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Persistence of inequality in access to water: A look at the actions of women in peri-urban territories of the city of El Alto

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Abstract
This article is part of the research carried out in the Señor de Mayo I and San Carlos neighborhoods of district 8 of the city of El Alto, which are part of the peri-urban territories resulting from the accelerated growth of the urban sprawl over the last two decades. Here, the price of land is relatively affordable for the population with a low and unstable household income and the setting is characterized by persistent inequalities and gender roles which mainly affect the lives of migrant women. In this context, the most important issue people face is the lack of access to water services through the mains network, a situation that lasts an average of five years. During this time, women must face and find solutions for the water supply for their families. This article describes the situation of persistent inequality in the assignment of gender roles and the implications for women's lives. In order to collect information, in-depth interviews were used to obtain the rich oral accounts of the actors describing the reality of the peri-urban context in which their constant struggle for access, use and management of water takes place.

Keywords
Persistence of inequality, water, women, El Alto, peri-urban territory

Classification JEL
A13, D62, E01, E22, I30, I31, O11, Q01, Q51

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Résumé
Cet article constribue aux recherches menées dans les quartiers Señor de Mayo I et San Carlos du district 8 de la ville d'El Alto, qui font partie des territoires périurbains résultant de la croissance accélérée de l'étalement urbain au cours des deux dernières décennies. Ici, le prix des terrains est relativement abordable pour la population dont les revenus sont faibles et instables et le cadre est caractérisé par des inégalités persistantes et des rôles sexospécifiques qui affectent principalement la vie des femmes migrantes. Dans ce contexte, le problème le plus important auquel les gens sont confrontés est le manque d'accès aux services d'eau par le réseau de distribution, une situation qui dure en moyenne cinq ans. Pendant ce temps, les femmes doivent faire face et trouver des solutions pour l'approvisionnement en eau de leur famille. Cet article décrit la situation d'inégalité persistante dans l'attribution des rôles de genre et les implications pour la vie des femmes. Afin de recueillir des informations, des entretiens approfondis ont permis d'obtenir les riches récits oraux des acteurs décrivant la réalité du contexte périurbain dans lequel se déroule leur lutte constante pour l'accès, l'utilisation et la gestion de l'eau

Mot-clés
Inégalités persistantes, eau, femmes, El Alto, territoire périurbain

Introduction

According to Solares (*cit.* in Prado, 2008) the urbanization process in Bolivia is late, unlike other countries in the region such as Argentina, Chile and others, which were already urban in the middle of the 20th century. This lag Is due to different factors, among which the country's economic history. This urbanization process poses a number of challenges related to planning and land management, among others.

According to data from the National Statistics Institute (INE, 2012), Bolivia has a population of 10,027,254 inhabitants, 67.3% of whom live in urban areas and 32.7% in rural areas, whereby the urban percentage goes up year after year as the cities are becoming increasingly populated. In the case of the city of El Alto, the urbanization process reflects a much more acute figure because of the population of 843,934 inhabitants, 99.8%[1] is urban population and only 0.18% is rural population. Thus, El Alto is a city with almost 100% urban concentration, with an intercensal growth rate between 2001 and 2012 of 2.4% (INE, 2012), compared to the rate of 1.7% nationwide in the same period.

The urbanization process in the city of El Alto and the characteristics of land management are explained by several underlying factors. One of them is the strong rural migration from several regions in the department of La Paz such as Los Yungas, and from cantons and municipalities that are either nearby or far away on the Altiplano or highlands. According to the literature, one factor of attraction is that this city is a reference urban center for the highlands region, a space for marketing products, marked by the confluence of transportation, the provision of services and a nucleus for establishing a social and commercial relationship with municipalities near El Alto (GAMEA, 2017).

Urban settlements can have a legal or irregular character. When families access irregular plots[2], a series of difficulties arise, such as not having property deeds or that the urbanization does not have planimetry, which is an indispensable requirement to proceed with the application for the provision of basic utility services such as water.

According to the 2012 Census, Bolivia's coverage is 80.8% in terms of access to water[3] and 52.7% in basic sanitation[4] In the department of La Paz, access to water is 82.5% and to sanitation, 61.2%.

These percentages at the national and departmental levels may be revealing of other inequalities when analyzing, for example, the disaggregation of data on access to drinking water and sewer systems in the rural and urban areas.

[1] Percentage obtained based on INE urban and rural population data (2012).

[2] Irregular land parceling, also called "sorcerer" parceling, is the subdivision of land with no provisional or definitive permit from the municipal government. These parcels do not have clear boundaries made up of streets, nor access to public spaces or basic utility services such as sewers, drinking water, electricity, among others.
Source: http://www.bienesnacionales.cl/?page_id=32965 (accessed on 9/10/19).

[3] Access to drinking water is defined as the number of people who obtain water from an adequate source (...). It is important to point out that, in urban areas, adequate water supply refers to access to piped water or a public tap; on the other hand, in rural areas, it refers to access from the public mains network, a public tap or a well with a pump" (UDAPE, 2016: 3).

[4] According to the WHO, basic sanitation is the lowest-cost technology to ensure the hygienic disposal of excreta and wastewater with the aim of having a clean and healthy environment both in the home and in the surroundings of users" (UDAPE, 2016: 5).

The remote areas and the areas going through a process of urbanization are territories where low-income families settle. In many cases, the migrant population also populates the edges of cities where satisfying their main need, which is access to water, is not guaranteed. Indeed, peri-urban territories face a daily problem with regards to water supply because they do not have access to the mains network; under these circumstances, they have no choice but to get water from tank trucks, wells, public taps, etc. This means that, in addition to the daily and sufficient supply of water for household consumption, these families have to consider alternative forms of water supply that may entail deficiencies in respect of quality, cost, frequency and quantity.

Therefore, the issue is the unequal access to land and the resulting implications in terms of access to public services, particularly the access to water. This also affects urban planning and the intervention of the State through the municipal government[5].

When there is no intervention process in the peripheral territories, the families suffer the strongest impact from the lack of access to water and, within the families, the ones affected most are women of all ages who are socially responsible for immediately solving the water supply.

A review of the demographic composition by sex in the city of El Alto shows that 51.3% of the population is female and 48.7% is male; this is an important fact to analyze and evaluate the effectiveness of the public policy being implemented. This information also shows the number of women living in peripheral territories of the city of El Alto who do not have access to quality water services and who are the focus of the efforts being made.

The problem of non-access to water through the mains, specifically for women, involves analyzing a series of inequalities that are not only related to satisfying the need for access to a common good such as water. Obviously, the problem is much more complex and has to do with the allocation of reproductive roles, naturalized by society, that mark a persistent inequality in the life cycle of women. This inequality, which has not been resolved, is exacerbated in conditions with no access to water.

This paper aims to describe: (i) the situation of women and their families when they decide to settle in peri-urban areas of the city; (ii) the cycle[6] of the persistence of inequality in women's life trajectories; and (iii) the gender roles and their relationship with water supply and collection, use, consumption and other variables such as water quality, quantity, frequency and cost.

[5] In the case of the city of El Alto, the Public Enterprise for Water and Sanitation, EPSAS, is responsible for these services.

[6] The cycle is a circular movement projected over time. In the case of the interviewed women, their life cycle is marked by inequalities that are repeated at three times: (i) when they are girls and live in their territory of origin in rural areas; (ii) when they migrate to an urban context while still being girls or adolescents and, (iii) when they decide to start their own family, again in a peripheral territory and therefore without services.

1. Context

The municipality of El Alto is located in the department of La Paz. Before becoming an actual city, it was a benchmark concerning a pilot institutional model that had the faculty of autonomous management and competence to solve urban problems within its jurisdiction in accordance with municipal ordinance 45/82 dated 12 July 1982. Subsequently, on 6 March 1985, Law No. 728 was passed to create the Fourth Section of the Province of Murillo, with its capital city El Alto de La Paz. Three years later, on 26 September 1988, it was raised to the rank of a city through Law No. 1014.

The municipality of El Alto covers an area of 428.03 km^2, divided into 14 districts, with a total population of 848,452 inhabitants (Census, 2012). As can be seen in table 1, the 14 districts have been created over time.

Table 1. Municipality of El Alto: Municipal districts and area
Source: Table taken from PTDI 2016-2020, *column "total population" was extracted from the 2012 Census.

Nature of the district	District	Area in km^2	Total population*	Modification and creation of municipal districts								
Urban	1	10.23	87,997	MO 007/96 of 9 March Urban districts 1, 2, 3, 4, 5, 6 and rural district 7 are created	MO 035/2001 of 3 May Definition of urban radius	MO 065/2002 of 29 May, establishes urban districts 1, 2, 3, 4, 5, 6, 7, 8 and rural district 9 MO 122/02 modifies the boundaries between districts 5 and 7, 4 and 7, 1 and 2, 2 and 8, 3 and 8	MO 150/2005 of 11 October creates rural, agricultural and tourist district 10	MO 147/2007 of 6 November creates district 11 as a productive and agro-industrial sector	MO 074/2008 of 3 April creates the municipal district 12 MO 174/2008 of 31 July creates the agro-ecological tourist district 13	MO 065/2010 of 3 May creates district 14 as a breakdown of the district 7 MO 128/2010 of 26 August approves the georeferential delimitation of district 14	MO 163/2012 of 3 July Modification of boundaries between districts 7 and 9, 7 and 14	MO 194/2013 of 16 August Modification of boundaries between districts 7 and 13
	2	11.98	73,939									
	3	17.74	144,828									
	4	18.47	107,147									
	5	15.76	104,226									
	6	15.38	90,538									
	7	29.86	44,535									
Urban	**8**	**41.01 (2nd)[8]**	**121,843**									
Rural	9	13.26	1.72									
	10	38.34	785									
	11	9.83	1,081									
Urban	12	8.3	19,816									
Rural	13	180.91	2,085									
Urban	14	16.96	47,912									
	Total	**428.03**	**848,452**	1996	2001	2002	2005	2007	2008	2010	2012	2013

For the purpose of this study, we focus on district 8, which is the largest urban territory and the second-largest district in terms of area, after district 13 which is rural and which is a point of connection with the rest of the country, since it is located along the dual-lane highway between La Paz and Oruro.

District 8 is an area characterized by growing urban expansion, which asserts the need for piped drinking water. The inhabitants are Aymara immigrants and also people born in the city of El Alto. Geographically speaking, it is surrounded by the Andes mountain range, where the Huayna Potosí, Illampu and Mururata are the most prominent snow-capped mountains. Its water supply system is through the Pacajes Plant - Tilata System.

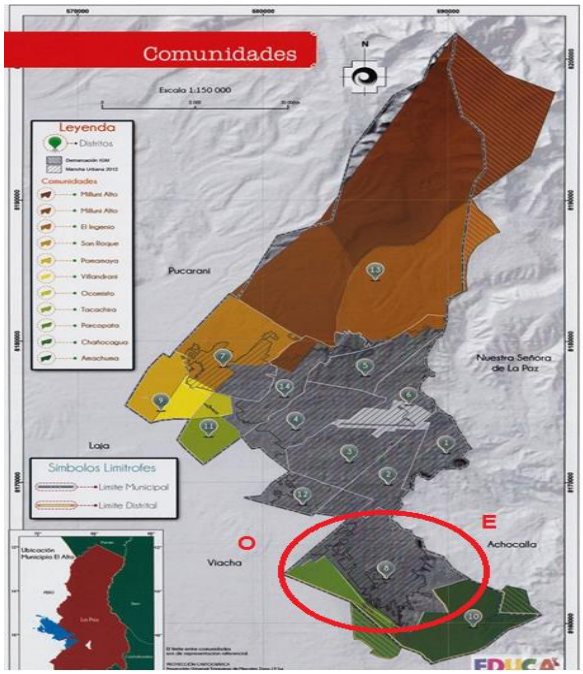
The study has been carried out in the Señor de Mayo I and San Carlos Mina Ch'uxlla neighborhoods in district 8 of El Alto (see map 1). In 2015, the drinking water coverage in the Señor de Mayo I and San Carlos neighborhoods was zero and the families accessed water from public taps, tank trucks or own wells.

The research is qualitative, i.e. the collection of information was based on the in-depth interview technique, which allows obtaining rich oral accounts of the stakeholders who describe their reality according to the peri-urban context in which the women live[7] and their persistent struggle related to access, use and management of water.

Table 2. In-depth interviews

No.	Mrs.	Sector	Time
E-01	Ruth	Señor de Mayo I	50 min
E-02	Dominga	Señor de Mayo I	55 min
E-03	Aquilina	Señor de Mayo I	56 min
E-04	Nelly	Señor de Mayo I	30 min
E-05	Eva	Señor de Mayo I	1 h and 15 min
E-06	Lenny	Señor de Mayo I	1 h
E-07	Antonia	Señor de Mayo I	1 h and 10 min
E-08	Nelly 2	San Carlos sector Mina Chuxlla	50 min
E-09	Juana	San Carlos sector Mina Chuxlla	50 min

Map 1. El Alto. Location of district 8
Source: InfoEduca.



[7] Women aged 26, 29 and 33 interviewed in December 2018.

2. Peri-urbanity and the relationship with unequal access to the city, land cost and access to water

The women who participated in the study are migrants who came from the rural highlands of the department of La Paz to the city of El Alto, in some cases accompanied by their families, in others alone, in which case they went to live in the house of a relative. These migrants joined the urban dynamics as minors of approximately 9, 12 and 17 years of age and the main reasons for migrating were to have access to better living conditions through employment or to enter the secondary education system for completing their schooling. The analysis of the conditions in which the women settled in the urban context is based on the premise that there is unequal access to the city, depending on the cost of land and the access to water services.

2.1. Unequal access to the city

The migrant women recall that when they arrived in the city of El Alto some of them were girls and some of them teenagers; their families chose to stay for a very short time in the home of a relative and, rather, almost immediately moved to rental housing. This situation could not be sustained for long either since rents were paid monthly and their income was insufficient, so often they could not even cover the costs of their basic needs. Hence, the families acted fast to find their own dwelling, i.e. a plot of land to build their home. To do so, they turned to acquaintances who provided them with information about available plots of land far from the city center. It is noted here that the access to a peri-urban location entails a lower land price and the ease of paying for it in installments.

The city per se is a space that generates inequalities objectified in the unequal access to it. Empirical research shows that the urban space, especially in Latin American cities, is not homogeneous. "The socially produced space has effects on the (re)production of inequalities, influencing not only the quality and location of housing and the urban environment, but also the opportunities related to education, health and employment, among other dimensions of social life" (Segura, 2014: 33).

In this sense, the expectations in terms of social mobility, as the first goal of migrant families and especially of women, cease to exist because, in general, they already have a heavy burden of socially assigned tasks. Nonetheless, in the urban context, the gaps in opportunities for women are even greater for reasons mainly related to education, access to formal employment and, above all, urban cultural and social codes that intertwine with the logics and codes of their cultural identity, and which can play against or in favor of their new situation.

2.2. Land cost

The main factor determining territorial organization of the social strata in the urban context is the price of land (Segura, 2014). One of the main goals for any family is to buy a plot of land; Poupeau (2010) points out that there are two reasons to leave the rented space, the first being the high rental amount that is not aligned to their income, which is irregular due to the informal nature of the employment they access, and the second being that their children cannot play freely as the owner or neighbors do not like this. The new owners settle in sectors outside the urban and municipal planning sphere; that is the price they pay and the risk they face for accessing land that is "accessible" for their income. Poupeau (2010), using data from the GAMLP, points out that the rate of landowners is higher in peripheral areas of recent settlement, while the rate of tenants is higher in the neighborhoods near the La Ceja commercial nucleus. In effect, in the accounts of the women interviewed, the aspiration for a plot of land and the construction of an own house has to do with the cost of rent and also with the need for a space where they can receive temporary visits from their family members who live in the countryside.

2.3. Access to water services

The interviewed women point out that once the families purchase the plot of land, they concentrate on construction of the house, which, as Poupeau (2012) asserts, is self-built. Each family looks for ways to erect the walls, masonry, etc. and in many cases, the children and/or the father are masons who build their homes. This construction requires a lot of water, which is the first difficulty. They solve this by buying water from tank trucks, as well as by harvesting rainwater. According to Poupeau (2012), new neighborhoods must undergo a process of recognition of property title-deeds, obtaining the zone plans from the municipal government and complying with other technical standards. Through this procedure, it is possible to apply for access to water, in the first instance a public tap. The entire process of territorial legalization takes approximately seven years. In the case of the Señor de Mayo I and San Carlos neighborhoods, where the respondents live, the process took around five years, i.e. the time these women have lived in these areas. In other words, they lived there for five years with no access to water through the mains.

When the women talk about their lives without drinking water for an average of five years (or more), all the difficult situations they went through become visible. Access to drinking water should not only be addressed as a technical problem, but also a social problem because of the relationship between health, housing and education. Moreover, it has an impact on the quality of life of the population and especially of the women who devote a lot of time to water management (Ledo, 2005).

Thus, settling in peri-urban spaces is determined by the affordability of the land, although the major disadvantage is the lack of access to basic services, which means that the idea of the interviewed women of coming to the city for better living conditions suffers delays or never actually materializes. Campoy and Parada (2015) put forward the concept of social well-being associated with happiness or satisfaction, which may be hindered when there is no access to different goods or services, such as access to water. These new peri-urban neighborhoods require joint efforts of local leaders, grassroots residents and authorities responsible for ensuring the supply. So it is not just a matter of will, infrastructure is required accompanied by a strong financial investment.

This inequality in the access to water services gives rise to a situation of dissatisfaction in women's lives, due to the time they invest in obtaining water, because of which they are unable to carry out other, e.g. income-generating, activities, which was one of the reasons why they migrated from their communities in the first place. In addition, in urban contexts, money is an essential asset because they have to pay for the goods and services they use and if they do not access a service such as water, the monetary cost is much higher, because buying water from a tank truck is expensive.

Thus, accessing a public service such as water is a premise for the families who get organized through neighborhood representatives to request this service from the competent authorities. The public figure working around water management is almost always male, while the household figure is female.

3. The cycle of persistent inequality in women's life paths

The interviews revealed three moments in the life path of women that show the inequality to which they are permanently exposed. The first refers to the place where they were born, i.e. the rural area, where the water supply is through natural sources, which means that fetching water is a primary task of women in which they invest much of their time. The second is when they migrate to urban areas and settle in peripheral territories that do not have access to water services and when their only source of supply is the tank truck or the public tap, which once again compromises women's time. The third moment is repeated under the same conditions as the second, when women decide to start their own family project and have to once again set up home in remote locations where they can afford the land, but where they do not have access to services.

These are permanent inequalities in terms of territorial-spatial inequality determined by the condition of poverty. Families settle in peripheral territories without access to water and where women have to deal with and deal with the poor quality, quantity and frequency of water for their families. Gender inequality, based on the sexual division of labor, puts an overload of tasks on women, to the detriment of their aspirations and life projects. In this sense and because of their importance, these three moments of gender inequality are detailed below, on the basis of interviews with women.

3.1. First moment: water in the community of origin

As told by the women who were interviewed, a coinciding starting point in their lives is recognized, referring to the conditions of non-access to water in their home in their place of origin; that is, in their place of birth, they already had the task of devoting much of their life to water collection. For example, Antonia was born in the province of Bautista Saavedra, canton of Amarete, which is near the municipality of Charazani, more or less on the road to Apolo. Antonia's community is around 12 hours from La Paz, i.e. seven hours by road and then five hours on foot because there are no vehicles.

Another interviewee mentions that her place of origin is one of the communities in Sud Yungas. The coincidence revolves around the way in which they access water, with the main sources being rivers, lakes, springs and rainwater harvesting.

Families are normally composed of a father, a mother and siblings, and the daily dynamic is organized with specific gender-based tasks. Women, regardless of age, perform household chores such as washing, cleaning, cooking, etc. School-age children are responsible for providing water for the family; however, women organize the water fetching shifts[8] and have the responsibility to ensure water availability in the home.

[8] Antonia is the eldest of 10 siblings, three females and seven males. As a girl and eldest daughter, she had more responsibilities, although her mother would tell all her siblings in turn to go and fetch water. They would get up very early, at 05:00 in the morning, and the first thing they had to do was to get the food ready by 07:00 in the morning. Then they had to go and collect water in yellow Fino oil drums that have a capacity of 5 liters each. They would take several drums and bring them home by wheelbarrow because they were heavy. This would take half an hour because the river was quite far away. In the rainy season, it was easier to get water, but in the dry season, they had to travel longer distances until finding water. Another way to carry the water was in pieces of cloth fixed to their bodies with ropes. The land was flat to walk so that was not a problem; the problem was the weight. They would fetch water in the morning and they had to make it last until the afternoon. By 09:00, they had to be at school. That was their weekly routine. On Sundays, they had to do the laundry in the river.

Communities, especially the most remote ones, have several limitations. For example, as far as education is concerned, they cannot guarantee the continuity of education from primary to secondary levels, let alone have a higher technical institute for new generations of children and young people. Another point reflected in the interviews is that agricultural dynamics have a fundamental impact on women's bodies due to the work overload, coupled with some people's perceptions of whether it is necessary for women to study until at least completing secondary school. There are certain conditions that are unfavorable to the aspirations of well-being of new generations, especially women. Thus, motivated by their parents, uncles, aunts and family in general, the aspiration of migrating to the city of El Alto is approved by the families, at least in the case of one of the women. One of the women pointed out that her uncle and her parents encouraged her to migrate to La Paz because they said that if she stayed the only thing that awaited her was to marry like the rest of her friends who were already predestined in this sense at the age of 10 years; and also that people in the rural area do not have a high opinion of women who study. Because of this, her family thought that if she stayed, she would suffer in the countryside.

When women arrive in the city of El Alto with their families or alone, they go and live in the house of a relative, rent a place temporarily or go directly to the house of someone they know who brings them from the rural area to work as domestic workers in the home of someone they know. In this new scenario, women have access to water, but it is a temporary arrangement. In all of the above options, the families look for alternatives to buy a plot of land at an affordable price. They do so by turning to networks of friends, relatives or acquaintances that give them references to plots far from urban centers and with no access to utilities, mainly water, as asserted by Durán, Arias and Rodríguez, (2007, *cit*. in Antequera, 2015): "After conquering a 'plot', the families start a long and arduous journey until they have their own home. Many years of work and resources are invested not only in the construction of the house, but in obtaining basic services." There is no doubt that the basic service that takes the longest to access is water, because it requires significant infrastructure such as a main network, pipes, etc.

3.2. Second moment: access to the peri-urban space through a lot, process of construction of the house and access to water

In the process of access to the peri-urban space through a plot of land, the individual goals underlying the migration from the rural area to the city of the women who then were girls and/or adolescents are diluted or postponed, e.g. education and access to employment opportunities that are satisfactory for their parents or guardians. Women's lives are completely turned upside down to support the family project. In this new urban dynamic, they enter a process of social interrelationship with urban codes where they must overcome the other obstacles that are added to their lives, such as language, the condition of being women, among others. In this new living scenario, the first stage is the survival and constitution of their settlement and the continuous search for economic income generation to finance not only the purchase of a plot, but also the construction of the house.

The construction of a house on a plot that does not have access to piped water through the mains entails an additional cost and extra labor, especially for women of any age who are normally given tasks such as laundry, cooking, and mainly, fetching water from the tank truck or harvesting rainwater. Using data from the World Bank, UN Women (2018) states that women spend four times more time on unpaid household chores than men.

Once the house is under construction and has some rooms, the families decide to go and live in the peri-urban neighborhood, where the construction is new and there are but few neighbors. At that stage, the water supply will be through the tank trucks for a period of approximately five years. Later, they will be connected to a public tap as the preamble to the installation of water access at home through the mains. Water supply is a task that is exclusive to women, as is the case of reproductive tasks. Finally, the peri-urban neighborhood will access piped water, releasing women from the time involved in the supply tasks, but not from the tasks involved in the use and consumption of water.

3.3. Third moment: own family and water supply

When the migrant women (girls or adolescents) first came to the city, they were part of the process of construction of the local family home, as described above, and experienced the whole process involving water supply from tank trucks. However, when the time came for them to form a family of their own, they moved away from the primary family to live in union with their partner who has a plot of land in a remote neighborhood. In this regard, women will then move to a new neighborhood that does not have access to water either, because its establishment is also very recent.

At this third moment in the lives of women, they again face limitations in access to water, they will again get water from the tank trucks and spend another four or five years before accessing the mains distribution at their homes. The persistent inequality in water supply tasks and the reproduction of the assignment of gender roles, i.e. the reproductive tasks in the household, persist throughout women's life cycle. Klein (2010), interpreting Tilly (2000), argues that this enduring inequality is applied to certain categories such as gender (male/female) because they persist along the timeline, transmitting inequalities from generation to generation.

For his part, in his interpretation of Tilly, Pereira (2017: 4) argues that inequality is "a social and not individual phenomenon [that] is expressed in multiple ways and in every instance of everyday life", and it is precisely in this scenario that it occurs and is reproduced in society, through four driving mechanisms: "the exploitation and the grabbing of opportunities and the other two that generalize them: emulation and adaptation" (*Id.*), in such a way that they become naturalized and constitute a social organization that favors certain groups to the detriment of others. It is stated that, while Tilly does not rule out the possibility of social change, three points are to be kept in mind:

a) innovating is more difficult than repeating, and persistence is sustained in habit;

b) the narrative way in which processes are conceived tends to think of essences rather than bonds; and

c) the difficulty of breaking with a moral discourse[9] that modifies the inevitability of things to give rise to contingency (Pereira, 2017: 54).

[9] "Moral, from the Latin 'mores': customs. A form of social consciousness, in which the ethical qualities of social reality are reflected and fixed (good, goodness, justice, etc.). Morals constitute a set of rules, norms of coexistence and human conduct that determine the obligations of men, their relations with each other and with society" (Rosental aT Iudin, 1965: 324-325).

On the other hand, Tilly (2000, *cit*. in Pereira, 2017: 7) argues that "the way of organization of society has to be changed, which means working from social relationships and interactions (...). The naturalization of categorical pairs of persistent inequality needs to be questioned."

Pontón (2006), in an interpretation of Tilly, argues that it is not so interesting to explain what causes inequality, but rather persistent inequality, how categorical inequalities work within an organization. Therefore, he focuses on the study of the social ties or relationships that generate inequalities in categorical pairs such as male and female and that persist throughout life and the history of organizations.

Therefore, in the first moment, as the place of birth does not meet the necessary conditions to realize their aspirations, their wishes for migration are supported by the family, in the understanding that there are naturalized and institutionalized barriers — a thought scheme of the communal social context. It is not enough that women and their families want to break the model instituted at the social organizational level of persistence of inequality. For Tilly (2000), the male/female[10] categorical pair puts in place an asymmetric relationship, in which one of the parties controls the resources and whereby this situation is socially recognized. The social acceptance reinforces the social division of labor by sex, where women are the main, and in many cases only, people responsible for household chores and for fetching water and securing the water supply for their families.

This persistent inequality has been sustained for thousands of years through four mechanisms:

[T]he exploitation and the grabbing of opportunities cause persistent inequality when their agents incorporate paired and unequal categories within crucial organizational boundaries; and two other mechanisms, which we can call emulation and adaptation, reinforce the effectiveness of categorical distinctions (Tilly, 2000: 23).

When the organization[11] assumes these categorical distinctions, they become stronger, they spread and become gravitational determinants in social life in general.

When one wants to break with the established social order, individual or family "will" is not enough; it has to do with factors such as the collective social sphere and above all with the necessary mechanisms permeating instituted asymmetric relationships.

The anchored social order manifests itself at all levels of the organization, so year after year, decade after decade, far from becoming weaker, the imposed social order becomes stronger. The literature points out that the role of women is mainly as providers, users and guardians of water (*Global Water Partnership*, 2017). The conditions in rural areas pose chal-

[10] "The limited categories (male/female, aristocrat/commoner, citizen/foreigner) deserve special attention because they provide clearer evidence about the performance of persistent inequality, because their limits do crucial organizational work and because categorical differences really explain much of what ordinary observers take as results of variation in individual talent or effort" (Tilly, 2000: 20).

[11] "... the word 'organization' may evoke companies, governments, schools and similar formal and hierarchical structures, the intention is for the analysis to cover all kinds of well-delimited sets of social relations in which the occupants of at least one position have the right to commit collective resources in cross-boundary activities. Organizations include corporate kinship groups, households, religious sects, mercenary gangs and many local communities. The inequality persists in all of them. And at some point, all of them incorporate categorical distinctions originating in adjacent organizations" (Tilly, 2000: 23).

lenges related to working the land and their activities generally revolve around this. One cannot fail to mention that the family is at the heart of the agricultural movement or any other potential offered by the context.

On the other hand, one of the main constraints in rural communities is the access to full secondary education and, within this framework, the expectations of families, especially those of the women interviewed, is migration to urban areas in order to continue their studies and look for work in order to improve their living conditions.

4. Gender roles

Women and men have different ways of relating to water. In view of the assignment of roles, reproductive tasks are the exclusive realm of women and when there is no water, women are the ones suffering most. Gender studies have helped to show that asymmetries between men and women are associated with symbolic constructions about what it means to be male and female, and with power relations between people of different sexes. Bourdieu (1988, *cit.* in Reygadas, 2004) found veiled mechanisms of class differentiation in modern societies. He argued that inequalities are related to class *habitus*, that is, to the schemes of lasting arrangements that govern the practices and preferences of different social groups, resulting in systems of classification which place individuals in a certain social position, not only based on their money, but also based on their symbolic capital.

The interviews we have conducted refer to two scenarios in the distribution of roles by sex. The first occurs when access to water is by tank truck or public tap and one can notice a distribution of tasks with greater equity. Certainly, while women continue to perform their domestic tasks related to the use of water, men are responsible for obtaining drums for the water, manufacturing facilities to harvest rainwater, and allocating time to do the household laundry on Sundays in order to take advantage of the water they have for that day. In this setting, in general, there is a concern among men and women to fulfill reproductive tasks in a scenario where water is not available to the families.

The second scenario occurs when the water mains network reaches the homes, producing reassurance thanks to the availability of water. In this new scenario, the reproductive tasks are carried out almost exclusively by women and the domestic workload increases for the benefit of the household members since they now do the laundry more frequently, they start cooking twice a day, etc.

4.1. Gender roles in rainwater supply and harvesting

The women interviewed claim that, on average, they live in the neighborhood for five years before accessing water through the mains. During this period, they are obliged to purchase water from the tank truck. The installation of drinking water through the mains inside the house is not only important because of the convenience in use but also because of the health implications (Ledo, 2005). It is also decisive in terms of the time women devote to water supply, which produces an individual impact on their lives, postponing their aspirations, which, in some cases, remain truncated, i.e. they do not realize their desires that motivated the migration in the first place, such as secondary and university studies and/or a job that allows them to improve their well-being.

The water supply by tank truck involves a series of activities before, during and after. The ladies must prepare the drums, wash them and place them at the door (see picture 1) so that the tank truck hose can reach them. This takes time, physical effort and a monetary cost on the part of the women. In addition, in order for the tank truck to reach the house, they must establish a continuous connection with the supplier who usually does not come at the appointed time: "*He was no longer coming and we had to call him... we normally go and wait down there, because he says he will come, but then he just drives by very fast*". Another reason for the delay is that a single provider takes water to several sectors and his service

can take between one and two hours. When the water finally arrives, there are several tasks to be performed, such as covering the drums with some material such as plastic or jute to avoid contamination, and sieving the water when it is transferred to other containers to remove possible rubbish. Subsequently, the task is to plan the use of the received water. The cleaning routine, living at the pace of the water tank trunk schedule, protecting the water from external factors such as dust, garbage, etc. and managing it so that it can meet the needs of all family members are all part of a daily routine.

Picture 1. Drum, tank and other containers near the door so that the tank truck hose can easily reach them
Photo: X. Escóbar, 2018

This sum of efforts and tasks is part of the total composition of the time which water management absorbs in women's lives, according to their vital needs, i.e. not only their own but of ***others***. This means they have no time to spare for other activities.

4.2. Harvesting rainwater

Rainwater harvesting[12] is extremely important for the families' well-being, mainly for two reasons: (i) the water they collect is free, and (ii) the quality of this water is considered better than the water from the tank truck.

Picture 2 is an example of the design of a dwelling that harvests rainwater. The PVC pipes are connected to the roof and the water flows into the iron drums. According to the women, rainwater is used exclusively for laundry, washing kitchen utensils and personal hygiene, but not for drinking or cooking.

Picture 2. El Alto. Rainwater collection in a house in the Señor de Mayo I neighborhood
(Photo: X. Escóbar, 2018)

[12] Rainwater harvesting refers to collecting rainwater from roofs.

Rain is even less predictable than the arrival of the tank truck; therefore, women's time is seriously compromised and conditioned because they must run from wherever they are to their homes. They say that it is not a matter of simply leaving the drums, because the first jets of water are dirty from the garbage and the dust on the roof, so the first task is for women to throw away the first jet of water and then put the drum in place again. The next task is to wait for the water to fill half the drum to then empty it into a larger container with a capacity greater than 600 liters "*little by little*", using a smaller container. All this is done while it is raining. The husband helps only if it rains at night.

4.3. Gender roles in relation to water use and consumption

During the period when families do not have water in their homes through the mains network, the water use and consumption is limited due to: (i) a high price of BOB 180 per month for buying water, (ii) they do not have enough containers to store water for a long time and, (iii) it is not certain whether it is healthy to keep the water stored for a long time without endangering the health of the family.

The women interviewed report that they have a family composed of children ranging from 18 months to 9 years of age, a period in which children need to drink water more frequently because of their great energy to run, play, etc. Hence, the demand for water is higher. Although mothers make efforts to boil the water, that is not enough because the water from the tank trucks is not clean; in addition, there is the children's temptation to drink water straight from the drums. All this causes infants to become ill, as one of the mothers points out, "*my young son has been sick twice, he had infections; of course, I am giving him boiled water but we did not know where the water in the tank truck was coming from and the water had hair, dirt, and things like that.*" Another factor that may contribute to the children falling ill is the precariousness of water storage in drums that corrode, increasing the risk of gastrointestinal pathologies (Ledo, 2005). This situation also shows that lower-income population groups use this form of water storage.

In their role as administrators, women set priorities regarding the use and consumption of water; the priorities are the children and the husband. School-age children require continuous hydration; children up to two years of age require daily bathing. The school stage of children involves bathing them at least twice a week; and there must be enough water for breakfast and lunch. The husband is also a priority because he goes out to work on the streets; however, it should be noted that women also work, sewing, selling, etc. but they do not consider themselves as a priority regarding the use and consumption of water. Ledo (2005) considers that society assigns and imposes an overload of tasks on women, which is a factor of inequity: domestic work, reduced hours of sleep, and incorporation into the labor market. All this with the sole aim of accessing minimum subsistence levels.

The extremely limited access to water may affect interpersonal relationships. In the interviews, the women say that their interpersonal relationship with the husband is affected by the decision to live on a plot of land that does not offer basic conditions such as access to water. But it also affects the relationship with the families of both spouses, for example, one lady points out that on some occasions they had to leave their home in order to not receive visits from relatives on weekends, because this involves cooking or at least making tea. This means they need water, both to prepare food and to do the dishes, etc. That is, it is an extra activity that is not part of the calculations of the water quantity needed for the week.

When the availability of water is very low, some interviewees point out that while women are responsible for the rational use and reuse of water, other family members, especially spouses or partners, also collaborate in specific tasks such as washing clothes on Sundays or some night of the week to then reuse the water.

The study by Ledo (2005) shows the category "all", i.e. when a woman is household head, a kind of attribute that allows her to mobilize the whole family, including the husband, in water-related tasks. This situation is not necessarily replicated when the man is head of the household. In the case of this research, the women point out that regardless of whether or not they are the heads of the household, the males collaborate in the specific activity of washing clothes and others such as the purchase of drums, the installation of the water tank, etc., and sometimes also in maintenance (cleaning) of the containers where the water is stored. However, women are always primarily responsible for ensuring the water supply and all related domestic activities.

An interesting fact is that the category "all" seems to fade when the house is connected to the mains and women are once again solely responsible for household chores, including laundry. What is more, the household chores become heavier because when more water becomes available, the frequency of doing laundry, washing utensils and cooking -two to three times a day- increases. Moreover, the children can wash every other day or when needed, etc. A generalized perspective among the interviewed women is that the well-being of family members improves considerably, not only because there is a greater quantity and availability of water, but also because of the better quality of the water; there is no longer concern about children becoming ill.

In some cases, the families install a bathroom and the necessary connections so that women have a space for the kitchen and have greater comfort to work with the water. But the point is that the domestic work burden increases. So the arrival of water is a relief in relation to the daily concern women suffered for having water, but it does not solve the inequality in terms of the overload of tasks assigned to women. On the contrary, the gender-based division of labor is maintained and fully present.

The ladies' narrative makes no reference to the fact that once they have access to water, they could resume the life goals they pursued when they migrated from rural to urban areas, which leads to the presumption that in this long process in their lives —between looking for a plot of land to build their homes and their ongoing struggle for accessing water— resuming their personal aspirations, such as continuing their studies or having a formal job that offers them better social conditions, has faded away or has ceased to exist. However, it is noted that women's time has been socially subsumed into two jobs: (i) the work they do in their homes and that is unpaid; and (ii) the informal, paid work they do since they are adolescents (street selling, sewing, a small shop, etc.), which are essential informal activities they must carry out in order to generate the income they need to buy water from the tank truck.

4.4. Gender roles in relation to water quality, quantity, frequency and cost of water

Having access to water through the mains and for the quality and quantity of this water to be sufficient is a fundamental human right. When this does not materialize, the women are responsible for supplying and managing the water by investing much of their time in this activity and in the use it entails: laundry, doing dishes, preparing meals, family and personal hygiene (Ledo, 2005).

According to the women interviewed, one of their tasks is to prioritize the use and consumption of water, due to the limited amount they access, especially when they buy water from the tank truck. Table 2 shows that an average family of 4 to 5 members spends BOB 180 per month, a significant amount for families with an unstable income that usually work in informal jobs. Another important role in women's lives is to provide a minimum of quality drinking water, for which they use a number of filters. The water from the tank truck has a series of impurities visible to the human eye such as hair, small rubbish, etc., so at the time of receiving the water, the ladies use netting with which they cover the containers so that the water supplied by the hose of the tank truck passes through it to somehow sieve the water. As shown in picture 2, plastic sieves are used to filter waste and other unwanted elements and improve the water quality. A second step of filtration is to boil the water for a long time. All in all, what they cannot avoid is the unpleasant smell of the water –"*a fishlike smell*"; they have not found a way to eliminate this smell.

Picture 3. A local resident showing a sieve she uses to filter out the rubbish that usually comes with the water from the tank truck
(Photo: X. Escóbar, 2018)

In table 3, the *frequency* indicator corresponds to the number of times per week the family receives water from the tank truck. The frequency is repeated when families access a public tap. In the latter case, the arrangement does not change; the quality improves, but they do not have full freedom to obtain water at the time they need it, for two reasons: (i) several families fetch water and so a day schedule is established, and (ii) the water pressure is not good during the day and they can only receive water from night until early morning. When families access the mains network, there is greater continuity in the water availability, although, according to the interviews, they also suffer cuts for reasons that are not explained either by EPSAS technicians or by the leaders of the neighborhood councils.

Both quality and cost have a great impact on health, especially of the children, and on the economy of families because monthly payments for the service are very low compared to the amounts paid for the tank truck water. The quality is expressed in the clarity of the water and the content of particles, garbage or other objects visible to the human eye.

Table 3. El Alto. District 8. Señor de Mayo I and San Carlos neighborhoods. Indicators of access, quality, quantity, frequency and cost of water, December 2018
Source: own elaboration based on the interviews conducted for the study

Indicator	Type of access to water		
	Tank truck	**Public tap**	**Mains access**
Time	Waiting for the whole morning Pre-washing of containers, care of materials Frames for sieving water	Only at night and at dawn Pre-washing of containers, care of materials	All day, with greater pressure in the morning and in the evening
Cost	Drum BOB 8 Tank BOB 21	BOB 20 to 30	BOB 8, 15, 20
Household consumption	Month 3 (drums)* BOB 8 + BOB 21 (tank) = BOB 180	The amount of water they receive is the same as that from the tank truck; 3 drums and 1 tank per week	According to the meter
Type of employment	Informal employment	Informal employment	Informal employment
Quality	Unpleasant color, smell and taste	Transparent	Clear
Amount	Limited	Limited due to low pressure during the day. Water pressure is good from 22:00 to 05:00 in the morning	
Frequency	1 or 2 times a week	1 or 2 times a week	Daily availability (relative)

The indicators of quality, quantity, frequency and cost determine the impact on women's quality of life, especially when the family has children with newborns or children in early childhood, because that is when they need greater access to water for daily hygiene and, in terms of health, so that their children would not fall ill due to water of questionable origin. It is a period of care that leaves women exhausted and is maximized when they have water. "Consequently, the lack of adequate provision of this basic service is a violation of rights and makes the whole range of inequities women face visible." (Ledo, 2005: 20).

Conclusions

Inequality in access to water is closely related to center-periphery territorial inequality. Central plots of land are, in most cases, configured under adequate basic infrastructure conditions that provide access to most basic services, particularly water. In the case of the peripheries, popular urban settlements are responsible for boosting and generating social demands and putting in place infrastructure conditions for access to water, which can materialize only after five years of existence of the first settlements.

According to Tilly (2000), persistent inequality prevails in the life cycle of women through two mechanisms: (i) emulation, which is the mechanism favoring inequality between categories. Emulation is the imitation in form and substance of how the family, community, school and society in general are formed from an organizational perspective, preserving the established order. In the case of the male/female categorical pair, it is to the detriment of women, who from generation to generation must accept the social mandate of dealing almost exclusively with household chores; (ii) adaptation, which reinforces emulation. For institutional structures, it is easier and more convenient to preserve the established order that so far favors males.

There are certain inequalities that change or are modified with access to water. On the one hand, when the family accesses piped water, one inequality is resolved: women no longer have to spend much of their time waiting for the tank trucks. Nonetheless, at the same time, the involvement of men in household tasks such as laundry, cleaning containers to store water, permanent monitoring of the pipes connected to rain harvesting devices, etc. becomes weaker, since men consider their participation or role in the family with regard to water has ended. For women, the household chores do not end, some women interviewed consider that their responsibilities have even increased since they wash their children's and their husband's clothes more frequently, and the same goes for utensils. When there is water, there are increasing demands in terms of cleaning the house and cooking more times a day. Although there are improvements in the quality of life of the family, in the immediate present of their memory, their stories do not reflect improvements in the quality of their lives with the arrival of piped water from the mains.

Thus, the gender roles that are anchored in the mental structure of people and that are socially instituted in the family, school, community, etc., find one of their clearest expressions in water management.

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