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An Overview of Inequalities in Urban Water Services in Bolivia

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Résumé

Les services urbains d'eau potable constituent un objet de recherche particulièrement fécond pour penser les inégalités en ville puisque, se situant à l'interface des enjeux économiques sociaux et environnementaux, ils invitent à une réflexion sur la durabilité des territoires.

Au-delà de la lecture la plus évidente des inégalités face aux services (avoir accès ou non au réseau de service public), se révèle en fait une myriade d'autres situations porteuses d'inégalités que nous cherchons à identifier et caractériser dans ce papier à partir de l'exemple des villes boliviennes: inégalités spatiales, verticales, horizontales, *competing, intersecting inequalities*, etc. Cette typologie permet également de questionner en dynamique les ambitions portées par les politiques des autorités et des opérateurs et leurs implications sur les évolutions de la forme urbaine.

Mots-clés

Services d'eau, typologie des inégalités, politiques de service, La Paz, El Alto, Bolivie

Keywords

Water services, inequalities' typology, water service policies, La Paz, El Alto, Bolivia

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Abstract

Urban drinking water services are a particularly prolific research object to think about inequalities in the city because they are by definition at the interface of economic, social and environmental problems and they invite to reflect on the sustainability of the territories.

Beyond the most obvious reading of inequality of access to services (having access to the public service network or not), there are indeed a large number of other situations related to inequalities that we seek to identify and characterize in this paper, referring to the cases of Bolivian cities: spatial, vertical, horizontal inequalities, competing, intersecting inequalities, etc. This typology also allows a dynamic analysis of the local policies defined and implemented by the authorities and by the operators and the implications these policies have on the urban form.

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Introduction

Latin America has been recognized as the region of the world with the greatest inequality (Morley, 2001; López and Perry, 2008; UNDP, 2010; Alvaredo and Gasparini, 2015; ECLAC-OXFAM, 2016; Ramos et al., 2018). Although this painful characteristic seems to be gradually decreasing under the impulse of voluntarist public policies and improvements in economic conditions (Klasen, 2017; Tornarolli et al., 2018; Göbel et al., 2014), inequality, both as a revealed fact and as a civil perception, persists. Furthermore, the expansion of fragmented metropolitan areas also continues, increasing the gap in access to the city and its services (Segura, 2014). UN-Habitat points out in a comparative study that cities in Africa and Latin America, the two most affected regions by the phenomenon, have Gini coefficients of 0.45 and 0.5 respectively (UN-Habitat, 2016). Indeed, urban inequality places the city not only as a setting but as the agent itself of the reproduction of inequality (Catenazzi, 2013) and territorialized analyzes confirm that large cities are the places where the greatest inequalities are manifested. As many authors maintain, beyond vertical inequalities large cities also tend to concentrate the greatest spatial inequalities (Kilroy, 2009; Di Virgilio, 2014; Reygadas, 2004). And inequality does not come down to income, it is rather a “complex dynamic in which the process of social production of urban space becomes key to understand the limits of certain policies and the need to re-problematize the city and its place in the (re)production of inequality” (Segura, 2014).

The big cities of the South, true poles of economic attraction, engulfed in the spiral of urbanization, are also undergoing pres-

sure and contradictory dynamics. Uncontrolled growth of the population, aspirations for integration on the part of the newcomers and preservation of their economic conditions in the case of the affluent groups; an expansion model that often extends vertically in urban centers and horizontally in the peripheries; fragmentation of the urban landscape that presents many gaps, showing pockets of exclusion (poor districts) and separation through closed districts (private homes); great social demand for basic services, pressure on the surrounding resources aggravated by the effect of climate change; transformations of the landscape and social relations in the urban-rural limits are also the strong trend that makes urban management more complex in a context of economic restrictions as well as political, environmental and social tensions.

In this manner, urban drinking water services are a particularly prolific research object to think about inequalities in the city because they are by definition at the interface of economic, social and environmental problems and they invite to reflect on the sustainability of the territories. On the one hand, the “basic” services around which there are great social and often electoral interests are also the subject of strong politicization and discussion, commonly regarding the establishment of tariffs, gratuitousness, the type of management (whether public or private), its accessibility and others. On the other hand, water services are necessarily determined by the economic, technical, political and physical limitations of the territories and by the complexity of the different scales (housing, district, city, basin). To speak about the challenge of access to

basic services is in fact to evoke what is problematic, which means the inequalities of access that hinder or block the social transformation of cities.

But, what do water services reveal about urban inequalities? What clues do they provide to understand the city and think about its sustainability? Beyond the most obvious reading of inequality of access to services (having access to the public service network or not), there are indeed a large number of other situations related to inequalities that we seek to identify and characterize in this paper: Do these come from spatial inequalities? Vertical? Horizontal? What is the nature of their interaction? Are they competing inequalities? Are they intersecting inequalities? (Norton, 2014). For each category of inequality, we find a frame of research and / or experience already established, as well as ways for operational solutions. An “enlarged” photographic reading of inequalities with respect to water services also leads us to question the intentionality of policies regarding public services: inclusive policies, compensation policies or policies for the poor (pro poor), liberalization policies in search of greater economic and social efficiency of operators, nationalization policies in a logic of national recovery, etc. Each of these policies that seeks to meet an objective of improving and reducing (a type of) inequality in service has in turn effects on the urban form.

On its behalf, existing or ongoing research on urban water services provides us with clues to understand the complexity of the problem of urban inequalities and the effects of service policies. They provide us with essential analysis material for operational decision-making and in general for the choice of public policies.

In most developing cities, urban service operators, including water and sanitation services, face many difficulties in serving the entire population and especially in keeping up with urban growth. This undoubtedly explains the shared vision of the deployment of services in most cities: the connected centers and the peripheries with deficiencies in urban facilities. It also feeds a binary reading of the unequal city of integrated populations and excluded populations and a reading of inequalities regarding water services in terms of “access” versus “no access”, which means populations and districts with the service versus those who lack the service. However, beyond determining the access or not to the service, which certainly represents one of the main social and health problems of cities in Latin America, there is a multiplicity (and complexity) of inequalities related to water services that requires deeper analysis and more varied responses.

This was the objective of the research project “Inequalities in the urban water service in La Paz and El Alto” led by CIDES-UMSA and carried out with the support of the French Development Agency and the European Commission. In the territorial continuity formed by these two cities, which are both the largest and most populous urban nucleus in the country, we sought to provide knowledge about the different types of inequalities in the urban water service within the framework of the water problem area related to the institutional precariousness and the effects of climate change that resulted in the water crisis that took place in November 2016. To understand how inequalities in water service are expressed, reproduced and resist, a series of investigations was carried out from an approach not only institutional but also social, spatial, political and historical.

1. A typology of inequalities regarding the access to water

Among the multiplicity of possible situations of inequality regarding water services, we have identified at least ten of them in the case of La Paz and El Alto. We also observe that the analysis of inequalities in a territory is not only based on spatial logics. Of the ten types of inequalities identified, six at least are partially vertical (income) or horizontal (between social groups). Finally, our initial work shows that the fact of being connected to the public network is not in itself a sufficient condition for not suffering from a situation of inequality in service. In the case of La Paz and El Alto, we found at least four situations of inequality in service for the populations connected to the main network.

Access to the public network: the “basic” inequality

The first of the inequalities regarding the service is that of having access or not to the main network [type 1], which allows the mapping of spatial inequalities in cities, the territory in which the service provider is present. This data can be accessible if the operator is eager to share it, which is not always the case.

Scientific literature and gray literature on this subject is abundant. Many research works mobilize primary data to represent urban inequalities related to water and some include additional indicators such as types of supply, distance or consequences and risks mainly for health (Dos Santos, 2012). The indicators of access to water in urban areas used for monitoring statistics of the MDGs first and then the SDGs through the Joint Monitoring Program for Water Supply (WHO-UNICEF) do not rest only on service data of the “official” operator but also in household surveys of the DHS and MICS type. In Bolivia, the official figure that 92.88% of the urban population in the country has access to water (JMP, 2017) hides very strong disparities between cities, between districts and between types of service (Cabrera, 2018).

Political and operational responses to inequality linked to access to the public service network should be sought in the operator’s ability to expand networks and therefore refer to the challenges of service performance at both technical and commercial levels and the quality and portability of the investment policy, its ability to secure revenue from the service (billing, recovery) to cover operating and maintenance expenses and ideally on the so called “big balance” (i.e., investments for network extension). Thus, in the face of inequality between those who access and those who do not access the public water network, the expected response is good institutional management.

Persisting inequalities among users of water services

Among the “privileged” users, which means users connected to the service, there are at least five types of inequalities.

Inequality due to the quality of the service [type 2] depending on the location of the home. Understood as a spatial inequality by definition, the inequality in the quality of service related to the location of the home can sometimes be extremely penalizing: low pressure at the end of the network, difficulty of continuous supply in certain areas, difficulties due to topography, etc. The poor quality of the service may compel users of the public network to consider alternative sources of supply or at least to complement the public service they have. For example, this is the case of many users in the city of Cochabamba who choose various sources for water service. They are users of both the public company and small systems (committees or cooperatives) and / or customers of water vendors who sell water at prices not always regulated.

Furthermore, we can identify inequality compared to the vulnerability of the system, depending on the location of the home. Another type of spatial inequality, which became evident in the city of La Paz and of which the manifestation will probably be regular in the future, is related to the vulnerability of the water supply system [type 3]. In this category are the users served by the network but who suffered (or may suffer) episodes of supply shortages in times of crisis. The paradigmatic example is that of the water crisis that occurred in La Paz at the end of 2016 as a consequence of a combination of natural and technical factors: drought and mismanagement, inability to anticipate and communication deficiencies, which deprived 94 districts of the city of water services for several weeks (Perales, 2018). Although the fragility of the system was studied and prevented by some studies (Hardy, 2009, 2011) after the landslide that caused a major outage in 2008, the 2016 episode plays a much more powerful trigger role to the extent in which a completely different map of the inequalities in the water service is drawn, since the users of the middle and upper classes in the southern area of the city, who had never before been affected by lack of water service, were affected (Le Gouill, 2017).

Between aging and the weakening of large systems and service management problems, these supply crises, in addition to other factors of urban vulnerability (Urquieta, 2014) question the resilience capacity of the large agglomerations. Hence the importance of the research on vulnerability and risks from both the hard sciences and the social sciences and the need to pay attention to the efforts already made, such as the vulnerability analyzes of Quito, Lima and La Paz (D'Ercole et al., 2012) based on the mapping of “fragile” areas and the identification of essential elements that must be preserved for the functioning of cities, a valuable research tool for public decision-making.

Another type of inequality is the inequality due to the degree of difficulty in paying the service. Asymmetries in urban services are not only marked by the spatial dimension, vertical (income) inequalities are also significant. Many connected homes have difficulties paying for the service [type 4], both the costs for connection to the network and the bill for

consumption. Operational responses to this type of inequality, often through the support of international cooperation – and this is not exclusive to Latin America – place greater emphasis on service subsidy solutions as they are considered more effective.

With regard to the payment of bills, solidarity is more generally organised around grids or tariff structures, progressive pricing linked to water consumption –in increasing blocks for example– with a subsidy or free of charge for the first cubic meters consumed. However, there is also much debate about these policies (Barde, 2014) and the price of water is in practice often used as a political tool. In Bolivia, the imposition of the rate freeze during the Evo Morales government resulted in the non-viability of financing for the expansion of the network.

If we move a little away from the example of Bolivian cities, we will see in the case of Bogotá that tariff solidarity is spatialized and the rate varies according to the districts. In Buenos Aires, the water bill is calculated from a base that includes various indicators (location, size of the house, etc.). In other cases, prepaid schemes have been tested (Argentina) or even implemented (South Africa) with the idea that the poor user manages better his water consumption with small progressive payments and avoids the bi-monthly bill, proposing a new narrative of the relationship of the poor user with the commercial water service (Aubriot, 2012).

Some programs seek to jointly resolve the issue of spatial and vertical inequalities. Since the 2000s in Argentina and more recently in Bolivia, the service to disadvantaged districts has been installed through Participatory Management Models (PMM), Works with Neighborly Participation (WNP) against the reduction of rates in the first years (in the Argentine case), or the installation of the service is ensured through neighborly participation with the purchase of part of the material or workforce in El Alto (Botton, 2017, 2007; De Gouvello, 2014; Mayaux, 2008; Perales, 2020).

Moreover, we distinguish the inequality by type of operator [type 5]. Related to spatial and horizontal inequality, this is the case of areas not served by the main network but for which the location, proximity and accessibility to alternative sources allow supply. The service is not provided by the public company but by a small operator (cooperative, committee). This phenomenon varies greatly from city to city. In Cochabamba, which has a strong tradition of self-management of water, the multiplicity of small systems has contributed to fragmenting the city (Cabrera, 2018), while in the case of La Paz, the extension of the borders of the metropolis (Poupeau, 2009) has led to the disappearance of small systems, especially in the southern part of the agglomeration, in the urban-rural strip where the public service is gradually arriving (Poupeau et al., 2019; Le Gouill et al., 2020). These differences between the public service and the small systems are particularly visible in the border areas with the neighboring municipalities of the central agglomeration and turn out to be true indicators of social inequality (Poupeau, 2009).

In areas with a high topographic gradient, such as the slope of the Cotahuma district in La Paz, the smallest and most numerous systems show a certain capacity for resilience since the public service can only serve the main streets of this area declared non-buildable

(Perales, 2014; Nathan, 2008). In these hillside districts, water services are provided by small committees or cooperatives with very different criteria than public service: direct supply of underground resources, a simple technical system and with less flexible regulations, a flat rate not related to the level of consumption (generally quite low, such as 2 bolivianos per month) and a strong direct participation of the users required for work of collective interest (cleaning of tanks, digging of trenches, etc.), which implies a discipline in participation with the neighborhood and the "community". The reading in terms of inequality in the service is more ambivalent: in comparison with the users of the public service, the inhabitants of these districts have a lower service quality, they benefit from a very low price for water (Cotahuma) or comparable rates (Cochabamba) but instead they must dedicate time and personal energy to collective work. Some are also users of the public service (on the fringes of the neighbourhood) and the internal dynamics are contrasted: a local identity that remains strong with a mobilization to bring to life the specificity of their service vs. more mobile urban dwellers, especially the younger generations, less inclined to participate in collective life and aspiring more to the "standardization" of the service. The question that arises is about the articulation between large and small systems (Botton and Blanc, 2016; Poupeau and Hardy, 2016; Blanc and Botton, 2012), a possible integration into the regulatory framework of the sector, which would imply at least the institutional recognition of these services (such as cooperatives) and furthermore a harmonization of technical standards, tariffs and ideally the cooperation between a large system and small systems to reduce inequalities between the users of public service and alternative services.

Inequality can also be due to differential treatment on the part of the provider [type 6]. Regardless of the service provider (private entrepreneur, cooperative or even official operator), users of water services may face another type of inequality related to commercial treatment with possible abusive practices in the relationship with the client. This type of inequality is often more blatant in the case of private providers that apply unregulated tariffs as is often the case for example in the distribution of water by tanker trucks. A typical situation of abuse is that of crisis contexts. During the 2016 shortage in La Paz, when the main system failed due to the high demand for water, the water carriers lent themselves to competition among users and faced with complaints and protests over the prices charged, they did not hesitate to provide their service in the first place to the most "complaining" neighbors. This type of treatment differentiation is also found in the case of informal services where regulation is self-managed, which makes the terrain more favorable to abuse. An example of this is the case of a water cooperative in Mallasa, district 22 of the municipality of La Paz, a mixed area with luxurious homes and very high rents and very modest homes where the cooperative charges very high rates because the neighbors with high purchasing power are willing to pay, forcing the poorest households in the area to pay a very high price in relation to their family budget. In theory, the public service should avoid these imbalances through a solidarity system of redistribution of tariffs (between domestic, commercial and industrial users and also between consumer groups) although difficult to implement on a small scale. In the case of Mallasa, it is observed that access to the water service tends to reinforce social and urban inequalities.

So far we have mentioned situations of inequality *among* users of water services, whether they are customers of the main operator, members of small cooperatives or residents of districts served by committees. Let us now return to the basic inequality of access (or not) to a water service and to the figure of the "off-grid" populations, dependent on tangible and intangible resources at their disposal for water supply. In addition, we can describe three other situations of inequality.

"Off-grid" inequalities: poverty penalty and *intersecting* inequalities

The first ones that we can identify are the inequalities due to the proximity or not of an alternative water source [type 7]. The main difficulty for those who are "off the grid" lies in the fact that in the absence of an individual alternative supply (wells, access to groundwater, etc.), which means of available and accessible water in their territory, these inhabitants suffer the "double punishment penalty for being poor" (Hailu et al., 2011) because they are forced to buy water at a higher price than the public service, despite being generally poorer than network users. Some research papers have looked at these aspects, for example through the concept of "water justice" (Spronk et al., 2012; Allen et al., 2015).

An interesting example is that of the water market of *aguateros* in Cochabamba, enterprising tanker truck owners and at the same time owners of the land where water is extracted. They distribute water to a clientele that sometimes receives water service from the network but that need to supplement their demand due to service deficiencies, and also to populations located in totally neglected areas, such as the southern part of the city where they sell the water at unregulated prices (Walnycki, 2016; Achi and Kirchheimer, 2006).

For these neighbors, deprived of service or direct sources of supply and dependent on expensive solutions offered by water merchants, the solution – unfortunately often in the medium or long term – lies in the access to public service, the only one capable to organize physical facilities for service in areas far from supply sources. Thus, the situation of the poor districts in the south of the city of Cochabamba should change significantly with the launch of the Misicuni dam which promises a massive mobilization of new water resources for the agglomeration. However, the concretization of the service for the poorest districts in the south will necessarily imply that on the one hand, the municipal operator can manage and distribute this new water production and on the other hand, adopt a policy that facilitates service in these territories.

There can be programs for serving the "off-grid" areas in accordance with technical and commercial schemes adapted to the specificities of cities and districts and to the local water production capacity. This is the case of the participatory management models described above, or the "Water plus Work" Plan initiated by the Argentine operator on the initiative of the state (De Gouvello, 2014; Botton, 2007). The donors also have a series of instruments to encourage the connection of poor districts, such as Output Based Aid (OBA), a subsidy delivered based on the results of the connection (Trémolet and Evans, 2010).

But for most inhabitants deprived of services or direct sources of supply and dependent on the expensive solutions proposed by the water merchants, the solution – often in the medium or long term unfortunately – lies in access to the public service, the only one capable of organising physical transfers for a service in operation in areas far from the sources of supply. Thus, the situation of the poor neighbourhoods in the south of the Cochabamba agglomeration should change significantly with the commissioning of the Misicuni dam, which promises a massive mobilisation of new water resources for the agglomeration. However, the implementation of a service for the neighbourhoods will require an improvement in the services provided by the municipal operator in order to manage this new manna of production, on one hand, and a service policy to serve these areas, on the other.

Furthermore, we can distinguish the inequality in terms of belonging or not to a district board or district committee [type 8]. While awaiting the arrival of the water service, not being affiliated to a district board or committee is in itself a situation of inequality in terms of the operator's response time to take into account the request. Being part of socio-political networks seems to be a determining factor given that some types of installation and urbanization are closely linked to the management capacity and pressure exerted by district boards or committees. For example, this is the case of the city of El Alto which is experiencing very rapid urban growth. According to the service operator, responses are faster and more efficient when requests come from certain districts where the potential for social mobilization is known (feared) (Arbona, 2011). In another sense, the same conclusions were obtained in recent studies on the water supply crisis in La Paz in 2016 where political ties played an important role in prioritizing the provision of water to different districts during the management of the crisis (Le Gouill, 2017, 2020; Torrico, 2020).

Another type of inequality is the inequality by gender roles [type 9]. Those outside the network-service area suffer horizontal inequalities related to gender more than users of the public service. Women and girls and boys experience more inequalities regarding access to water in terms of quality, cost and quantity, depending on the type of supply used and with consequences on their health and quality of life. "In Latin America, 150,000 deaths a year are caused by waterborne diseases, 85% of which occur in children under the age of 5" (ATALC, 2016). In fact, women and children are the categories that suffer the most from lack of access to drinking water (Tudela, 2020; Escobar, 2020).

At the level of power relations and decision-making, although this cannot be generalized in all contexts, it is common in Latin America that women do not participate in decision-making bodies such as water committees. This low participation constitutes an important obstacle to the realization of their demands and aspirations, because their voice is often not heard or not taken into account enough.

At the level of the division of tasks, although men and women assume responsibilities with regard to water and despite the evolution observed in the last ten years, the gender division of labor continues to be significant and tends to give men a role of control and decision, and women a role linked to the collection / negotiation of water, in the use and consumption, and in the management and care of the resource in the domestic space as shown here by

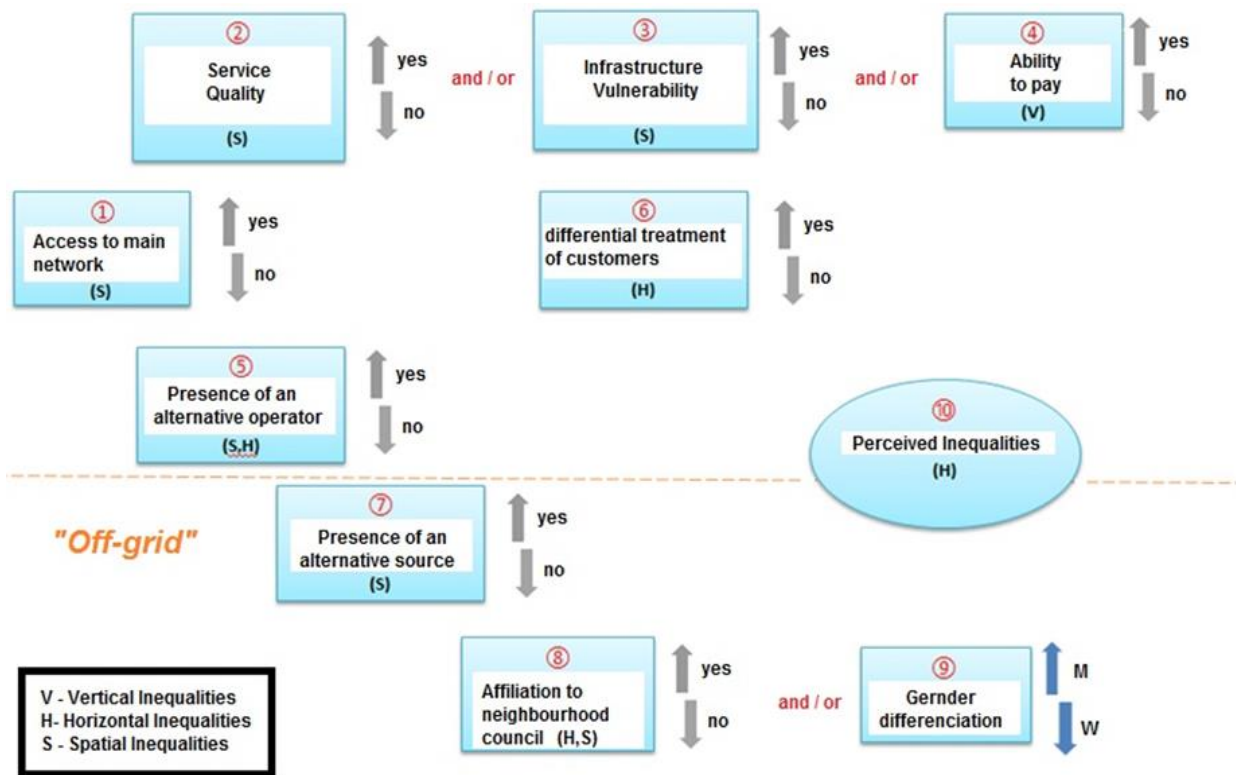
Escobar's research (2020). "In the case of transporting water from precarious sources, such as wells or rivers, the population sees this as a responsibility of women. However, when it comes to planning and building a water supply and / or pumping system, the responsibility rests with men. In recent projects, trench supervision and opening tasks are also carried out by women" (Waldkircher, 2017).

Perceived inequalities

Finally, in the analysis of inequalities with respect to water services, a more subjective category cannot be ignored, such as perceived inequalities [type 10]. The notion of perception refers to various situations. On the one hand, there are perceived inequalities compared to real (or objective) inequalities: as is the case for example of some residents of the southern area of La Paz who do not connect to the public service network because they believe that the El Alto users pay less for water and consider it unfair and a great inequality of treatment. Although these social representations may be very far from reality, they are decisive for the operation of a public service which by definition is based on user trust. All topics related to institutional information and communication, awareness campaigns, environmental education workshops, etc., can also be included here to combat preconceived ideas and generate, as much as possible, trust in institutions.

On the other hand, inequalities perceived as fair (Dubet, 2001) also refer to social representations but in this case from a perspective of subjective relationship with social justice. This is where the discussion between equality and equity takes place. In general, the debate that necessarily crosses all research on the relationship between human societies and the policies that are built around the general interest, public interest or common interest that according to periods, regimes and contexts usually change. This perception gives rise to debates, for example on the fair price of water, redistributive policies, the issues of solidarity tariffs and territorial compensation, etc. This last category or type of inequality invites us to a more subjective reading. The perceived inequalities play a determining role in the acceptance of the terms of the social contract that the water service proposes, whether it refers to the public service or an alternative service. The more affluent segments will be able to pay higher prices if they accept the justification (for example, the high levels of consumption related to owning a swimming pool) or if they perceive the problem of service cohesion (single operator in a territory). For their part, the poorest users are more likely to pay for the service if they have information on price patterns, the value of infrastructure and the service.

Illustration n° 1: Types of inequalities in urban water services in Bolivia, elaboration by the authors



2. Beyond inequalities in water service, the challenge of urban resilience

This overview of the different types of inequalities with respect to water services allows us to enter into the complexity of the relationship between urban inequalities and water services and go beyond a binary reading in simple terms of connection versus non-connection to the public network.

However, we must not lose sight of the fact that just as the city is constantly changing, in the same way inequalities and especially interactions between inequalities are also dynamic, sometimes due to the effect of the communicating vessels (for example, if inequality in access to the public network – inequality #1 – is reduced, then inequality regarding the fragility of the great system – inequality #3 – will probably increase) and other times due to the rebound effect: an improvement in the technical and commercial management of the service reduces inequalities in terms of quality of service – inequality #2 – and exposure to the fragility of the system – inequality #3 –, allowing the generation of higher revenues which in turn could have a positive impact on long term in the extension of the network and thus combat inequality due to technical access to the network – inequality #1 – or due to the substitution effect, as was the case of the 2016 water crisis in La Paz that revealed a new type of urban inequality, due to the fragility of the system – inequality #3 – : a third of the population did not have access to water during a few days and rationing for weeks.

Therefore, it is necessary to document all these dynamics through multidisciplinary research, focusing on both the technical aspects of infrastructure and the socioeconomic structures of households, changes in social practices (employment, mobility, lifestyles, etc.) and the socio-political issues underlying these interrelations. Similarly, it is crucial to make updated information available to decision makers.

But the measurement and monographic description of inequalities are not enough to reflect on the triggers of transformation of the city, social or environmental. It is necessary to reflect on the genesis and “naturalization” of urban inequalities and in relation to water services to question the interactions and phenomena of mutual structuring between the urban form and service policy.

These interactions must be bidirectional. The impact of service policies shows their consequences in the urban social network if we think, for example, of the multiplication of precarious districts as well as of private districts in many Latin American agglomerations. Indeed, the phenomena of urban segregation and fragmentation have been documented by many researchers in the new social geography (Prévot-Schapira and Cattaneo Pineda, 2008; Navez Bouchanine, 2002). Regarding the implications for water services, the idea that can be drawn is that when people with greater economic capacity create their own services, they not only cause a discontinuity of the urban network, as they privatize entire sections of the city, but they also alter the social network since they exclude themselves from

the tariff solidarity necessary for the exploitation and deployment of urban services. An example of this was the debate that arose in 1997 in Buenos Aires over a concession in water service, when the affluent sectors that had a connection they opposed the payment of the new SUMA tax to finance the extension of the networks to the peripheral areas (Botton and De Gouvêlo, 2008).

On the other hand, in many cities, slum enclaves also create a break in the urban network that is reflected in the discontinuity of the served territory. Most of the time, poor districts are not adequately served or not prioritized so that to access the water network, they are linked to the matrices destined for remote districts that were prioritized or to the pipes of well-off areas to which they are adjacent. This situation generates and sometimes is the cause of blockages and other types of problems in neighboring networks. This has led to some operators recognizing the need to integrate and recover the networks of territories under tension and with very different and sometimes contrary concerns and demands: some are concerned with the image and aesthetics, others with the economic issue, the health risk, etc. For example, in Buenos Aires operators implemented programs aimed at reconstituting the territory's network by reintegrating slum enclaves into the main network (Botton, 2007).

From another perception, the impact of service policies on the urban form and the "urbanization of water" (Arbona, 2020), beyond the effects of the privatization of space, obviously also raise the question of the privatization of the service. In Bolivia, the water wars in Cochabamba and El Alto are highly documented episodes (Crespo, 2000; Poupeau, 2011; Spronk et al., 2012) and had strong repercussions at the international level and internally consequences of the highest level in the extent to which they achieved the inclusion of the human right to water in the Constitution of the Plurinational State in 2009 and therefore the express prohibition to delegate the water supply service to the private sector.

In the early 2000s, British researchers (Graham and Marvin, 2001) questioned the effect of liberalization and privatization of basic services on urban forms. Their thesis on splintering urbanism postulated that in the search for universality and the modern ideal of an interconnected city, the liberalization policies of services tried to "avoid" the benefit of certain users and territories, and opted for socially regressive and discriminatory policies, provoking greater fragmentation of urban space. This thesis opened a stimulating academic debate and led a French research team to test this thesis in various territories, particularly in Latin America (Argentina, Chile, Peru). These works revealed more nuanced results according to the type of services and according to the countries, and the impossibility of concluding that there was a widespread and systematic phenomenon of "fragmentation of urban planning" (Coutard, 2008). On the other hand, more recent research shows that urban fragmentation caused by water networks can also be the result of the action of multiple small operators (Cabrera, 2018). Therefore, it is difficult to conclude that only the effects of the liberalization of urban basic services have generated and continue to generate socio-spatial inequalities.

This is an important finding in many research studies that refute the idea of institutional determinism of service performance (Jaglin, 2005). In fact, there are many examples and counterexamples on the subject. It is not about the type of manager but about the strategic vision of the service, the operational, technical and commercial performance and the

capacity and quality of the regulation. This is evidenced by the fact that the most successful water company in Bolivia is not private (constitutionally prohibited) or public, it is a cooperative that manages water for more than 1.5 million users in the city of Santa Cruz de la Sierra (De Gouvello, 2018).

The fact that the largely ideological public-private debate has failed does not mean that the politicization of the sector has been abandoned. In many countries, regardless of the mode of water management there are political positions at different institutional levels that interfere with service policies. In Bolivia, where the ruling party lost control of the majority of the mayor's offices in the main cities in the 2014 elections, these interferences occurred due to opposition between the central and municipal governments, competition between municipal governments of different political affiliations, difficulties in developing projects at the metropolitan scale due to political party pressure, and lack of coordination and reconciliation of agendas between the different levels of the state, as shown by the works of Ferrufino (2020) and Perales (2020).

However, beyond the political is the question of the deep meaning of the general interest which is supposed to be embodied by public services. So the question arises as to which policies to adopt, which can reconcile the general interest and the collective or community interests in contexts where the public service must be deployed in highly fragmented social conditions; how to balance the claim of universality of access to water and the pragmatic vision of differentiating service by segments.

Conclusion

The reduction of inequalities must continue to be a structuring objective of public policies and, as we saw in terms of water services, inequalities are multidimensional but at the same time there are many instruments to work on their reduction. However, reducing inequalities is not enough to guarantee social cohesion. Cabrera (2018) demonstrates this in the case of Cochabamba where the multiplicity of small operators is more a vector of urban and social fragmentation than a vector of inequalities between districts. Small networks tend to form a fragmented city where the biases autonomously build their access to the service without great socioeconomic disparities between them. The “cohesion” in terms of water services is found in the conditions of the service (price, quality, etc.) and on the one hand in the political and civil dimension of the participation of users in the choice of service, and on the other hand in collective social practices around the service (Dávalos, 2020). Although the political dimension may respond to a strong social demand from citizens concerned with urban problems, collective social practices remain highly dependent on the nature of the service itself (individual consumption in households, domestic consumption of water and social and collective uses of water in springs and laundries).

On the other hand, if urban social transformation is intrinsically linked to the idea of rebuilding the social bond, we must think of the social transformation of cities as a joint task and a comprehensive action. The sustainability of the territories requires taking on the challenges of reducing the ecological footprint of services from which the types of production of services (major infrastructure works and management types) and the uses of services (management of demand). This advocates a necessary collective awareness of the convergence of social and environmental issues. The sustainable city requires beyond performance and efficiency in the supply of urban services a reflection on reducing socio-spatial inequalities, rethinking social cohesion, empowering users, raising awareness about environmental issues and changing lifestyles.

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