to higher costs, administrative inefficiencies and a lower quality of service. Turning towards the private sector, or a strongly decentralized model of public management, has been sought as a remedy for such political interference. Despite these conceptual arguments, the impact of the PSP has been widely contested. Several authors point out that system improvements following the PSP transition were consistent with previous trends – and therefore these improvements may not be directly attributed to PSP *per se* (Clarke, Kosec and Wallsten 2004; Leipziger 2004). Nevertheless, both of these authors conclude that

**Figure 5: The Private-Sector Led "Pro-Poor" Approach**

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Adapted from Laurie and Crespo, 2007

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privatization had “no major adverse impacts on poverty and inequality.”<sup>1</sup> In their panel of Latin American countries, Andrés et al (2008) find similar, but more encouraging results: output and coverage rates improved with previous trends, yet strong evidence supports greater efficiency (measured in distributional losses) after privatization.<sup>2</sup> In the face of these empirical trends, the public perception of privatization remains poor. In 2002, a survey of Latin American countries found that 61 percent of respondents “disagreed with the statement that privatizations have benefited to the country” (Barrera-Osorio and Olivera 2007, 4).<sup>3</sup>

Liberalizing, or the so-called “modernizing,” of the water sector may take many different forms, with varying mix between public and private. For the purposes of terminology, PSP implies a publicly-financed system with some degree of private contracting, lease, or operation. Privatization, on the other hand, will refer to a long-term (usually for 20 to 30 years) concession agreement which is both privately financed and operated. The Bolivian experience reflects the general privatization model, where the

government would become the regulator rather than the service provider. The BOT option, build-operate and -transfer, has widely been used in other countries across the region; however, most of these schemes have been used for small projects, such as treatment plants – not the system as a whole.<sup>4</sup> Regardless of the institutional option, whether public or private, water infrastructure is, for the most part, considered a natural. By its very nature, which involves economies of scale, an organizational monopoly is considered as the most efficient structure. For small and medium size cities,

**Table 2: Institutional Options for Water Management**

<i>Option</i>	<i>Ownership</i>	<i>Financing</i>	<i>Operations</i>
<b>Service contract</b>	Public	Public	Both
<b>Management contract</b>	Public	Public	Private
<b>Lease contract</b>	Public	Public	Private
<b>Concession</b>	Public	Private	Private
<b>BOT (build-operate-transfer) contract</b>	Private then public	Private	Private
<b>BOOT (build-own-operate-transfer) contact</b>	Private then public	Private	Private
<b>Reverse BOOT</b>	Public then private	Public	Private
<b>Joint ownership</b>	Both	Both	Both
<b>Sale</b>	Private	Private	Private

Adapted from Kessides, 2004

single vertically integrated utilities usually serve as the preferred structure. Large cities may elect to use separate distribution networks, such as the case with Metro Manila, which holds two concessions. In consideration of these natural monopoly conditions, competition throughout the bidding process is considered as a key determinant in successful PSP implementation. In practically every case, the tariff structure would be negotiated with the regulatory body.

Much attention has been toward the Buenos Aires water privatization of 1992, as it became the first large-scale concession in the region. More importantly, this experience reveals the opportunities and constraints in bringing pro-poor infrastructure reform. The contract was awarded to the Aguas Argentinas consortium, through a competitive bidding process on the basis of tariff reduction. At the time of the transfer, 6.4 million residents were connected to the system, and approximately 200,000 of these connections were in informal neighborhoods.<sup>5</sup> In the outer edge of city, 48 percent of the population had no access to piped water – posing a mandate for coverage expansion.<sup>6</sup> The concession contract required one million inhabitants to be added to the system every five years, for the first 15 years. By the end of the 30-year concession period, Aguas Argentinas would need to achieve 100 percent water service coverage.<sup>7</sup> Nevertheless, high connection fees posed an obstacle in achieving coverage goals in low income areas. This brought several renegotiations with the regulator, in 1994 and 1998, to introduce a universal charge for all of its existing customers to cross-subsidize new connections. In addition, Aguas Argentinas created the Low-Income Settlements Program to promote a horizontally integrated structure of water management within informal neighborhoods. This program was in recognition that expansion targets may better met with the involvement of local

actors and nongovernmental organizations. This decentralized approach, proactively led by Aguas Argentinas, has widely been regarded as a successful program in bringing investments to low-income areas.<sup>8</sup> Nevertheless, political opposition against privatization in Buenos Aires led to the exit of Aguas Argentinas in 2006.

In an evaluation of the Bank's experience in Bolivia, the report concludes that "Privatization is not a panacea [...] Privatization does not insulate a utility from the consequences of poor project selection, political interference, weak management or lack of community support."<sup>9</sup> The Bolivian experience offers valuable insight to this point, as three major cities experimented with different models of water resource provision. As extensively elaborated, Cochabamba's privatization met fierce backlash as a result of soaring tariff rates and a disregard for "usos y costumbres" customary user rights. The southern city of Santa Cruz, on the other hand, provides a cooperative model which has earned "the reputation as one of the best-managed utilities in Latin America."<sup>10</sup> Over the period of 1988-1999, water connections increased from 70 percent to 94 percent of households in Santa Cruz – juxtaposed to the Cochabamba debacle, where water connections fell from 70 percent to 60 percent.<sup>11</sup> This case shows that cooperatives may be a viable alternative to either public or private approaches. Moreover, mixed experiences such these have revitalized the debate on privatization, where some of the Bank's initial proponents of privatization now express caution about its sociopolitical implications (Nellis, 2012).

As discussed in the previous chapter, the La Paz case met similar challenges in promoting water coverage for the peri-urban poor. Unforeseen conditions would bring a series of renegotiations between the concessionaire and the regulator. In both the cases of

La Paz and Buenos Aires, tariffs had to be adjusted and expansion targets were eventually loosened – all which undermine initial commitments to expand coverage. Here, we reach the underlying question motivating this thesis: how could pro-poor infrastructure reform be sustained for the long term? In other words, what conditions are necessary to encourage utility companies (public or private) to expand water access for the peri-urban poor? This question is imperative, as Kessides (2004, 256) notes, “the political economy of water has not been highly in favor to reform, which partly explains why the water sector is behind electricity, telecommunications, and transportation [...].” Furthermore, Shirley and Ménard (2002, 8) reaffirm this notion, indicating that “water reform has high social benefits but low political benefits, especially when compared with reform in other utilities.” Given these obstacles, *the policy framework must be reoriented to match high social benefits with high political benefits within the water sector.*

In designing these pro-poor strategies, several key questions must be considered. Hardoy and Schusterman (2000) propose a framework for prioritizing investments within low-income neighborhoods, illustrated as a tradeoff between two factors: resource *need* and service *feasibility*. Intuitively speaking, areas that are high in need but lack feasibility are most likely to become underinvested. Determining areas of need may simply be determined by rates of poverty or service coverage. The question of feasibility, however, opens a bundle of considerations with many separate dimensions. Here, feasibility may be determined by the utility company’s predicted marginal returns in expanding water services to low-income areas. Without regulatory mandates or a form of subsidy, there may be little economic incentive to meet the needs of the urban poor.

*Water as a Social and Economic Good*

In context of El Alto, where water is considerably scarce, the viability of the resource may fall to the familiar “tragedy of the commons.” Hardin, illustrating an overgrazed herding pasture, develops the tragedy: “Ruin is the destination toward all men rush, each pursuing his own best interest in a society that believes in freedom of the commons” (Ostrom, 1990, 2). The rational herder, in this illustration, benefits from an open pasture, yet suffers the delayed costs of deterioration (“the free-rider problem”). Ostrom (2005) provides a conceptual framework for separate types of economic goods based on rivalry and excludability: private or market goods, toll or club goods, fully public goods, and common pool resources. Water is naturally a common pool resource – as river or lake cannot be practically partitioned into distinguishable plots in order to become a private good. The closed system of urban water infrastructure inherently turns water into a toll good, where inclusion relies on service connectivity. In addition,

**Table 3: The Conceptual Framework of Economic Goods**

		Rivalry in consumption	
		<i>Yes</i>	<i>No</i>
Excludability of benefits	<i>Yes</i>	Private or market goods	Toll or club goods
	<i>No</i>	Common pool resources	Fully public goods

Source: Ostrom, 2005<sup>12</sup>

excludability is also determined by water tariff structures, as a household's consumption of water is directly linked by the household's ability to pay. Excludability may balance the ecological realities of the system (water supply and demand), therefore ensuring long-term viability. To a certain extent, making water a "toll good" mitigates the "tragedy" of common pool resource extraction. Nevertheless, the policymaking process determining *who* is excluded is a very precarious and socially sensitive issue. Access to water is undeniably a basic human need, as "water gives life to everything, including human development and human freedom" (UNDP, 2006). If there is a normative acceptance of the human right to water, the approach toward water resources must be more comprehensive, rather than a simplification as an economic good.

### *Pricing*

Price structuring is perhaps the most fundamental feature of any utility system. In water infrastructure, pricing influences the resource distribution among users and determines the rate of cost recovery. The affordability of water has a direct relationship with water security for low income groups. These implications place both efficiency and equity considerations to water pricing reform. From the efficiency-oriented perspective, tariffs affect the resource supply and demand, where costs on the consumer may promote efficient water usage.<sup>13</sup> Pricing also has an equity effect, as it may accommodate equitable resource distribution to meet the needs of underserved groups. The question of equitable water policies becomes even more salient in the development context, such as the case in La Paz. Tariffs play a key role in when it comes to service expansion to low-income areas, as Komives (1999, 20) notes:

Tariffs and concession fees affect outcomes in low-income neighborhoods in three very basic ways: by affecting the cost recovery potential of the concession, by shaping the concessionaire's marginal incentive to serve certain customers over others, and by affecting demand for the concessionaire's services.

With these considerations, policy decisions on water pricing must carefully strike the balance between system sustainability and distributional equity.

For the utility provider, the underlying objective of a water tariff is to provide a revenue base. With public companies, there is a wide acceptance that revenues should cover system costs – as shortfalls would have to be made up some other way, usually through general tax revenue. In addition, profits imply that consumers are overpaying for the service, which is understood to be inappropriate for a public enterprise. When discussing private sector options, a normal profit is usually predetermined, using the “yardstick” approach: where private companies are expected to deliver water at a similar quality and price compared to selected cities with favorable outcomes (Shleifer 1985). The private company, under these conditions, may seek to maximize its profit through increased efficiency (minimized system leakage, reduced worker per connection ratio) – without compromising the “yardstick” expectations of water affordability and quality.

Regulators may employ several forms of pricing structures in order to achieve the policy goals just discussed. There are two basic structures for water tariffs: single-part tariffs and a two part tariff. Under the *single-part tariff* design, the water bill is based either on a fixed charge or a consumption-based charge. The advantage of choosing a fixed charge would be its simplicity: in many developing urban areas, non-metered usage

remains an issue, especially in cases where multiple households share one connection (Whittington, 1992; Cheng, 2013). This universal charge may be an optimal choice where water is abundant. In more arid environments, however, efficiency of water use becomes a larger concern. Block tariffs and linear tariffs, where prices are volumetrically determined, have been embraced to ensure distributional efficiency. Table 4 illustrates the block tariff used by Aguas del Illimani in La Paz, beginning in 1997. Under this structure, the price in the most expensive block is almost five times higher than the initial block.

The *two-part tariff* may offer a more conservationist alternative, in terms of water use, as it merges fixed pricing with consumption-based pricing. In theory, the fixed component of the tariff should cover the operation and maintenance (O&M) costs of the system – such as costs incurred through management, labor, repair materials and water treatment (Rogers, Bhatia and Huber, 1998).<sup>14</sup> Fixed prices should follow the cost-based pricing rule (or average-cost pricing): where prices are set with cost recovery in mind. The second component of the tariff would be consumption-based, with a volumetric

**Table 4: Increasing Block Structure of Aguas del Illimani**

<i>Volumetric charge (US\$ per m<sup>3</sup>)</i>	<i>Domestic water connections (m<sup>3</sup>)</i>	<i>Commercial water connections (m<sup>3</sup>)</i>	<i>Industrial water connections (m<sup>3</sup>)</i>
0.22	1 to 30		
0.44	31 to 150		
0.66	151 to 300	1 to 20	
1.19	301 and above	21 and above	1 and above

Adapted from Boland and Whittington, 2000

determination of costs. Increasing block tariffs (IBTs) have become the pricing method of choice in most developing countries.<sup>15</sup> Here, the opportunity cost of water is considered: one's usage of a given unit water deprives another customer of that same unit of water. With water prices reflecting the level of consumption, the IBTs introduce demand elasticity among water users. Nevertheless, there remains a certain extent of inelasticity, as there is a minimum requirement of water consumption to meet the basic demands of a household. The World Health Organization determines that the minimum amount of water to sustain human life and health is 25 liters per capita per day. Most countries have subsidies that exceed far above this level, as "lifeline" tariffs are set to 30 cubic meters a month per connection (that roughly amounts to 200 liters per capita per day).<sup>16</sup>

Although the IBT option has been a widely accepted form of water pricing, Boland and Whittington (2000) caution against the possible adverse effects the block structure. From the onset, there is the difficulty of determining the household demand to raise cost recovery revenues – as the block system requires careful method of price discrimination. In addition, informal neighborhoods typically have connections serving multiple households, which would raise these households to a more expensive block of water. This scenario would be highly regressive, as the poor would essentially be paying more than the rich for the same volume of water.

### *Subsidies*

Policies promoting universal coverage may require some form of subsidy to make water affordable to the poor. There are multiple policy choices pertaining to subsidies: from guarantees of free minimum service to direct transfers. In most cases, the block

tariff structure is used as a cross-subsidy, where higher levels of consumers subsidize the prices for lower levels. There are also various other forms of cross-subsidization; in the Buenos Aires case, where a universal fixed surcharge across water users subsidized new connection fees. With the Cochabamba privatization, price discrimination was made on a geographical basis, as tariffs were determined according to the neighborhood. The application of subsidies in water management makes the resource an effective redistributive mechanism, and if done correctly, it may largely improve the lives of the poor. By spending less on water, low-income households may be able to use the cash for other needs. Water affordability will also carry positive externalities, especially in the scope of sanitation (Komives et al., 2005).

Targeted cash transfers for low-income groups have been widely considered as the most efficient form of subsidy. The cash transfer approach allows the recipient to have flexibility, positing that autonomy in spending choices is the most effective means of poverty alleviation. It is also understood that a targeted program maximizes the benefits for those in most of need – as long as the methods of targeting are appropriate (Grosh et al 2008). In practice, this transfer usually requires a standard benchmark parameter to determine program enrollment. Chile, for example, enacted a benchmark set by the Pan American Health Organization, which determined that water bills should not exceed more than five percent of household income. Despite this program's success, it has not been widely replicated by other countries (Gómez-Lobo, Andrés and Foster, 2000).

Most tariff structures, however, use a cross-subsidy within the IBT pricing method. This may be preferable for countries with low administrative capacity, where

direct transfers cannot be facilitated. Under the block tariff, consumers in the more expensive block partially offset the water price for consumers in the less expensive blocks. In essence, this subsidy has a self-selecting targeting mechanism, as low-income households typically use less water, with steeper demand elasticity. Nevertheless, there remains a danger of mismatch between high-level consumers and those at the lower levels. This cross-subsidy is also vulnerable to several adverse effects, as elaborated by Boland and Whittington (2000). In low-income neighborhoods, multiple household units often share one single metered connection point, where cumulative consumption may place these consumers in the more expensive blocks.

### *Regulation and Oversight*

The success or failure of policy goals may be largely determined by the regulatory environment. The regulator has the challenge to “meet both efficiency and social welfare objectives in the water sector, balancing the needs of operators, consumers, governments and the environment” (Kessides, 2004, 219). Regulatory authorities provide public custodianship over the water resource, primarily by setting the price of water. These agencies also have the mandate to oversee the utility company’s operations and its progress towards target service goals (system coverage, quality, reliability). There are several inherent features which separate the water sector from other utilities; all which have political and economic implications for regulatory regimes (refer to Table 5). To begin with, water is not a homogeneous product when quality comes into consideration. This implies that the regulator must hold the service provider accountable to certain quality standards, given the health externalities associated with poor water quality. In

addition, water has high transport costs on the regional scale, unlike electricity transmission on large national grid.<sup>17</sup> With these costs in mind, water infrastructure tends to be characterized as geographically fragmented systems, often operating under municipal jurisdiction (Foster, 1996).

The economies of scale involved in water infrastructure make the system, for the most part, a natural monopoly.<sup>19</sup> This brings a strong political motivation to enforce a regulatory structure for the utility, especially provided that water is a basic necessity. While most of the literature has been focused on private sector regulation, public utilities also require extensive oversight to ensure efficiency:

Government ownership of water systems is no substitute for regulation because public monopolies also have incentives to overcharge consumers with no alternative supply, and to run down the capital stock and underinvest. (Kessides, 227)

Considering this natural monopoly issue, the policy literature has recently emphasized

**Table 5: Special Features of the Water Sector**

<i>Issue</i>	<i>Economic Dimension</i>	<i>Political Dimension</i>
Horizontal Structure	Fragmented Networks	Municipal Control
Responsibility for Provision	Limited Scope for Competition	Desire to Retain Public Sector Control
Social Policy	Health and Environment Externalities	Strong Ideological Character

Adapted from Foster, 1996<sup>18</sup>

price caps as an effective regulatory instrument. Noll, Shirley and Cowan (2000, 15) describe that utility operators possess more information than regulators, “and if regulators base prices on indicators that a firm controls, firms can increase their profits by distorting the performance indicator.” In this case, the operator may use information asymmetry to achieve higher profits without maximizing system efficiency. By implementing price caps on water, the regulator may avoid the expensive task of determining the average-cost price.

## Notes

<sup>1</sup> Quoted from Leipziger 2004, slide 2. Clarke et al 2004 maintains the same conclusion, finding that “connection rates for the poorest households also tended to increase in the regions with PSP and in the control regions, suggesting that – in terms of connections at least – PSP did not harm the poor.”

<sup>2</sup> For their analysis, the authors sample Argentina, Columbia, Bolivia, Brazil, Chile, Mexico, Trinidad and Tobago.

<sup>3</sup> Referencing the Latinobarómetro survey (2002): <<http://www.latinobarometro.org>>

<sup>4</sup> Lobina and Hall, 2008, 86.

<sup>5</sup> Hardoy and Schusterman, 2000, 64.

<sup>6</sup> Hardoy and Schusterman, (2000, 64) cite a 1994 UNICEF report.

<sup>7</sup> Plummer, 2002, 21.

<sup>8</sup> Abdala, 1996; Hardoy and Schusterman, 2000

<sup>9</sup> World Bank, 2002, 3.

<sup>10</sup> World Bank, 2002, 2.

<sup>11</sup> World Bank, 2006, 53.

<sup>12</sup> Ostrom, 2005, 24.

<sup>13</sup> Under the assumption of a volume-based pricing method

<sup>14</sup> Refer to Figure 1, “General Principles for Cost of Water,” Rogers, Bhatia and Huber (1998, 7).

<sup>15</sup> Boland and Whittington, 2000, 215

<sup>16</sup> This amount is roughly 200 liters per capita per day for a household of five members:

Boland and Whittington, 2000.

<sup>17</sup> To illustrate these high costs of regional water transfers, refer to the Melamchi Water Supply Project in Kathmandu (Maxwell, 2012).

<sup>18</sup> Table 4 in Foster (1996, 7).

<sup>19</sup> Noll, Shirley, and Cowan (2000) mention that water infrastructure does not inherently need to be a monopoly, at least from the supply-side. Bulk water may be sold into the delivery system through a decentralized system of reservoirs.

## **Chapter Four**

The Government of Bolivia has been taking recent steps to re-examine the water sector in La Paz and El Alto: most notably with the creation of a master plan for 2013-2036 (“Plan Maestro Metropolitano de Agua Potable y Saneamiento La Paz – El Alto,” or simply, “PMM”). The master plan, produced by the Ministerio de Medio Ambiente y Agua (MMAyA), seeks to identify strategies for expansion of water coverage, with plans to incorporate satellite municipalities as far as Pucapani, Palca, and Mecapaca. The forthcoming Plan is a milestone in the region’s water infrastructure development, as the most recent master plan dates back to 1994. Within the scope of institutional arrangements, the Plan proposes several models to reform the existing public provider, EPSAS.<sup>1</sup> The document states that the Government of Bolivia is pursuing a “vigorous process” of incorporating social sectors in the delivery of water services:

En el sector de agua y saneamiento, el Estado Plurinacional de Bolivia está viviendo un proceso muy vigoroso de incorporación de los sectores sociales en el diseño de políticas públicas, en procesos de planificación, de regulación, como en los procesos de gestión institucional y/o de fortalecimiento en la prestación de servicios de agua potable y alcantarillado sanitario. (MMAyA, 2013)<sup>2</sup>

From the onset, several fundamental issues are identified with the existing state of water management: (1) the national water law is outdated, and contradicts the new constitution; (2) there is insufficient regulation of the public providers, with limited mechanisms for verification and intervention of the regulator; (3) limited administrative and technical capacity among the public providers; and (4) problems of inefficiency with water use, particularly the issue of non-metered usage.

By December 2006, after the contract with Aguas del Illimani was formally terminated, water services were almost immediately transferred to EPSAS. The new public provider was created under Decreto 28933, with over US\$9 million in bonds through the Fondo Nacional de Desarrollo Regional (FNDR).<sup>3</sup> The legal framework allowing the transfer was defined under the Ley del Sistema de Regulación Sectorial (SIRESE) – a law which developed the regulatory environment for various sectors. This piece of legislation would be later replaced by Decreto Supremo No 0071, establishing the Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento Básico (AAPS) to regulate the water sector.<sup>4</sup> This would come to replace the Superintendencia de Aguas, which regulated the sector throughout the years of privatization. At the time of the transfer, EPSAS was only intended to temporarily operate the utility – with a six month deadline for a new “social and public company.” This deadline had been extended on a reoccurring basis, every six months, with expectations for reform. Nevertheless, the hopes of a new company never materialized, leaving the short-term minded EPSAS as the *de facto* long-term service provider.

To this day, six years after its creation, EPSAS finds itself in an incredibly precarious state: marked with poor management and an inability to fulfill contractual

obligations. In an unprecedented move, the regulator took complete control of the EPSAS in April 2013.<sup>5</sup> The intervention allows AAPS to assume all of operations and management responsibilities for a period of six months – and by the end of the intervention, the central government will introduce a reformed EPSAS. In a statement by AAPS, a perceived management crisis became the grounds for intervention:

EPSAS tiene baja ejecución de inversiones, no tiene capacidad de reposición en inversión, su software de facturación corre riesgo de colapso, contamina el medio ambiente [...] no tiene gestión de riesgos e incumple sus compromisos con el pueblo.<sup>6</sup>

In consideration of these points, from poor risk management to environmental degradation, there is a clear consensus that EPSAS is in a failed state. This places the Plurinational State of Bolivia, more particularly the Ministerio de Medio Ambiente y Agua, at a crossroads on water governance reform. The key question is how to create a more accountable and efficient public service provider, at a time of management crisis.

### *An Interlocking Legal Framework*

At the national level, the constitution introduces the underpinning policy framework that governs water. The MAS government brought a new agenda on natural resource policy, directly following the election of Evo Morales. The constitution of 2009 affirms the human right for water and the responsibility of the state for the promotion of water access:

El agua constituye un derecho fundamentalísimo para la vida, en el marco de la soberanía del pueblo. El Estado promoverá el uso y acceso al agua

sobre la base de principios de solidaridad, complementariedad, reciprocidad, equidad, diversidad y sustentabilidad.

(Artículo 373, I)<sup>7</sup>

In addition to this agenda on natural resource policy, the constitution explicitly recognizes more traditional systems of water governance. Such features may be particularly salient in the context of El Alto, where 74 percent of its residents self-identify as Aymara.<sup>8</sup> To elaborate on “usos y costumbres” rights, there is a clause which legitimizes customary practices in water resource policy, stating:

El Estado reconocerá, respetará y protegerá los usos y costumbres de las comunidades, de sus autoridades locales y de las organizaciones indígena origina campesinas sobre el derecho, el manejo y la gestión sustentable del agua.

(Artículo 374, II)<sup>9</sup>

This recognition of customary practice aligns with the MAS government’s embrace of plurinationalism, through its intent to incorporate indigenous forms of governance with mainstream decision making (Perreault, 2008). It must be understood, however, that the right to “usos y costumbres” is not exclusive to indigenous communities, and may be invoked by any local group. Therefore, there is a certain degree of selectivity, on the part of the national government, in determining which local institutions merit autonomy in water provision.

These constitutional clauses, introduced through the referendum of 2009, have certainly set a normative tone at the national level. Nevertheless, its ambiguity has policymakers at a crossroads on the actualization of these rights. In other words, what

form of legal framework would appropriately promote “usos y costumbres” rights, and a participatory decision making process? Furthermore, how will separate groupings of water users be prioritized in the water management process? These policy aims are far from being reached, as the national water law dates to 1906.<sup>10</sup> While the “Ley de Aguas Vigente” stands as the most current law, it is unfit, and certainly irrelevant, for the policymaking environment of today. In fact, the law directly contradicts the constitution by allowing private domain over water, if it naturally sources within private land.<sup>11</sup> Moreover, the 1906 law does not delegate arbitration power to any current body of government to mediate conflict. This is particularly important in the context of rapid urbanization, with domestic and commercial users often demanding water transfers from the agricultural sector. For the time being, most urban-rural water conflicts remain unresolved; a legal imperative that has profound implications for meeting the growing demands of La Paz and El Alto. There is a general notion among farmers in the region that their bargaining power is weak in the face of the much larger EPSAS.

Since 2012, a proposed water law has been in a process of deliberation within the national legislature. The proposed framework, titled “Ley Marco Agua Para la Vida,” was brought forth by MMAyA in response to the renewed constitutional mandates on water rights. Here, priority is given to water for human consumption, with a proposed “Autoridad Plurinacional del Agua” to integrate water users (Capítulo III). Although this document was developed with 119 civil society organizations, there has been widespread public skepticism regarding its top-down approach toward integrated water resource management. Some critics caution that the law would further facilitate megaprojects by

overriding local opposition.<sup>12</sup> These debates have stalled the legislative process, at a time when a general water law is far overdue.

Turning towards potable water services exclusively, several national laws affirm that water should be delivered at the municipal level. The primary legal framework of the sector is included in “Ley No 2066 de Servicio de Agua Potable y Alcantarillado Sanitario,” which establishes the institutional norms of EPSAS (the provider) and the regulatory Superintendencia (currently replaced by MMAyA). The law was introduced in year 2000, to accommodate the privatizations in La Paz and Cochabamba with a robust regulatory structure. Provided the current political environment, with nationalized water services, the law is somewhat outdated: especially since it permits private water concessions. Nevertheless, Artículo 13 delegates many aspects of water provision to the municipal government, such as planning and the determination of coverage goals. Water governance at the municipal-level is also reinforced by the more recent decentralization law, “Ley No 031 de ‘Andrés Ibáñez’” of 2010.<sup>13</sup> Under this law, the municipality has the responsibility to execute and finance water infrastructure projects, alongside of the State and departmental governments (Artículo 83). The extent of municipal involvement, however, will rely on its financial resources, institutional capacity, and political will.

### *The Urgency for Reform*

These legal shortcomings have left Bolivian urban water management in a broken state. More specifically, the constitutional mandate to promote a decentralized approach towards natural resource policy has not been put to practice. The water system in La Paz would be no exception, as it has been administered by the national EPSAS provider,

despite promises to devolve autonomous power to the municipal governments. The intervention of the regulator in April, 2013 certainly reflects the widespread frustration over EPSAS. In a statement provided by AAPS, released several weeks before it seized control of the utility's operations, the regulator argues that EPSAS is essentially unconstitutional:

Que, a pesar del citado mandato constitucional y a 3 (tres) años de la promulgación de la Constitución Política del Estado [...] EPSAS SA. no se adecuo a los modelos de gestión señalados en la citada Carta Magna. (AAPS, 2013, 8)<sup>14</sup>

Here, the regulator asserts that the public company has illegitimately remained in operation, with the intent of providing justification for intervention. The statement even suggests that the model of EPSAS intrinsically contradicts the constitution, as the entity does not meet the requirements of a "Sociedad Anónima," as prescribed by the Código de Comercio (Arículo 125). It recognizes that EPSAS is an *ad hoc* entity formed to temporarily replace Aguas del Illimani throughout the 2005 nationalization. Yet its continued existence today, as AAPS would argue, undermines the country's renewed constitutional mandates on natural resource policy.

To further the case for intervention, AAPS provides a list which reflects the dysfunctional state of the public provider. The points made here offer a compelling argument in support of sweeping reforms across the La Paz-El Alto water sector. First, there are concerns over the production of water and system expansion. In 2011 alone, EPSAS had reduced water production by 69 million cubic meters, despite a revenue increase of \$21 million. As a result, the provider generated an unjustified surplus of \$110

million, but only invested \$40 million for system improvements. This low investment rate is especially concerning given the need for expansion, as elaborated in the earlier chapters. The document also points that EPSAS has not presented a single study or project which considers infrastructure expansion (AAPS, 2013, 9).

The regulator also blames EPSAS for high rates of system leakage, which has resulted in an estimated \$19 million annual loss. This unaccounted water loss may also reflect a high incidence of nonpayment or non-metered usage. Turning towards the administrative functions of EPSAS, the regulator finds that the information technology is insufficient for billing purposes, which in part explains the reduction of billable revenue. Moreover, here is a concern for the general management of the staff, including the inactivity of Board members.

Throughout the period of 2007 to 2011, the Plurinational State of Bolivia has partnered with international institutions (mainly IDB and CAF) and cooperative agencies to invest \$91.2 million for infrastructure improvements in the La Paz-El Alto water system. Despite this level of investment, EPSAS yet finds itself in a fragile administrative and financial state, in urgent need of reform. In the regulator's statement, there is a clear frustration over the current situation:

Que, la deficiente gestión en la administración de la empresa no solo pone en serio riesgo la prestación del servicio, sino que compromete recursos económicos del Estado Plurinacional de Bolivia, que “nacionalizo” las acciones de la Empresa Aguas del Illimani SA., tomo el control de la Empresa, no para administrarla de forma ineficiente, o entregar su administración a grupos de poder sociales, políticos, sindicales o

económicos, asumió el control de la Empresa, para adecuarla a los mandatos y principios de la Constitución Política del Estado, para concretizar los derechos fundamentales en ella consagrados, al efecto el Estado a través de la instancias llamadas por Ley, debe retomar y ejercer su función de fiscalización y control, sobre la citada Empresa, que a la fecha cuenta con un Directorio renunciante, una Gerencia General designada de forma anómala y una gestión inoperante e ineficiente.

(AAPS, 2013, 13)<sup>15</sup>

The regulator assertively remarks that the mismanagement of EPSAS not only places risk on the infrastructure itself, but puts financial risk on the central government. In addition, the nationalized company has not been able to fulfill the mandates of the constitution, with respect to fundamental human rights. These claims shed light on the political impetus for reform: as the reform has implications that reach farther than the infrastructure system itself, but rather the process of (pluri) nation-building under the Morales government. In other words, the failure of EPSAS in meeting constitutional mandates of 2009 may undermine the political transition brought by MAS. In light of the new constitution, “inspired” by the contention over natural resources in the past decade, ensuring water accessibility has been a political imperative. This, in part, may account the urgency of reform that has been imposed by the national government.

With the benefit of hindsight, it is important to consider the possible conditioning factors leading to the poor performance of EPSAS. Recall that the company was brought in to swiftly replace the private provider, after Aguas del Illimani exited in 2007. The implementation of EPSAS, however, was understood to be a temporary provider (for a

limit of six months) until the municipalities could assume control over the infrastructure system. Therefore, the initial concept of EPSAS may describe its lack of farsightedness for obvious reasons. Under this arrangement, the public company had no mandates for service expansion, long-term investments, or improvements in efficiency. Given these inherent problems, perhaps it was the inaction of the regulator that may explain the provider's unaccountability and mismanagement. The regulator's intervention in April 2013 was far overdue, given that EPSAS should have been replaced in 2007. In this sense, there were minimal checks and balances in place to hold the utility provider accountable. This reflects a broader concern of the regulatory system as a whole: AAPS reports that only 30 of the 672 registered water providers across Bolivia are actually being regulated.<sup>16</sup> While this may speak to the limited capacity of AAPS, the outdated legal framework undermines the regulatory environment in the water sector. The current law, "Ley No 2066," was introduced in 2000 to regulate privatized water infrastructure systems, not large-scale public systems.

Although the intervention has been imposed by the national government, AAPS acknowledges that it does not have the constitutional mandate to establish a local water provider.<sup>17</sup> Instead, this new entity would have to be developed and adopted by the municipal governments. This leaves AAPS and the executive to assume only a facilitative role among various institutional actors, without implementing a new water company from the top down. The Plan Maestro 2013-2036, spearheaded by MMAyA, demonstrates this role by offering extensive technical support and policy recommendations to local governments and the public. International technical

**Table 6: Institutional Actors in the Water Sector**

<i>Direct Actors</i>	<ul style="list-style-type: none"> <li>• Entidad Prestadora de Servicios de Agua Potable y/o Alcantarillo Sanitario (EPSAS)</li> </ul>
<i>Public Actors</i>	<ul style="list-style-type: none"> <li>• Ministerio de Medio Ambiente y Agua (MMAyA)</li> <li>• Servicio Nacional Para la Sostenibilidad de Saneamiento Básico (SENASBA)</li> <li>• Autoridad de Fiscalización y Control Social de Agua Potable y Saneamiento Básico (AAPS)</li> <li>• Gobiernos Autónomos Municipales (GMs, GAMs)</li> <li>• Gobiernos Autónomos Departamentales</li> </ul>
<i>Social Actors</i>	<ul style="list-style-type: none"> <li>• Federación de Juntas Vecinales (FEJUVEs)</li> <li>• Comités de Vigilancia</li> </ul>
<i>Other Actors</i>	<ul style="list-style-type: none"> <li>• NGOs and INGOs</li> <li>• Technical assistance from cooperative agencies</li> <li>• Universities and research institutes</li> </ul>

consultants, including GITEC Consult and the TYPASA Group, were involved in drafting these plans. Local expertise has come from NGOs, namely Land and Water Bolivia. Aside from the financial and environmental analysis provided here, the master plan offers three potential models of institutional reform. These proposals have been considered in public fora, involving various local actors, especially with the participation of FEJUVE and the Comité de Vigilancia.<sup>18</sup> The municipality of La Paz has already endorsed one proposal, while El Alto has yet to offer a preference. Negotiation at the municipal level is imperative, and sufficient agreement on an institutional model would be an adequate first step.

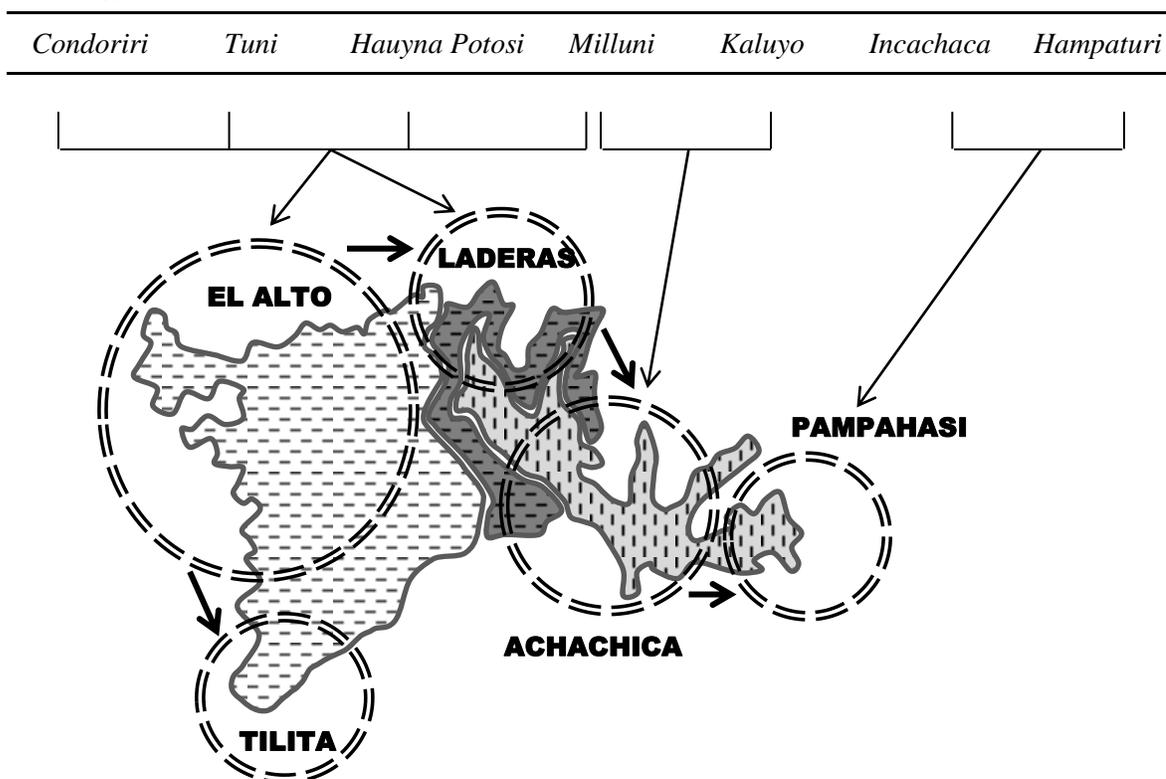
*Toward an Integrated Approach*

The regulator justified the intervention on various grounds, from poor risk management to environmental degradation. Nevertheless, a broader and more fundamental issue is yet to be addressed: what form of governance would most effectively manage water delivery for the region? This requires that stakeholders set the balance between regulatory powers at the national level and autonomy at the local municipal level. There is also the question of integrating the municipalities in a consortium (or multiple consortia), for better water management. The restructuring of water governance in La Paz-El Alto must be determined during this intervention, as required by law. For this reason, the two municipalities –along with its satellite cities– stand at a critical juncture for the future of natural resource management.

From the onset, there are a number of considerations ought to be taken into account throughout the reform process. One of the primary features of the infrastructure system is its physical integration across the region. As described in Chapter One, the region is geographically divided between the expanding El Alto highlands, the lower La Paz valley, and the steep “ladera” slopes in between (under La Paz jurisdiction). Despite this distinct geographical fragmentation, its water infrastructure is highly integrated, with water resources conveniently transferred among subsystems. As Figure 6 shows, water generally flows from the El Alto systems, to the Laderas, then Achachicala and Pampahasi. Although water (sourcing from the neighboring Andean range) externally enters the system at various points, the lion’s share of water volume is captured by the El Alto subsystem before distribution across the region. With this in mind, the infrastructure

**Figure 6: Water Flow Diagram of Subsystems within El Alto and La Paz**

Water source:



Author's elaboration.

**Table 7: Subsystem Operating Costs and Revenues (2011)**

<i>Achachicala</i>	<i>Pampahasi</i>	<i>Laderas</i>	<i>El Alto</i>	<i>Totals</i>
<b>(a) Total Water Connections</b>				
29,695	51,387	38,606	191,999	311,687
10%	16%	12%	62%	
<b>(b) System Operating Costs</b>				
BOB 8,512,615	BOB 14,731,024	BOB 11,067,116	BOB 55,040,026	BOB 89,350,780
10%	16%	12%	62%	
<b>(c) Revenues from Tariffs*</b>				
BOB 67,150,265	BOB 51,794,993	BOB 14,382,126	BOB 50,563,620	BOB 183,891,004
37%	28%	8%	27%	

Adapted from MMAyA (2013).

\*42 percent of the total tariff revenues come from large commercial clients

must be governed as an integrated system, therefore demanding cooperation between the local municipalities on water provision.

Another important feature may be found with the large imbalance of financing between the subsystems (refer to Table 7). The poorest and most populous sections, the Laderas and El Alto (combined), account for 74 percent of the total system's operating costs, but only make up 35 percent of tariff-based revenues. This large gap in cost and revenue share is expected, given the socioeconomic differences when compared to the wealthier La Paz sections. Nevertheless, there are remarkable windfalls across most sections, of which the regulator finds as the surplus completely unjustified. In the Achachicala subsystem, for example, revenues exceed costs by an astonishing eightfold difference. Surpluses occur for the Laderas section, even though the area is considerably poorer than the southern sections. Therefore, both high- and low- income water users are overpaying for water services, with regard to the operating costs. This certainly undermines any progressive cross-subsidization objectives, which may attempt to make water more affordable to the poor.

The price structure of EPSAS is unique as it includes a targeted subsidy within an increasing block tariff (IBT). Here, users pay rates according to the volume of water consumed, where a certain extent of price elasticity would encourage less water usage (refer to Table 8). The targeted component comes with the "Tarifa Solidaria" program, reflecting the lowest water rate for qualifying households. Several indicators point to the poor design of this pricing structure. First, the threshold for the least expensive volumetric block is set at 15 cubic meters per month, which is excessively far above the conventional "lifeline" requirement of water. As mentioned in the previous chapter, the

**Table 8: Tariff Structure of EPSAS**

<i>Consumption</i>	<i>Price BOB/m<sup>3</sup></i>	<i>Domestic (m<sup>3</sup>)</i>	<i>Commercial (m<sup>3</sup>)</i>	<i>Industrial (m<sup>3</sup>)</i>
High	BOB 12.21	301-	21-	1
Medium	BOB 06.84	151 – 300	1-20	
Low	BOB 04.56	31 – 150		
Domestic (2)	BOB 02.28	1 – 15		
Domestic (1)	BOB 01.82	1 – 15		
“Tarifa Solidaria”	BOB 01.78	1 – 15		

Reproduced from AAPS<sup>19</sup>

**Table 9: Water Users Enrolled for "Tarifa Solidaria" (2011)**

	<i>La Paz</i>	<i>El Alto</i>	<i>Totals</i>
Total households with “Tarifa Solidaria”	66,015	166,124	232,139
Share among all water users	56%	88%	76%

Adapted from Gobierno Municipal de La Paz (2013)

World Health Organization has determined that the minimum amount of water needed for consumption and sanitation needs stands at 25 liters per capita per day. This converts to roughly four cubic meters per month, for a household of five people. Taking these figures, the volume threshold from the “Tarifa Solidaria” group to the “Low Consumption” group is set inappropriately high.

The large share of total water users qualifying for the Tarifa Solidaria implies very little progressivity with the price structure. Table 9 shows that with La Paz and El Alto combined, 76 percent of residential water users are enrolled in the “targeted” program, and thus are paying the lowest rate of the IBT. This offers overwhelming

evidence that benefits are not being actualized by the “poorest of the poor” in society, nonetheless the bottom half. Policymakers interested in promoting water access must reconsider the qualifying criteria to make targeting more effective. Otherwise, the magnitude of the program suggests that the Tarifa Solidaria is heavily politicized.

### *Institutional Models for Water Decentralization*

At this current stage of negotiation, there are three proposed institutional models under consideration. Each proposal varies in its the delegation of powers between municipal governments on water provision. The first model, referred to as the “Metropolitan Entity of Solidarity,” centralizes all production and delivery of potable water across the region. This arrangement requires a common pool of representatives from each municipality, where decisions must be made collectively. Of the three proposals, the municipal government of La Paz has endorsed this combined entity – with the argument that a centralized system would bring economies-of-scale benefits, thus lowering the cost of water services. It is not surprising that La Paz would prefer this scheme, as the municipality often enjoys greater political leverage over El Alto (as La Paz is the nation’s capital). Yet, this enlarged model has its drawbacks, with critics finding the arrangement politically infeasible. As mentioned in an earlier section, the municipalities of El Alto and La Paz represent opposing political parties (and inherently separate political processes altogether). This poses a large constraint for cooperation within this proposed entity, and, in a way, it plants the seeds for its own failure.

The remaining two proposals separate responsibilities among the municipalities, whereby water is allocated in blocks to each local government. Both the ministry and

regulator have favored this approach, as this arrangement would promote autonomous decision-making at the municipal level. The second model, or the so-called “Strategic Entity,” completely assigns water governance to each city – independent of one another. Engineers and planners have expressed caution about this model, as the existing infrastructure cannot be practically divided along municipal boundaries. In other words, the water system has already been physically integrated across the region; and therefore local governments must take an integrated approach towards policymaking.

The last model, taking the name “Decentralized Public Enterprises,” reconciles this concern. Here, two large public companies are formed: one centralized in La Paz, another in El Alto. Smaller satellite cities would be represented through the nearest entity, as system expansion will require cooperation from the population centers (either La Paz or El Alto) and outward (to smaller towns). This proposal matches the physical realities of the water infrastructure system, by linking local governments in relation to their relative proximity. In addition, the separation of responsibilities between La Paz and El Alto implicitly acknowledges the political polarization between the two municipalities.

## Notes

<sup>1</sup> Entidades Prestadoras de Servicios de Agua Potable y/o Alcantarillado Sanitario

<sup>2</sup> [Author's translation:] "In terms of water and sanitation, the Plurinational State of Bolivia has begun a very vigorous process of incorporation social sectors in the design of public policy, in the planning process, in operations and regulation, as well as process involving institutional management and/or in strengthening potable water and sanitation services." MMAyA, 2013, Vol I, Section 2.1.1.

<sup>3</sup> The US\$9,562,000 in bonds corresponds to the debt of the Aguas del Illimani Consortium. The FNDR is primarily financed by the IFC, IDB and CAF.

<sup>4</sup> Decreto Supremo No 0071: "Crea las Autoridades de Fiscalización y Control Social en los sectores de: Transportes y Telecomunicaciones; Agua Potable y Saneamiento Básico; Electricidad; Bosques y Tierra; Pensiones; y Empresas; determina su estructura organizativa; define competencias y atribuciones," Presidente del Estado Plurinacional de Bolivia (09 Abr 2009).

<sup>5</sup> "Intervención de EPSAS," *La Razón* (2013)

[http://www.la-razon.com/opinion/editorial/Intervencion-EPSAS\\_0\\_1808219171.html](http://www.la-razon.com/opinion/editorial/Intervencion-EPSAS_0_1808219171.html)

<sup>6</sup>[Author's translation:] "EPSAS has por investment, no capacity of returns on investment, the billing software is running the risk of collapse, it contaminates the environment [...] it has poor risk management and fails the commitments made to the community."

"Intervención de EPSAS," *La Razón* (2013)

<sup>7</sup> [Author's translation:] "Water is a fundamental right for life in the context of the sovereignty of the people. The State will promote water use and access based upon the basic principles of solidarity, equality, complementarity, reciprocity, equality, diversity, and sustainability."

<sup>8</sup> Lazar, 2008, 2.

<sup>9</sup> [Author's translation:] "The State will recognize, respect and protect the customary rights of the community, local authorities and of the indigenous farming organizations in terms of their rights, sustainable use and management of water."

<sup>10</sup> [For the full text of the 1906 Water Law, refer to:] OAS. "Ley de Aguas Vigente."

*Organization of American States*. Online (accessed 30 October 2013):

< [http://www.oas.org/dsd/environmentlaw/waterlaw/documents/bolivia-ley\\_de\\_aguas\\_vigente\\_\(1906\).pdf](http://www.oas.org/dsd/environmentlaw/waterlaw/documents/bolivia-ley_de_aguas_vigente_(1906).pdf) >

<sup>11</sup> [Capítulo 6:] OAS, "Ley de Aguas Vigente, Estado de Bolivia, 28 Nov 1906," Online.

<sup>12</sup> Crespo, 2013.

<sup>13</sup> Formal title: "Ley marco de Autonomías y Decentralización 'Andrés Ibáñez'" Ley No 031, 19 Jul 2010.

<sup>14</sup> [Author's translation:] "Whereas, despite the cited constitutional mandate and 3 (three) years after the enactment of the political constitution of the state [...] EPSAS did not follow the management models pointed out in the Carta Magna."

<sup>15</sup> [Author's translation:] "Whereas, the deficient management of the enterprise not only seriously jeopardizes its services, but also compromises the economic resources of the Plurinational State of Bolivia that "nationalized" Aguas del Illimani and took control over

the company, not to manage it inefficiently or hand it over to groups of social, political, labor or economic power, but to adapt it to the mandates and principles of the political constitution of the State to materialize its fundamental rights, to the effect that the State, by means of the law, must return and pursue its role in the supervision and control over this enterprise, that so far has a resigning directorate, an abnormally designated general manager and marked by ineffective and inefficient management [sic].”

<sup>16</sup> [Anexo 6-1, Evaluacion Institucional VII Sec 2.b:] MMAyA, 2013.

<sup>17</sup> AAPS, 2013b

<sup>18</sup> Crespo, 2013.

<sup>19</sup> AAPS, “Etractura de Tarifas a Junio 2010,” Online: accessed 02 Nov 2013:

<http://www.aaps.gob.bo/bcko/data/sig/epsas/precios/1-precios.pdf>

## **Chapter Five**

The La Paz region has reached a critical juncture in urban infrastructure reform, as local municipalities will need to build consensus on a restructured water utility company. This process has implications that reach beyond the scope of water management, as it comes at a time of remarkable sociopolitical change. The backdrop is a decade of natural resource conflict has revitalized expectations on the state's role in ensuring water access. The constitution of 2009 explicitly mentions these conflicts in its preamble, declaring that these social movements had "inspired" the referendum. Despite this sense of progress, normative goals on universal right for water are far from being actualized. Basic services in the peri-urban areas of El Alto and La Paz continue to lag behind, disproportionately affecting the urban poor. This, in part, has been the result of rapid and uncontrolled demographic growth in the region that has outpaced water sector development. Population pressures, however, do not entirely account for this institutional incapacity. Instead, the water crisis reflects a far-reaching governance failure: as it not only undermines local water services, but moreover, challenges the nation-building process as a whole.

In the context of the La Paz-El Alto water sector, the outcomes of infrastructure reform are tied the larger political transition of the Bolivian state, and its goals of

plurinational democracy and local decision-making. This thesis brings forth several propositions: (1) demands for social inclusion in urban development have been at the forefront of the recent water conflicts, given the intrinsic relationship of water access and poverty; and, (2) given these demands, efforts toward infrastructure reform must promote inclusion through water affordability and service expansion, keeping in mind long-term system viability. In the case of the Aguas del Illimani concession, social protests came in reaction to the relaxed service-expansion mandates for the private provider. Exclusion from the system was also determined by new connection fees, which was a regressive consequence of infrastructure expansion. In other words, the concessionaire would have more of an incentive to expand service in wealthier neighborhoods, as there would be a greater number of new connections per given area –compared to a more dispersed, low-income area.

The public provider, EPSAS, has not shown promising results in meeting the demands for system expansion. As the previous chapter points out, EPSAS was initially intended to manage the system for a short-term period of six months, and therefore the company had no long-term expansion mandates. Notwithstanding the pressing water needs within peri-urban areas, the provider operates on an astonishingly high surplus, where revenues exceed costs by almost twofold. This problem of underinvestment, for the most part, reflects the lack of robust oversight on the utility operator. Kessides (2004) points out that public monopolies generally have incentives to overcharge customers with no alternative water supply. With this in mind, the regulator must place enforceable performance targets on the operator, which includes aspects of system efficiency and expansion. In the case of EPSAS, such performance targets were not defined or enforced

by the regulator (AAPS). The utility company therefore was oriented for short-term planning, rather than meeting the expectations envisaged by the Morales government, such as universal access to water. As stakeholders are now negotiating for a reformed model of water management, the comprehensiveness of public oversight must not be overlooked.

This tale of La Paz water management offers valuable insight into the political economy behind urban infrastructure reform. Here, the question is asked on why water services continue to fall short of expectations, despite such political will to ensure universal water access. Months after the exit of Aguas del Illimani, a public provider was almost immediately established to assume operations. This prompt nationalization, however, left some unfinished work. Legislation governing the sector continues to be outdated and unfit for a new regulatory environment: for consideration, the current water services law (Ley 2066) was enacted in 2000 to regulate private water companies, with its language directly contradicting the 2009 constitution. In addition, AAPS has lacked the administrative resources to fulfill its regulatory mandates. As mentioned, only 30 of the 672 registered water providers are actually being regulated across the country (MMAyA, 2013, Anexo 6). More specifically, in the case of La Paz, the regulator deferred its intervention of EPSAS six years after it had not fulfilled its mandate to decentralize to the municipal level.

With the benefit of hindsight, a bundle of lessons may be drawn from the Bolivian experience with infrastructure reform. First, these aforementioned shortcomings, to a large extent, may perhaps be attributed to a widespread overconfidence in publicly-run companies alone to achieve policy goals. This is evident through the government's

immediate nationalization of the water sector, without developing the legal framework or regulatory environment to accommodate reform. To simply put it, means became the ends. Rather than implementing a public sector led strategy to solve the urban water crisis, nationalization became an end in its own right. This may have been a result of the political momentum of the time, with an overwhelming backlash against water privatization. The introduction of a public provider, however, should not substitute the role of a regulator. In the case of La Paz, as this thesis illustrates, EPSAS had insufficient public oversight, even though it operated as a publicly-owned company. With these considerations, efforts to nationalize water infrastructure must further develop the regulatory regime: in respect to both its administrative resources and legal authority.

Decentralization of water services has become a recent priority of the MAS government, opening an opportunity for municipal-level infrastructure reform. The constitutional referendum of 2009 assigns responsibilities of basic services to the municipality, while the regulator's intervention seeks to actualize this goal. Moving forward, stakeholders must agree on model of water governance, and thereby set the balance between *system integration* and *local autonomy*. In the case of La Paz, the water system is inherently integrated and therefore the resource should be governed as such. Yet, the complexity brought political and social fragmentation should not be dismissed throughout this process of decentralization. For this reason, the national government must assume a facilitative role to enable municipal capacity-building, for the improvement of water management.

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