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Water from the heights, water from the grassroots: the Governance of common dynamics and public services in La Paz-El Alto

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Water from the heights, water from the grassroots: the Governance of common dynamics and public services in La Paz-El Alto

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As in many large cities, the now prevailing technical model for producing and distributing water in La Paz and El Alto is that of a centralized network serving the whole population of the two cities. La Paz and El Alto are no exception to the reality of the major cities of the Global South, where the technical service offer is struggling to keep pace with the rate of urban growth, which above all raises technical challenges (availability of water resources, the operator's capacity to extend the networks and socioeconomic challenges (the low contributory capacity of the inhabitants of the peripheral zones).

However, the network managed by the main operator is not the only way these metropolitan areas access water. Many families obtain their water from networks belonging to small cooperatives, the “small systems” that supplement the “big system” of the centralized network. This paper opens up discussion on the governance and regulation of water services by integrating the insightful thinking of E. Ostrom on the interlocking of the different levels of rules, mainly the “operational” rules with the “collective-choice arrangements” with the higher level of “constitutional rules”.

The two cases presented in this paper typify the thinking on the way that the dynamics of the commons and public service are interlinked: one involves the environmental risks and possible trade-offs required to balance the interests of rural (upstream) communities and the general interest (urban water); the other one shows how urban water cooperatives have gradually come to fill the gaps left vacant by the public service, driven by communities who have found the means of organizing and producing the service on their own and defining the rules for its operation and sharing, their sustainability is now called into question at the economic, social and environmental level. Observation of what these commons reveal about the social actors' expectations and possibilities for action in the area of access to drinking water is a precious entry point to renew thinking on the governance and regulation of services at the global scale of the agglomeration, while unquestionably helping further the sector-based discussions.

Keywords: Water systems, public service, commons, sector governance, common services, community, La Paz-El Alto

JEL Classification: H41, O13, O17, O18, Q25

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I. Introduction

In common usage, Governance—as distinct from Good Governance—is often equated with “government” or, more precisely, “the act or process of governing” (Gisselquist, 2012). It is hardly surprising therefore that all the official definitions of Governance refer to the notions of authority, power and rules of the game. Kaufman takes it to mean “the traditions and institutions by which authority in a country is exercised” (Kaufmann, Kraay and Zoido-Lobaton, 1999). Girishankar et al. consider that it “refers broadly to the exercise of power through a country’s economic, social, and political Institutions in which institutions represent the organizational rules and routines, formal laws, and informal norms that together shape the incentives of public policymakers, overseers, and providers of public services” (Girishankar, 2002). This is often referred to as “the rules of the game.” Hence the implicit idea that “understanding governance requires an identification of both the rulers and the rules, as well as the various processes by which they are selected, defined, and linked together and with the society generally.” For all this, there is no agreed definition of Governance “that would provide a convenient device for organizing the literature” (Keefer, 2009) as scholars compile dozens of different definitions from as many organizations (Gisselquist, 2012). Among the various alternatives (Weiss, 2000, OECD 2009), international organizations such as the UNDP, IMF, and OECD opt for the relatively state-centric definitions.

In all events, the term Governance, unlike the term Government, implies a shift away from the centrality of public action, decision-making and evaluation, with a multiplicity of loci and stakeholders involved in the process, and underlines the introduction of new methods of management and regulation. It is often considered to be an organizing concept that guides administrators as administrative practices shift from the bureaucratic State to what is called the “hollow State” (UNESCO, 2006). According to Frederickson and Smith, “Governance refers to the lateral and inter-institutional relations in administration in the context of the decline of sovereignty, the decreasing importance of jurisdictional borders and a general institutional fragmentation.” The authors assert that, with more emphasis on Governance, “the administrative state is now less bureaucratic, less hierarchical and less reliant on central authority to mandate action. Accountability for conducting the public’s business is increasingly about performance rather than discharging a specific policy goal with the confines of the law” (Frederickson and Smith, 2003). We have now left behind an excessively state-centric definition of public action, that is to say, an approach recognizing “the galloping demography of players relevant to public action” (Massardier, 2003) with overlapping rationales for action (markets, solidarity, etc.), and their accompanying viewpoints (representations of the world, hierarchized priorities, etc.). As Gilles Massardier writes, public authorities “no longer have the monopoly of public policymaking” but must on the contrary “compose with multiple players who project their ‘experienced purposes’ onto the public policymaking process.” This is not to say that the State is destined to completely retreat. It is still present, “but differently.” The idea of centralized top-down management is challenged by the trend towards an approach in which the State remains a key player but alongside a number of other co-producers of public action. Civil society is

increasingly involved in the design and implementation of public policy, be it citizens, associations, and even firms.

Moreover, many studies in line with the new institutional economics thinking have shown the linkage between governance and development, or rather the linkage between poor governance and development constraints, (North, 1990, Khan, 2004), or governance and growth (Khan, 2012). Yet, the shift from the analysis of a hypothetical government-development causality to one of a hypothetical governance-development causality raises problems. Certainly, it has become possible to introduce the overlapping complexity of State-Society relations into the analysis, to think more pragmatically and concretely about development stakes, and to recognize the decisive role played by the “three P’s,” ideas, interests and institutions (Palier and Surel, 2005) in crafting public policy. However, it has tended—at the same time as the State’s role was gradually slipping into a regulatory function—to leave a very large place to the logics of stakeholders and markets, such that its analytical scope has sidelined the various types of effective social regulation that might appear and develop outside of the public and private spheres.

Here, we refer to research on the Commons, which has been substantially developed and disseminated since political scientist Elinor Ostrom and economist Oliver Williamson were awarded the 2009 Nobel Prize. Ostrom empirically demonstrated that many mainly renewable natural resources—which she terms Common Pool Resources—could be well managed by small and diverse communities that create ad hoc norms to prevent their resources from collapsing: groundwater, forests, grazing land, etc. (Ostrom, 1990). Arguing masterfully against the “tragedy of the commons” theorized by Garret Hardin, who contended that when a resource is freely accessible, each user spontaneously tends to draw on the resource without constraint, which eventually leads to its depletion (Hardin, 1968), Ostrom recommends the generalization of individual property rights. Studies on the commons initially focused on natural resources management, but their scope of application has gradually extended to include a sizable number of development sectors (environment, land, urban, market services, agriculture, digital, climate, education, etc.). The commons, which imply collective governance by users—with or without the State and the market—again question the classical foundations of economics, law, sociology, and political science, and spark a good deal of debate in these disciplines. To our mind, they deserve to be fully present in the reflection on the government-development nexus, as they are purveyors of rules and create positive effects for user equity and conflict resolution, sometimes more effectively the coercive rules proffered by the State or the regulation proposed by the market.

In this paper, we approach water governance not only through the prism of sectoral organization and the official services, but also through all of the practices, still to be “integrated” into the regulatory framework, that give rise to order and social progress. In doing so, we do not wish to limit public actions to government decisions, however much these may have been democratically debated or even jointly constructed, but rather we wish to re-articulate social practices and collective action. We indeed consider that what society produces for itself is an integral part of governance.

For this, we start with the example of access to urban water in Bolivia, as we consider that public action in Bolivia and the water sector not only emblemize what is being played out on the regulation front between State, communities, and society, but also question the place that the collective interest holds within the sphere of general interest. Firstly, the political project of Evo Morales, Bolivia's first Aymara president and a defender of the country's traditional values, was to redefine the rules of the game in view of re-appropriating a national identity. The intent was to make them less liberal and more inclusive, notably by attempting to integrate the dynamics of customary practice into the workings of the modern State. Moreover, his policies have largely been based on the re-appropriation of national resources, in a broad and highly symbolic move to negotiate with the multinationals that manage the country's water, gas and oil industries. Secondly, the water sector lends itself particularly well to an analysis of multi-stakeholder governance as the reality of large cities in developing countries is still one where limited or failing public services struggle to serve agglomerations and keep up with the pace of their demographic growth. Public water distribution services (managed by the State or delegated to the private sector) are thus systematically "supplemented" informally by a multitude of other players whose social function is crucial: small private traders, itinerant or network operators, community services (cooperatives or user associations), resale by neighbors, etc. These stakeholders participate in water governance even if they are not part of the sector's regulatory framework.

After this panorama of the official urban water sector in La Paz-El Alto, we now present two cases that typify the thinking on the way that the dynamics of the commons and public service are interlinked: one involves the environmental risks and possible trade-offs required to balance the interests of communities and the general interest, while the other concerns the issues of articulating grassroots common services (water cooperatives) and public service.

II. Picturing the water service in La Paz-El Alto

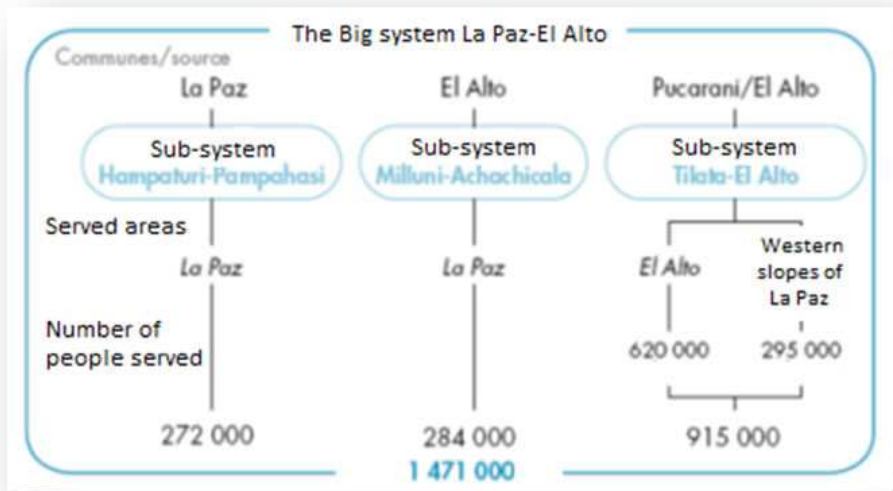
By 2010, the neighboring cities of La Paz—the seat of government of the Plurinational State of Bolivia—and El Alto—the working class periphery located on the altiplano (high plateau) and overlooking its older neighbor—formed a metropolis of approximately two million inhabitants. For several decades, urban growth in La Paz was slowed by its geography and geology. The city sits in a valley at the foot of the Royal Cordillera at an altitude of between 3,200 and 3,900 meters, and new residential buildings are built in the least stable areas, at the foot of cliffs and sedimentary rocks eroded year after year by the rain. The growth of the city of El Alto, meanwhile, is not limited by any natural obstacles. Situated on the high plateau overlooking La Paz, it has experienced exponential demographic growth, with its population increasing from 11,000 inhabitants in 1950 to around one million in 2010 (INE, 2009).

2.1. The La Paz- El Alto "big" water system

El Alto and La Paz are supplied by different water systems (see Figure 1), but the inequalities in infrastructure between the two areas lie in their differing respective economic potential. Due to their histories, the two cities present distinct but equally marked forms of socio-spatial

segregation. Unsurprisingly, the best equipped neighborhoods are both the oldest and the wealthiest. Meanwhile, the middle classes (middle managers, employees, and members of the intellectual professions) tend to live in the neighborhoods surrounding the historic center. The central area of the city encompasses the business district and the government administrations; it is surrounded by the laderas—neighborhoods set on the mountain slopes extending as far as the high plateau—with their brick or adobe residential buildings. El Alto, on the other hand, has a different but no less rigid layout. It is articulated around La Ceja, the main road junction with La Paz. The city’s inner ring is made up of the oldest and most compact neighborhoods and includes administrative buildings and small artisanal and commercial enterprises. A third ring, less densely urbanized and more extensive, is the product of the endogenous growth of the two cities and of the trend for families to purchase property in less expensive areas on which they can build their own houses. The farther neighborhoods are from the first ring of development, the worse their access to urban services.

Figure 1 – The “Big” water system in La Paz-El Alto



Source: elaborated by the authors

Founded in the 16th century, La Paz developed around a colonial center, which evolved into a business district and was gradually surrounded by residential and industrial neighborhoods. Over the course of the 20th century, due to a lack of space, the economic activities formerly carried out in La Paz (transport, arts and crafts, retail, manufacturing) moved to El Alto, which since its foundation in the 1940s has always had an economic function as a purveyor of additional labor and available space (Poupeau, 2009a). All that is left in the center of La Paz are government administration buildings, tertiary services, and the city’s wealthiest inhabitants. Less well-off people, such as lower-paid public sector workers and the under-employed, have been inexorably

pushed outwards, first to the laderas surrounding the valley and then to the high plateau overlooking the city, where they have been joined by a wave of rural migrants looking for work (Poupeau 2009b).

In the agglomeration of the cities of La Paz and El Alto, the water is produced and distributed through the model of the “big system”. This model can be defined as an organizational approach (either public or private) that continuously produces large quantities of drinking water distributed to consumers via a network of pipes in the hands of an operator that manages the entire municipal water cycle, from the abstraction of the untreated resource to delivery in the form of drinking water. It constitutes a model in the sense that a homogeneous service is provided to a large number of inhabitants with drinking water, which requires a high level of technical and commercial skills (Mayntz and Hughes, 1988; Tarr and Dupuy, 1988; Lorrain, 2003). The big system had first been set up and developed by a municipality enterprise before being the object of a concession contract signed by a major international group specializing in the water sector (Suez). However, in 2007, largely for reasons of political symbolism, the Bolivian Government terminated the contract and the concession returned to the public sector.

The reasons why production and distribution of drinking water in the La Paz-El Alto agglomeration is managed by a single company can be explained in reference to the history of the big system currently in operation: in 1906, a network of wells and springs scattered around the urban area was developed with a view to reproducing the European hygiene-based model of production and distribution of drinking water. One of the main problems facing water managers at the time was the pollution of rivers by the mines in the mountains overlooking the city. In order to reach the objective of providing the Bolivian capital with a drinking water provision system regarded at the beginning of the 20th century as modern, the authorities did not hesitate to recruit a European engineer from Germany, tasked with developing the drinking water provision model. The municipality of La Paz managed five separate gravity-based systems spread around the urban area. With the founding of the municipal enterprise, SAMAPA, in 1966 on the advice of the German Government’s overseas aid department, which also provided the finance for the first water treatment plants, three technological systems were introduced, each of them guaranteeing the chain from the raw resource to the distribution of drinking water—the sub-systems Hampaturi-Pampahasi, Milluni-Achachicala, and Tilata-El Alto. These sub-systems gave birth to the contemporary big system.

The implementation of the big system model in the early decades of the 20th century made it possible to produce and distribute very large quantities of high-quality drinking water. While, in 1966, only 10% of the agglomeration’s 495,000 inhabitants had access to drinking water delivered via the municipal network, in 1982, in spite of an increase in population, 65% of residents were connected. In the 2001 census, approximately 84% of a population of 1.5 million was connected to the big system, which for a city in the developing world is an impressive figure in terms of a project promoting “modernity” through the development of an urban service. This technological system also has the advantage of providing an instrument of territorial control.

When the service was delegated to the private sector in 1997, 95% of La Paz's population was connected to the drinking water network and 80% to the sanitary network (around 140,000 connections). Meanwhile, El Alto's urban services suffered numerous shortcomings, with only 65% connected to the drinking water network and 25% to the sanitary network (100,000 connections) (Botton 2007a; Laurie and Crespo 2007). According to the national census of 2001, 15% of El Alto's 165,000 houses had no electricity, 37% were classed as insalubrious, and 65% had no access to drinking water (53.7% had indirect access via standpipes, while 11.3% had no supply). Above all, there were pronounced spatial inequalities, with the oldest and most central neighborhoods being the best equipped, in stark contrast to more recently developed districts on the edge of the city. In a context in which liberal policies were applied in most sectors of the national economy (Kohl, 2004), the delegation of the municipal water service to the private sector was viewed as a viable solution to the problem of supplying drinking water to working class neighborhoods.

2.2. Setting up the private management of the big system: the Aguas del Illimani contract

The contract signed with Aguas del Illimani in July 1997 was for a 30-year concession, with objectives to be redefined every five years (Botton et al., 2012; Komives, 2001; Brailowsky, 2007; Defournier, 2007). The contract was part of a wave of market capitalizations of natural resources and urban services. A regulatory authority, Superintendencia de Agua y Servicios Básicos, was set up for each privatized sector. Indeed, the contract was signed with SISAB and not with the municipalities concerned.

The objective of the contract was to guarantee that all households in the concession would be supplied with water: 100% in terms of drinking water in La Paz and El Alto—71,752 connections to the drinking water network in the first five years—and 95% sanitation coverage in La Paz and 90% in El Alto. To achieve these objectives, the contract defined two areas in the concession territory: one in which the service provision objectives of the contract were to be carried out, and an unsupplied area, in which the operator had no contractual obligations. In effect, the operator was only obligated to equip areas that fulfilled a certain number of criteria based on the population density of the neighborhood and connection costs to the main network.

The contract rapidly became the object of some controversy. In the early 2000s, a study on the impact of the contract and its mandate to expand the network into the poorest areas of the metropolis demonstrated that it would not allow extension of the network to supply the poorest neighborhoods (as the traditional natural monopoly model suggested it would) (Komives, 2001). Three years into the concession, the company had still not managed to meet demand in these areas. But what was at issue was not the company's commitment, but the nature of the contract. The Aguas del Illimani contract was, in fact, characterized by its focus on extending the geographical area supplied and on providing new connections. The contract also included very precise quality standards, both in terms of inputs (equipment, technology), and outputs

(connection techniques, pricing). The government at the time had contractually obliged the company to maintain the quality of its installations to guarantee an equitable service for all.

The problem was thus that, due to contractual issues, Aguas del Illimani lacked the flexibility required to equip the poorest households. Lower price barriers for those households and financial incentives should have been introduced to encourage the operator to invest in poorer areas. On the other hand, households without resources could only benefit from the service if the operator presented an offer that was diversified enough to meet variations in demand from different kinds of households. It is, therefore, not surprising that the concessionaire failed to equip poorer areas, such as the periurban neighborhoods on the outskirts of El Alto, especially when they were not located in the area that, according to the contract, had to be supplied. Due to the uniformity of the offer, the poorest households were discouraged from requesting the company to connect them. It is likely that problems concerning the connection of poorer areas were familiar to a company as large and experienced as Suez Environnement, which is Aguas del Illimani's larger shareholder (Brailowsky, 2007). Indeed, in tandem with the contract, a certain number of measures characteristic of what is generally referred to as a "pro-poor" approach were introduced. In addition to the limitations of the contract, the shortcomings of these measures also help to explain the failure of Aguas del Illimani in La Paz and El Alto.

2.3. Questioning the PPP scheme and promoting community rights

Attempts to return private water distribution services to the public sector have been wrought with difficulties, especially in Latin America. The water distribution service of the metropolis formed by the cities of La Paz and El Alto in Bolivia has been no exception. Bolivia is internationally known for its water wars, which led to the departure of the multinational companies that held water and sanitation concessions in the country. The expulsion of Bechtel from Cochabamba in 2000, for example, sparked a new cycle of social protests that liberalization policies—and their repressive instruments—had succeeded in keeping under control since the 1980s, when the workers' movement was defeated. The idea that natural resources should be reclaimed by the public sector was advocated, notably, by the cocaleros (coca workers) unions led by Evo Morales. The future head of the Bolivian Government first came to national prominence during the presidential elections of 2002 before going on to play a central role in the protests in El Alto against exportation of hydrocarbons to Chile—best known as the Gas War. In the wake of this episode, his Movimiento al Socialismo (MAS) party became the country's leading political force. This momentum eventually translated into a 53.7% share of the first-round vote in the presidential elections. The new head of state pledged to help indigenous people, who had been the victims of colonial and post-colonial rule, and return to the public management of water services in the cities of La Paz and El Alto, which together form Bolivia's largest concession.

In November 2006, Morales stated: "As the government, we can expel the company, it's within our powers, but then we couldn't obtain the money needed to have more water in El Alto.

Everyone would demonstrate against us. Once the company is gone, what we want to guarantee is a water supply.” In fact, the negotiation process had been initiated in January 2005 by the interim government of Carlos Mesa, which had promulgated, under pressure from El Alto-based social organizations, a series of supreme decrees designed to encourage Aguas del Illimani to leave.

Reluctant at the outset, in March 2006, the company seemed to accept that the process was ineluctable, even if it never accepted the conclusions of the 2006 audit. While the social organizations of El Alto lobbied for the company simply to be expelled, Morales’ government decided to “meet the demands of the population as rapidly as possible” by carrying negotiations through to their conclusion and avoiding interminable legal actions involving international regulatory bodies. This would safeguard investment from international cooperation entities, which had made negotiation a *sine qua non* of their continued support. The difficulties encountered by Aguas del Illimani in terms of fulfilling its obligations were emphasized by the Bolivian Government with a view to justifying the termination of the contract and highlighting the social mission of the new company, which was to extend the network to neighborhoods ignored by the private operator, provide more affordable prices to poorer households, and respect the environment by developing wastewater treatment systems in particularly contaminated areas. SISAB fined Aguas del Illimani \$450,000 when the concession ended.

2.4. The institutional pendulum: returning the Water Service to Public Sector Management

In January 2007, Morales’ government concluded negotiations over the termination of the company’s contract in Bolivia and issued a decree that transformed the consortium, Aguas del Illimani, which had held the concession since 1997, into a public and social enterprise (Botton, 2007a; Defournier, 2007; Jacobs, 2007; Sprong, 2007; Mayaux, 2008) called Empresa Pública y Social de Agua y Saneamiento (EPSAS). The goal of the new company, EPSAS, was to develop the concept of water for all, notably by focusing on community participation in the metropolis’ various neighborhoods. According to the Ministry of Water, “citizens must collaborate so that the company can meet the demands of consumers.” This new public water company was to recuperate the shares of the French consortium via a trust held by the National Fund for Regional Development (FNDR), which was tasked with setting up the Ministry of Water as the new owner within six months. Like the nationalized oil company YPF, the water distribution service became one of the flagships of the government’s political transformation agenda. The service’s new organizational model was designed to represent a decisive break with the private sector approach by supplying water for all.

The contradictory situation in which the Ministry of Water and the government found themselves upon taking power, caught as they were between political promises and financial constraints, likely accounts for the hesitation and confusion over the transition to EPSAS. However, the ministry raised questions about how the new company would operate. In effect, as soon as it was set up, EPSAS was obliged to find \$35 million in investments to develop the

network in the five years to come. While the company's social mission enabled it to directly reinvest consumption and connection bills, the only substantial funding available was international cooperation. From this point of view, there seems to have been no real break with the preceding liberal model, which depended on external funding to make up for shortfalls in the least solvent areas.

By early 2010, the Ministry of Water and EPSAS had no more changed pricing policy than they had succeeded in introducing urban policy and social aid programs capable of combating and defeating the kind of unlicensed building, unauthorized development, and land speculation so characteristic of areas bereft of infrastructure. Moreover, in spite of the fact that the network's coverage has increased, it still does not serve the entire population. The neighborhoods in the agglomeration's most recently built outskirts have not benefitted from the extension of the network, and some neighborhoods are forced to use relatively unsophisticated technologies (Poupeau, 2010). The most recently built neighborhoods have a lower connection rate than their longer-established counterparts. These small systems generally capture fairly weak flows of water from springs or wells which can be rendered drinkable and distributed locally.

The chances that the municipal company EPSAS will significantly reduce inequalities in access to water services seem to be minimal, especially since declarations concerning the social mission of the company that replaced Aguas del Illimani are being made against a confusing legal background. The contract signed when the service was privatized is still operational, even several years after remunicipalization, and the status has not changed. Attempts to develop projects on the outskirts of the expanding areas of the cities of La Paz and El Alto also have been hampered by a lack of public funding, which does not cover the shortfall caused by the relative insolvency of local residents and the costs associated with extending the network in geographically hard-to-access areas. Due to a lack of resources, the new company is pursuing a policy of community participation and private sub-contracting initiated in the 1990s to ensure that a service was provided to poorer neighborhoods (Poupeau 2008a). This continuity with the urban governance model implemented over the course of the preceding decade is exemplified by transfers of technology (accounting, IT, planimetrics, etc.), and the enduring use of forms of new public management inherited from organizational approaches applied in the private sector. It is therefore legitimate to examine the extent to which change has taken place with the return of the water service to public sector management. Is the fact that the municipality now runs the service likely to generate new approaches to decision-making and participation in the cities concerned and, if so, to what degree? And how can this be linked to contemporary transformations in local urban geography? The La Paz-El Alto case study reveals that integrating indigenous populations into public policies is characterized by logics of conflict rather than a genuine attempt to accommodate their "right to water," even though that right is promulgated by the Bolivian Government.

2.5. Water policy in the new political Constitution of the Plurinational State of Bolivia

Is there, then, an inherent paradox in the approach taken by a government anxious to promote the “decolonization of the state” in order to maintain a community participation system, a keystone of the pro-poor policy, in an effort to reduce installation costs in economically insolvent areas (Poupeau 2008a)? In effect, this approach is dependent on funding from international cooperation agencies, which are able to impose their own priorities, schedules, and watchwords on national decision makers (Rodríguez-Carmona 2009). In a market context, a public or private company operating in these conditions runs the risk of reinforcing the dual nature of the distribution system: alongside the network installed long ago in the wealthiest neighborhoods, poorer people in periurban areas have access to a system adapted to their means—a “poor” network for poor people, according to the expression coined by sociologist Carlos Crespo (2001). However, there is nothing to suggest that the same approach, applied in a context different from pro-poor policies, would produce the same effects. Attention should thus be focused once more on the policy implemented at both the local and national levels to analyze how community participation measures are maintained.

In 2007, the Ministry of Water unveiled two distinct stages in the process of setting up the public and social enterprise. First, the new public company had to demonstrate its efficiency by making the best use of available resources. Second, the Bolivian Parliament’s recognition of a universal right to water presented the possibility for the public enterprise to turn to the Bolivian Government for the funding of heavy investments. As the first stage was concerned, it seems that the organizational and legal approaches inherent in the public and social mode of water distribution did not undergo any real modifications. Faced with a choice between a model of universal access to water that was difficult to fund without external subsidies and the provision of inferior installations for poorer households, the company was obliged to develop an alternative urban services approach. However, even when working together, a commission responsible for overseeing the establishment of the new public enterprise (in which the Ministry of Water has been represented since 2007), the municipal authorities of La Paz and El Alto, and the neighborhood committees of the two cities (but not EPSAS, whose role is limited to supplying the necessary information), have not produced any tangible results. Indeed, the municipal company is organized in the same way and has the same contractual constraints as the enterprise that it replaced.

However, there are some notable exceptions: the priority traditionally accorded to rural areas was somewhat undermined with the implementation in 2009 of a plan for poorer outlying urban districts. Furthermore, to get around the price norms stipulated by the contract, a social measure was introduced in the form of a tariff for households consuming small volumes of water (less than 15 m³). In 2009, this price structure covered 59,946 connections in La Paz and 145,859 in El Alto. Official results indicate that 28,000 new drinking water connections and 22,500 new connections to the sanitation system were installed between 2007 and 2009. The five-year

program (2007–2012) envisioned the installation of 44,000 and 33,000 new connections, respectively.

In regard to the second stage unveiled by the Ministry of Water, a new constitution proposed by the Morales government was finally passed in 2008 with 62% of the vote. In terms of natural resources, the Constitution acknowledges a right to water for all and outlaws any form of privatization. On April 22, 2009, as part of this process of legal transformation, Morales suggested to the Assembly General of the United Nations that a World Earth Day should be introduced to encourage people to live “in harmony with nature.” This initiative was accompanied by a ceremony held in Bolivia on June 5, presided by the then-new Water minister, who paid homage to Pachamama (Mother Earth) as a source of inspiration for the government’s new public policies. However, while declarations of constitutional and cosmological principles doubtless have their place, the reality of the situation is far more complex, notably concerning the recourse to the private sector for funding and carrying out network expansion works.

The fact that some projects are still delegated to the private sector may seem surprising. In fact, its roots are to be found in the statutes of EPSAS which as a limited company does not have the right to receive funding from external sources. Funding must therefore be sought from the Ministry of Water, the national government, or city governments. In return, EPSAS is obliged to make a contribution equal to 10% of the grant. This signals the emergence of an original model implying a return to a three-pole partnership (Clarke Annez, 2010) that includes the private sector, the municipal public sector, and government instead of a return to an entirely public approach. This original private-public partnership approach makes it possible for the new company to compensate for its inability to undertake major works using its own capital, as was demonstrated by an accident in La Paz in 2008.

III. Common dynamics and the big system: the urge for a multilevel integrated Governance

3.1. Water from the heights: community rights vs. access to services?

On January 25, 2008, a landslide caused by seasonally heavy rain washed away the structure supporting the pipes in the Pampahasi system, which supplies the southern and eastern areas of La Paz. The accident had immediate and long-lasting repercussions. The entire area was without water for three weeks, underlining the fact that the company was unable to repair the service quickly, and highlighting the shortcomings in its urban risk prevention system. Hospitals and companies had to use water tankers to provide a skeleton service, while school holidays had to be extended.

It comes as no real surprise that, forced to confront day-to-day management and solvency problems, the recently renationalized company did not have time to focus on natural risks. But this “institutional vulnerability” (Hardy, 2009) meant that it was impossible to find technical alternatives. Reusing old pipes proved to be a precarious practice, water trucks were costly and not up to the job, and repair work dragged on, lasting five months in total. In effect, repairs cost \$450,000, money that EPSAS did not have. The company was thus obliged to go cap in hand to the municipality and the national government, eventually obtaining a loan. In a context of political instability in which the regional opposition was making headway in La Paz, the political issue at stake was the efficiency of municipal management. The mayor urgently set up a municipal call for tender for the job of repairing the damaged pipes, with the contract attributed to TAURO S.A. Supported by a certain number of La Paz-based firms, he also requested that EPSAS change its legal status to that of a mixed enterprise to deal with the numerous maintenance and prevention projects that the Pampahasi accident had rendered necessary. However, the vice-minister of basic services rejected the proposal, citing its incompatibility with the status of water outlined in Bolivia's new constitution, which was awaiting approval at the time.

But the enterprise's institutional vulnerability was not confined to the financial sphere. It also involved wider problems concerning the regulation of natural resources. In effect, pipes were cut in the community of Hampaturi, adversely affecting harvests in neighboring agricultural land. The community authorities demanded compensation for the incident, as well as payment for allowing the pipes to cross their land. Since the introduction of the Participation Reform in Bolivia in 1994, the communities that form native community lands (*tierras comunitarias de origen*) have, in effect, been able to claim collective ownership of the legal area of the community. In 2008, even if the new constitution had not yet been signed, this tendency was not only reinforced but legitimized by the constitutional projects of the Morales government. To exert pressure on the company, peasant communities prevented workers from accessing damaged pipes and beginning repair work. Due to its lack of legal status, EPSAS was unable to negotiate on its own with the peasant communities and consequently had to rely on the mediation of the municipal and national governments, with the help of the army, to achieve a “pre-accord between the public authorities (Ministry of Water, Ministry of Rural Development, and Ministry of the Interior) and the representatives of the inhabitants” (Hardy, 2009). This pre-accord envisioned, among other things, the construction of defensive levees at the Hampaturi and Palcoma Torrents to protect residences and agricultural land from regular flooding.

Above all, the Pampahasi accident highlighted the problems posed by the co-existence of the customary law of local communities and the need to provide urban services. The solution provided by the nation's new constitution is to promote the right to water, designed to guarantee universal access to drinking water (either free or at a reasonable price). This right implies an obligation to produce results rather than provide means. As such, it says nothing about approaches to managing the service (public, private, public-private partnership) or the nature of share ownership. But as the example of the rupture of the Pampahasi system demonstrates, incorporating the right to water in the new constitution does not guarantee that cities will be supplied: whether in terms of urgent repairs or the construction of additional dams destined to

compensate for scarcity due to increased glacial melting (Ramirez and Olmos, 2007), the rights of rural communities upstream to use the resource for their own ends outweigh concerns over supply to the cities. This situation is all the more explosive in that, for the time being at least, there are no opportunities for negotiation between the parties involved. On the other hand, the territorial approach to the recognition of customs and traditions could be combined with the recognition of water as a common good, thus making it possible to introduce public arbitrage between urban users and upstream communities, which, while their rights have finally been recognized, are still in a position to hinder the system. In the current state of affairs, they constitute no more than a private social agent among others, and their place in the ensemble of institutions responsible for regulating the global use of resources has yet to be found. In a context in which water resources destined to supply the La Paz-El Alto metropolis are running out, it is likely that an increasing number of conflicts of this kind, involving upstream community areas with rivers, pipes, and dams, will occur in the future.

It is possible that this type of environmental conflict can only be solved locally, in that the regulation of natural resources is carried out on a number of levels (Doern and Johnson, 2006): the local level of regional management; the municipal level guaranteeing urban services; the national level, involving the implementation of public policies concerning the distribution of the resource; and even the international level, with the implementation of environmental laws and decrees and management models for the service. Above all, these conflicts call for a deep reappraisal of the principles of urban governance in the La Paz-El Alto metropolis. A balance must be struck between recognizing the rights of communities and guaranteeing a public water distribution service. But beyond the accident of January 2008, the case of this concession demonstrates that the return to a municipal management approach does not mean a return to square one, to a state that prevailed before the privatization of the system. New features include the emergence of communities upstream—whose existence was previously denied—and the intervention of the state, which has assumed a new regulatory role beyond the framework of the market to encompass an integral approach to the resource in the areas territories concerned, ensuring the continued participation of the private sector in the maintenance and expansion of the system. These elements bear witness to a transformation in approaches to regulating natural resources and the urban services that distribute them. And through analysis of the conditions in which a municipal service can be implemented, these elements must be articulated within the framework of a new management model.

3.2. Water from the grassroots: effective common services making water for all a reality

What communities defend or produce does not necessarily compete with the “big system” outlined earlier. Moving further downstream to the distribution of drinking water and urban resident communities, we find community dynamics inserting themselves into the gaps left by the operator, but these fill in for or supplement the official service.

The big system does not provide the only way of accessing water in the agglomeration of La Paz/El Alto. Many families procure drinking water by other means: they get their water not only from networks managed by small cooperatives, but also in carboys. We shall refer to these alternatives as “small systems.” The process of local delegation of the big system has hidden the existence of other forms of provision likely to encourage differentiated social uses, which may be large and influential. Thus the distinction between “big” and “small” systems refers less to their importance in terms of water supply than to distinctive forms of management: while a big system is generally controlled by a single operator on a determined territory (Bakker, 2007), a small system is managed by the inhabitants of an area where the natural resource is transformed into a service for the community (Jaglin, 2005).

These small systems managed by urban communities constitute genuine commons in Ostrom’s original sense, principally as they regroup the conditions for successful management that her research brought to light. These are integrated and coherent systems combining the three constitutive elements of the commons, namely: a resource (in this case a drinking water service), a community of persons, and organizational rules around a common objective (Bollier, 2014). Their specificity lies in the objective pursued: contrary to the commons analyzed by Ostrom, whose objective was to conserve a resource; these small systems managed by local communities—which we will call common services—certainly have the objective of using a common resource (a water service), but also of producing this service, which implies a large degree of involvement from its stakeholders: available time, management and technical skills, etc. Managing this common thus implies defining rules not only for its use (Who consumes what? At what price? How are conflicts resolved?), but also for its production (What technical means should be implemented? What level of service? etc.). The literature makes little mention of this particular category of commons, common market services, apart from a few studies (Bakker, 2007, 2008; Mattei, 2013). Yet, the scope of common services mentioned by these authors could usefully be questioned and discussed. Karen Bakker suggests, in fact, redefining the notion of common service on the basis of the service’s property status (community), rather than grounding it simply on community intervention in managing the service (which she dubs “water democracy”). On the other hand, the Italian Beni Comuni school, foregrounding the example of the Naples-based Aqua Bene Comune, take “common service” to mean one that is contingent on participatory (public) management with a social mission—its key characteristic being that it does not involve private sector management (Mattei, 2013). Although there is no stable universally accepted definition of the notion of common services, we consider that it constitutes a category—which unquestionably includes the small systems of La Paz-El Alto—that is relevant for analyzing sectoral governance.

The co-existence of two forms of drinking water production and distribution thus raises the question of what kind of socio-technical model residents want to see implemented. This differentiation provokes tensions that occasionally degenerate into social conflicts, as in 2007 when social organizations of El Alto reclaimed the withdrawal of the private operator in order to restore a public service that would provide “water for all.” There are also conflicts between municipal administrations, most of them over questions of territorial boundaries, as well as

conflicts between residents of border areas torn between the prospect of joining the municipality of La Paz in order to benefit from urban services or staying in more rural communes, less well equipped but less costly in terms of local and property taxes. These social tensions are exacerbated by the imbalance between the two municipalities: although political and economic decision-makers organize urban services on behalf of the entire agglomeration, all forms of capital—economic, cultural and social—are concentrated in La Paz, which is able to use them for its territorial development and geographical extension plans.

The co-existence of different drinking water production and distribution models raises the question of just how complementary those models are. It is necessary to take into account the constraints of the national, Bolivian context on the agglomeration of La Paz-El Alto, constraints that explain urban services policy. For much of the 20th century, La Paz was the country's largest city, but its hegemony was gradually challenged, on the one hand, at the national level by the eastern city of Santa Cruz de la Sierra, which since 1950 had attracted an increasing number of economic migrants from the Andes plateaus, and on the other hand, in terms of the agglomeration, by El Alto, which had been transformed into a receptacle for urban growth due to the scarcity of building land in its immediate neighbor. Faced with an increasingly competitive economic situation, authorities from La Paz decided to focus on modernizing water services, partly with the help of German funding. The model of a water service covering a very large percentage of the population has been used by municipal authorities in order to promote an image of modernity, and to limit the city's loss of attractiveness, at the price of increasing the cost of water.

With the development of the big system, the small systems that once served the various periurban communities were gradually absorbed by the expanding agglomeration. Yet, they did not disappear. At first, they did not seem to pose a problem for the agglomeration, and both the water company and the municipal authorities took no interest in them. For example, only 3.6% of the 165,320 households questioned in the 2001 national census declared that they accessed water through these means. This figure might seem low compared to the 84% of households connected to the big system, and thus to the remaining 16%. In fact, this discrepancy can be explained by the vagueness of the answers given to the census questions—which is a factor associated with the social characteristics of those using the small systems and their geographical location in the city. In reality, around eighty small systems were still operational in 2008. They remain very difficult to identify: by law, their operators are required to register them with a department of the Ministry for Water, but few do so because of the complicated and costly red tape involved.

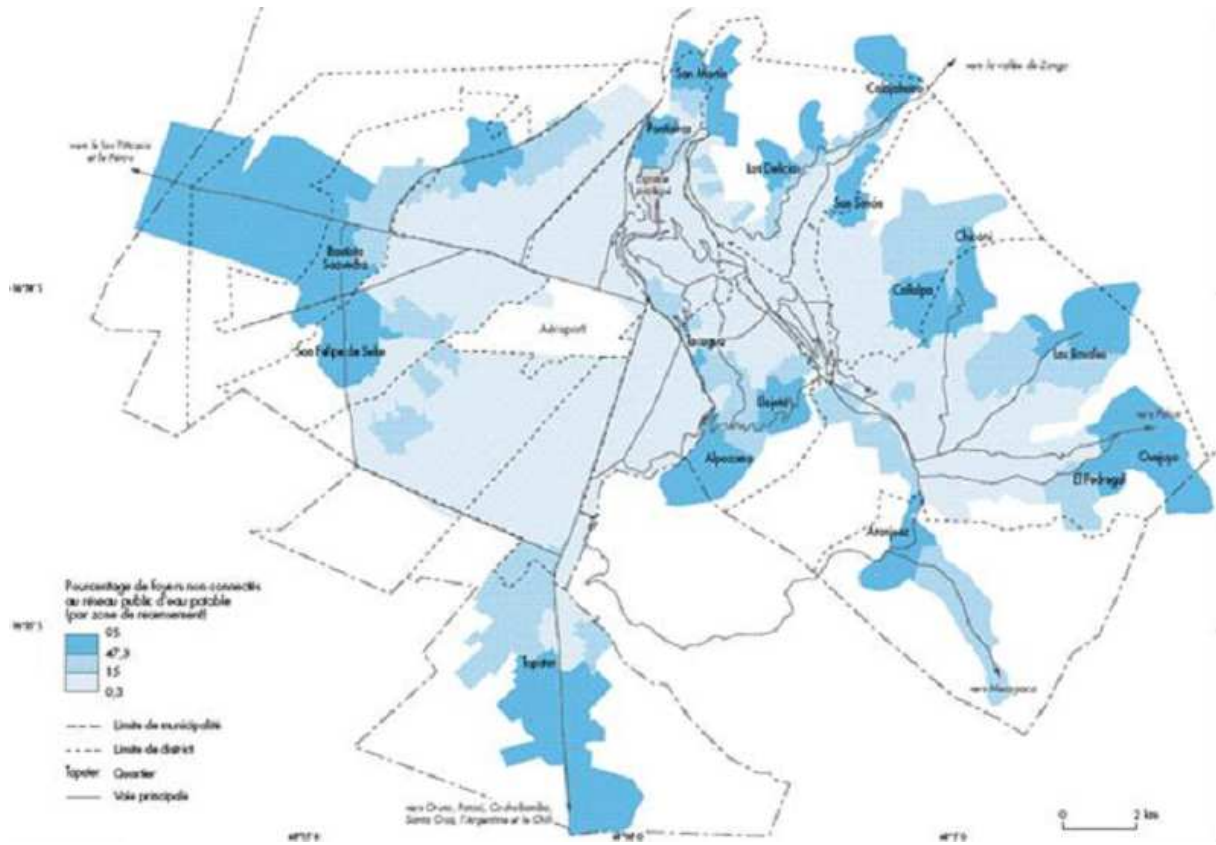
Firstly, small systems are overwhelmingly located in “non-constructible” urban zones, mainly the laderas, or western slopes of La Paz, which has a large number of residents who migrated from the countryside during the period 1960–1980. The reason for this is of a technical nature. The water company is not legally authorized to extend its network into areas threatened by natural catastrophes such as landslides. Officially, it is forbidden to settle in these areas but, as urbanization is not strictly monitored, entire neighborhoods have sprung up. For the incoming

migrants from the towns and villages of the altiplano, who could not afford to live elsewhere than in these informal settlements, the small systems offered a solution to their water supply needs.

Unsurprisingly, small systems also operate in recently urbanized zones, namely the peripheries (semi-urban areas of El Alto and La Paz). As the urbanized space is full, it can only be extended by taking over land from neighboring municipalities (Urquiza, 2009), by building on increasingly dangerous sections of the laderas or by constructing multi-storey buildings (only authorized by the municipality as recently as 2010). On top of this, El Alto is spilling out beyond the road networks that define its limits. It is overflowing into its own rural areas, thereby obliging the municipal authorities to regularly declare once-rural areas urban, and into neighboring municipalities where urbanization is still less strictly controlled than in La Paz or even El Alto. As local authorities have almost no control over this urban expansion, they are unable to provide the necessary infrastructure. Here again, people living in such areas have opted to move to an urban area and make do with the temporary lack of services normally provided. If they cannot obtain a connection to the big system, they temporarily turn to the solutions offered by the small system.

Lastly, some small systems are located in urban zones served by the big system. Unlike the poorest residents or those who live furthest away from the urban networks, people living in urban areas choose to use water supplied by a small system on account of the considerably lower costs incurred. Due to the diversity of situations, small systems are characterized by an impressive variety of legal statuses ranging from water committees, whose members include neighborhood worthies, to cooperatives with a more formal legal status. In fact, small systems cover a relatively large area of the agglomeration (Map 1) and demonstrate the degree to which access to the big system and to smaller systems serves as an indicator of socio-spatial inequalities.

Figure 2 – Percentage of people unserved by the “big system”



Source: INE, 2004

The big system was developed by gradually integrating small systems for the production and distribution of drinking water. Mirroring this approach, small systems should, logically, follow the same arc and become subsumed into the big system. However, for at least two reasons, it seems that this development does not occur. The first is linked to the technological and operational aspects of the big system, which is a gravity-based system that cannot be extended due to the agglomeration’s topography. La Paz is located in a valley 3,600 meters above sea-level at the foot of the Cordillera Royal, while El Alto is situated on a plateau that rises to 4,000 meters in some of its peripheries. In fact, the big system already comprises three sub-systems designed to confront the technical difficulties involved in extending the network.

The second reason is tied to the comparative cost of water supplied by the big system and the small systems in the context of urban growth. The precariousness of households in the new neighborhoods and the marginal cost of access to the networks tend to have the effect of increasing the number of small systems. In the big system, the price per cubic meter is 1.9 bolivianos when monthly consumption per household is less than 15 cubic meters, and 2.6 bolivianos when it is over 15 cubic meters. A detailed questionnaire-based survey on water consumption carried out across the whole agglomeration of La Paz and El Alto between 2007 and 2009 reveals that in the neighborhoods on the periphery characterized by precariousness and casual labor, average water bills accounted for a little less than 5% of the total household budget (or, in other words, a bill of around 20 bolivianos in a household with an average monthly income of between 350 and 400 bolivianos). In the central areas of La Paz, a household connected to the big system receives an average bill of a little over 30 bolivianos, which accounts for around 2.5% of a monthly budget of 1,200 euros (the minimum wage). In comparison, and taking into account the wide diversity of operators of small systems at the national level, the World Bank survey estimates the average price of water at 10 bolivianos per month per household, with an average monthly consumption rate of 10 cubic meters.

There are more customers of small systems in La Paz (8.6%) than there are in the agglomeration as a whole (3.6%). Although this phenomenon may, at first sight, seem counter-intuitive, it can be explained by the incomplete nature of the data alluded to above. The small systems that have developed in La Paz are older, better known, and have a closer relationship with the municipality. In fact, as we shall see, they are used in certain areas as community-based strategies to reduce the cost of the service. In total, 23,160 connections are assured by 47 local operators and/or OLPEs (Operadores locales de pequeña escala: “Small-Scale Local Operators”), a figure that contrasts with the 160,000 households served by EPSAS, the operator of the big system covering the agglomeration as a whole. Applying a participatory approach, these committees, cooperatives, and non-profit-making associations attempt to provide water to local people at low cost.

Yet although these cooperatives have gradually come to fill the gaps left vacant by the public service— driven by communities who have found the means to organize and produce the service on their own and to define the rules for its operation and sharing—their sustainability is now called into question at the economic, social and environmental level. In fact, the urban development experienced by La Paz and El Alto (densification in La Paz, expanding suburbs in El Alto), the social changes of urban communities (greater intra-urban mobility, new generations who are more individualistic and less willing to engage in collective projects), the environmental challenges (increasing scarcity of the resource and the problem of availability, degradation of the quality of the water available for the “downstream” cooperatives due to pollution stemming from the lack of sewage collection and upstream treatment) are all challenges to be met for these common services.

3.3. Towards a functional complementarity common services and public service

In a context where the big system is functioning less effectively due to resource scarcity, the uptrend of operating costs, etc. (Hardy and Poupeau, 2014), small systems provide plausible alternatives to ensure the population's water supply. They already enable a substantial percentage of the population in the agglomeration to procure water at very low prices, and do so without undermining the big system, whose current capacity leaves little room for expansion. Yet, these small systems encounter hurdles when it comes to implementation. The profile of their consumers, which is similar to that of consumers requesting a connection to the big system, shows that the cooperative approach is not underpinned by political principles, but rather by a form of instrumental rationality aimed at providing access to water so as to ensure that people live as comfortably as possible in a given urban milieu.

The management approaches applied in the small systems unquestionably foster the emergence of some degree of autonomy for their members, who are encouraged to manage the resource themselves. On the other hand, this form of self-organization also makes them responsible for the sustainability of the system (Ostrom, 2009). Participation does not guarantee the longevity of small systems and, at a time when cooperatives are "professionalizing," younger people tend not to want to help out on a day-to-day basis (maintenance, meetings, etc.), as the Cotahuma case illustrates. This is evidenced in the monitoring and training of local committees and cooperative managers, in which the costs incurred by compliance with new health standards complicate the management of small systems seeking recognition from local authorities (Hardy and Poupeau, 2014)

For urban services managers, however, the advantage of building a bridge between the two water provision systems can be seen in a number of different areas. Should a small system be damaged by a natural disaster, the operator would not have to provide water to users of alternative systems. In fact, the small systems use technically simple approaches and the problems that they face are often easy to resolve. Water system failures are rare. Furthermore, small systems with sufficient quantities of water can even ensure a temporary supply to local facilities ordinarily served by the big system, such as schools and health centers, thus avoiding a crisis that could easily spread to the rest of the agglomeration. Small systems thus constitute a resource for crisis management and are complementary to the big system. The coexistence of two systems facilitates urban delivery, not only by rendering it less fragile, but also by providing a potential source of territorial solidarity in terms of the crisis management. It would even be justifiable here to mention the possibility of "an evolution toward composite systems hybridizing conventional large systems and alternative systems designed to function at smaller geographical scales" (Coutard, 2010).

Cooperation between the managers of the big system or small systems paves the way for innovation in new management modes, which are becoming increasingly necessary given that these two models are facing competing water service practices. Large beverage groups are already selling bottled water or, better still, water in carboys, which offers an alternative not only to

upgrading the network (Lorrain, 2003). It also offers an alternative and relatively cheap access to drinking water, while the non-potable water consumed in larger volumes would be provided free of charge from wells and springs. The complementarity between the big system and small systems constitutes a laboratory for the invention of alternative solutions in contexts where urban growth is facing natural resource depletion, rising basic service costs and the need to consume differently (Rist, 2001).

Conclusion: Placing common dynamics within the regulated water system

The examples of the Hampaturi community and the La Paz-El Alto water cooperatives both shed light on the social conditions required for the collective self-organization or articulated-organization of water uses. The Bolivian case holds particular interest for sociological thinking on technical systems: not only because the cooperative phenomenon is historically rooted in the Bolivian landscape (where it is even very salient in some regions such as Cochabamba), fostering the emergence of effective collective action models, but also because the country has experienced the “water wars” (Cochabamba, 2000; La Paz-El Alto, 2007) which challenged the international diffusion of privatized management of water services. And finally because Evo Morales’ political project is driven by the concern both to conserve and promote the commons and to universalize public service, while endeavoring to propose practical solutions that avoid conflicting demands.

Here, the main analytical stake is to explore whether these socio-technical mechanisms, or common services, are sustainable and how they link up not only with a “classical” public service that meets the requirements of quality and equal service, but also with the difficulty of achieving these ambitions. This approach opens up discussion on the governance and regulation of water services by integrating Ostrom’s insightful thinking on the interlocking of the different levels of rules, notably the interactions between the “operational” rules, the “collective-choice arrangements”, and the higher level of “constitutional rules” (Ostrom, 1990).

Bolivia offers a particularly rich terrain for exploring the discussion on multi-level coalitions in public action (Massardier et al., 2014) and the different embedded levels of governance, also termed “polycentric governance” (Ostrom, 1990). Building on the La Paz-El Alto urban water example, it allows for a reflection on governance by the commons involving several dimensions. On the one hand, it provides insights into the question of changing scale (from local to regional to national), and thus changing the perimeter of the community concerned by the common (be it defending the interests of the Hampari community, i.e. having water available for the community’s farmland, or the interests of all the upstream and downstream users in the chain, be they industrial or residential). On the other hand, it also furthers reflection on the conditions required to effectively articulate regulation by the commons and public regulation (the place of small systems within the big system and the possible ways the two can hinge together), bearing in mind that both have to deal with market logics. This does not imply advocating one type of model over another, but rather capturing initiatives and possibilities as they appear, and

supporting them. In this sense, common (market) services should not be viewed as alternatives to public market services but as supplementing them. The key issue is thus how to articulate these different services and implement their integrated regulation. The targeted objective is still to make the services accessible to the population and ensure that this access is sustainable, keeping in mind the concern for environmental sustainability. This implies a certain adaptability of the technical systems used—the co-existence of centralized and decentralized methods, the mutability of systems—and the abandonment in the short term of the principle of equality dear to the public service, in order to institute the principle of equity, which is more conducive to universal access (Botton, 2007b). In fact, managing a complex system on a rugged and socially fragmented territory will only be possible with a governance approach that is both polycentric and inclusive. Public governance, market governance and governance by the commons thus will inevitably need to recognize each other and learn to co-exist for a better effectiveness of development policies. In this perspective, the State, as the conductor of public policy, has a decisive concert to lead in order to facilitate the processes and ensure the cross-overs between the different logics.

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