How Can We Bolster Access to Water in Least Developed Country Cities?

Panel contribution to the Population-Environment Research Network (PERN)
Cyberseminar on "Water and Population Dynamics" (5-16 October 2015)
https://www.populationenvironmentresearch.org/cyberseminars

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There is a diversity of urban growth processes in least developed countries, not only in their timing and intensity, but also in their form (level of urban population density, spatial expansion, development of slums, etc.), depending on different factors: the history of urbanization and urban population growth (as well as the balance between natural and the migratory growth, the sophistication of urban planning policies and the question of land tenure, the national level of economic development, etc. If the urbanization process is correlated with a global improvement in living conditions, measured by usual development indicators, this also could lead to certain challenges, such as environmental pressure and social fragmentation, which could increase the poverty and vulnerability of a significant portion of the urban population.

Changes in both water supply (because of climatic variability) and demand (because of the increase of urban populations and economic growth) have caused many urban dwellers of least developed countries to experience difficulties in meeting daily water needs. In light of climate change and the continued growth of urban populations, there is concern that the gap between the supply and demand for clean water will widen even further. Therefore one of the questions under debate is: how access to water can be bolstered in cities of least developed countries ?

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In the first section, I will summarize some of the key points concerning the measurement of water access in order to highlight the necessity of measuring the indicator more accurately. Secondly, I will discuss some case-studies, that have been carried out over the last 30 years aim to bolstered access to water in urban places in least developed countries.

Access to water in urban developing areas: the masked reality of global indicators

Figures from the Joint Monitoring Program (JMP) (WHO/UNICEF 2015) are very optimistic, showing that, in 2015, 96 percent of the global urban population have access to improved sources of water. However, there is a significant number of people living in urban areas in least developed countries who do not have access to a such water sources. Specifically, in sub-

Saharan Africa, urban dwellers are the worst endowed of the whole urban world, with only 87 percent of the population having access to improved sources of water[1]. Still, this figure is better than in rural areas of sub-Saharan Africa, where only 53 percent of the population have access to improved sources. Until recently, the majority of scientific work concerning the issue of access to water has primarily focused on rural areas (Gleitsmann et al. 2007). However, if we disaggregated statistics and look at specific countries, we can observe that there has been no progress in access to improved sources in some urban places in the world, and the situation may have even regressed over the years. For example, in cities in Kenya, the percentage of people with access to improved water sources fell from 92 to 82 percent between 1990 and 2015 (WHO/UNICEF 2015). The development of slums is certainly one of the explanations in a country like Kenya, where it is estimated that between 60 and 80 percent of the urban dwellers lives in slums (UN-HABITAT 2008). Similar trends can be found in Tanzania (where access to improved water sources dropped from 92 to 77 percent from 1990 to 2015), Zambia (where it feel from 88 to 86 percent over the same period) and Zimbabwe (with a drop of 100 to 97 percent over the same period), among others (WHO/UNICEF 2015). These statistics highlight the need to pay particular careful attention to those urban places, and specifically in informal neighborhoods (Nganyanyuka et al. 2014).

The limitations of the current indicator used by JMP to measure access to improved water sources are widely known, particularly regarding health implications (Lim et al. 2012). First, intra-urban disparities are very significant, particularly in informal areas (Dagdeviren and Robertson 2009). These disparities, however, are totally masked when using a global indicator of water access. Secondly, details on accessibility to water are required in order to be able to analyze the daily difficulty of accessing water in these contexts (Dos Santos 2012a; Howard and Bartram 2003; Schaefer et al. 2007). Hunter and colleagues (2010, p. 3) described six water supply determinants that play an effective role in maintaining good health: quality, quantity, access (physical distance or socioeconomic and cultural dimensions of access), reliability, cost, and ease of management. These factors have long been widely recognized in literature as reducing waterborne diseases in children (Esrey et al. 1991), notably by helping to appropriate hygienic practices such as hand washing (Cairncross et al. 2010). Thirdly, it is essential to look beyond the main source of supply, given households may use more than one water source, depending on opportunities. For example, in many African cities, water cuts are a strategy for companies that provide running water to households or collective standpipes to control shortages. These episodes may therefore require households to switch temporarily from their principal source to an alternative source and, for example, to an improved source of water to an unimproved source, such as street water vendors or wells, to mitigate the impact of the cuts (Dagdeviren and Robertson 2009). These different sources of water are certainly not equivalent in terms of health impact on users (Dos Santos 2012a).

[1] This percentage seems very high, considering that access to water is an indicator of the economic development of a country (Hewett and Montgomery, 2001). For instance, In the capital city of one of the poorest country in the word, Ouagadougou, 99% of the population has officially access to an improved source of water. However, if only two aspects of accessibility are taken into account (the quantity available at home and the distance to the water point), the rate of water access is half that of that used by the MDG (Dos Santos 2012a).

In addition, we have to keep in mind that social issues should still be on the agenda for research and practices on water access, particularly, its gender dimension. In African urban areas, more than one in two people is forced to use a collective water source, usually a standpipe, a pump, or less frequently, a well (WHO/UNICEF 2013). When using an external source, water for household use needs to be collected by one or more persons from the household, who spend a large amount of time on the various steps involved to accomplish the task: traveling to the water collection point, waiting at the water source, transporting the water and storing it. This situation sharply contrasts to the comfortable conditions of households that have direct access to water through taps on the premises, where water collection requires no effort. Because of increasing urbanization and the development of informal settlements that do not have access to basic urban services such as water, it is important to discuss conditions of water access outside the residence for dispossessed populations (Mitlin and Satterthwaite 2013). (Dos Santos 2012b). Aligned with socially-constructed gender roles, the burden of water collection and storage usually falls on the women and girls of a given household. In sub-Saharan Africa, it is estimated that women and girls spend about 40 billion hours per year transporting water (UNDP 2006). Since the 1980s, international conferences on water have called for the incorporation of gender in policies and programs relating to water. Thus, the majority of key international declarations on gender equality have insisted on the importance of water access. However, literature on the causes and consequences for women who have poor access to water focuses on conditions in rural areas. Furthermore, until recently, the literature was mainly concentrated on theoretical aspects and only gave estimations from grey literature (Sorenson et al. 2011). Therefore, the study of this phenomenon in informal urban settlements still needs to be deeply explored. First, results of a study undertaken in informal areas of Ouagadougou show that household socioeconomic differentials were observed between households in which the primary persons responsible for getting water are women over 16 years of age and households in which the primary persons responsible of fetching water are men over 16 years of age(Dos Santos and Wayack-Pambe 2015).

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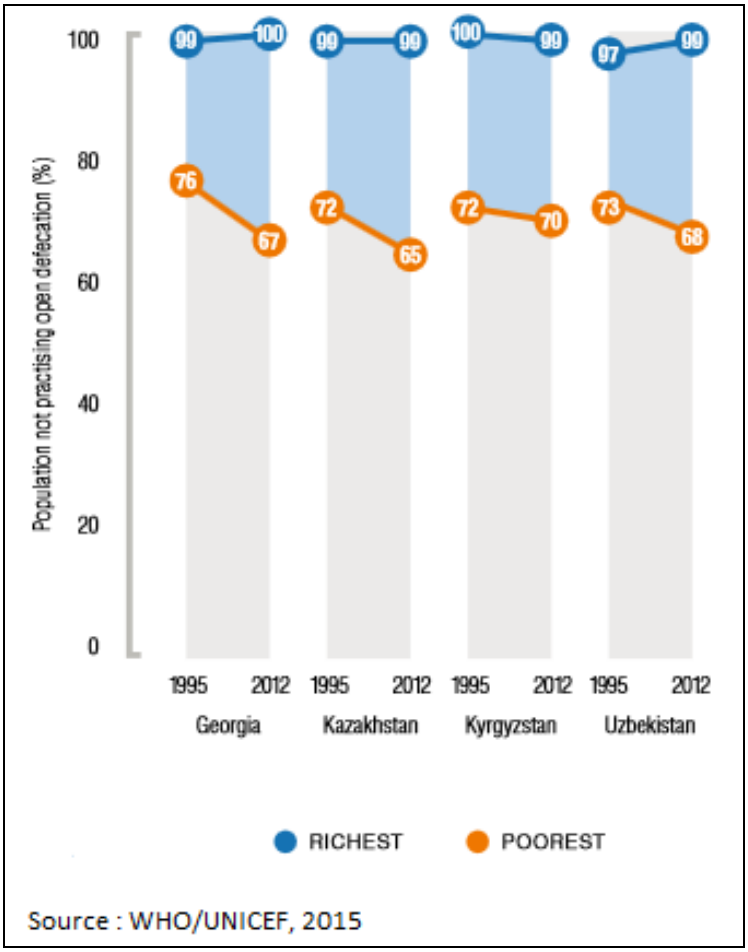
Finally, in its latest report, the JMP explored inequalities of water access based on wealth quintiles. The figure presented below shows the gap between the richest and the poorest wealth quintiles in use of piped water in 2012 (WHO/UNICEF 2015).

The literature related on the factors of access to water is largely based on household determinants of demand for infrastructure and the willingness to pay for improved system of water supply (Briscoe et al. 1990; Gulyani et al. 2005). In fact, household factors are a set of variables (socio-economic and demographic characteristics of the household including education level of family members, family size, income and the household's attitude towards government policy on water) with combined effects (Mu et al. 1990; World Bank Water Demand Research Team 1993). Zaki and Nural Amin (2009) suggest that the tenure status is another factor for understanding piped water access. The improvement of living conditions would take

different forms depending on the residential status: residential mobility for tenants and modification of the dwelling for owner-occupiers (van Lindert and van Westen 1991). However in Ouagadougou, a relationship was observed between a high percentage of house-owners and dwelling units that were less well-equipped (Dos Santos and Le Grand 2013). An explanation is that some people left the rented-house market to acquire land in the outskirts, which implies a reduction in quality and comfort of their house and less access to basic urban services and infrastructure. Taking into account residential status is even more important when access to the property is experienced as an important event in the life cycle, indeed as a priority which is perceived as an upward mobility in the social ladder (Durand-Lasserve 1986). Development, represented here by access to piped water, is neither a simple one-dimensional process nor a simple linear trajectory, as suggested by the classical theory of modernization so criticized by post development theorists (Dos Santos and LeGrand 2013).

Figure 1. Trends in use of piped water on premises in the richest and poorest urban wealth quintiles in four countries in the Caucasus and Central Asia, 1995–2012



Case-studies

In urban settings, there are two coexisting challenges with regard to water access: first, providing access to the service to an increasing number of urban dwellers; and secondly, addressing the sustainability of the existing service (maintenance). During the International Conference on Water and the Environment, which took place in Dublin in 1992, the four Dublin principles (The Dublin Statement on Water and Sustainable Development) were set out, including the recognition of the economic value of water. ce (Jaglin 2012). This process was generally implemented with a pricing system based on full cost-recovery and the principal of user-payer. The analyses of these processes was subsequently the source of an critical abundant literature. Ménard and Clarke (2002) analyzed water supply in urban areas in Guinea-Conakry and showed that the system was based on one hypothesis: the economic rationalism of users. Hence, the system was organized to make users aware of his/her responsibilities. Based on the analysis of the water service in South Africa, McDonald (2002) points out the various technical and political issues related to full cost-recovery paid by the final user (individual measure of consumption that implies the availability of a meter machine in each household, a system of invoicing and sanctions in case of unpaid invoice, etc.). In francophone sub-Saharan Africa, commodification of the service was generally accompanied by an increase in the tariffs that penalized the poorest (Jaglin 2012).

Before the Dublin conference, water was seen as a public good. This statement was however modified in its application to urban areas of developing countries: the main focus was not to give a price to the resource itself but essentially a process of commodification of the service.

Since the Dublin conference and the implementation of subsequent structural adjustment policies imposed on states, one of the emblematic models of commoditized water access was the private-public partnership (PPP)[2]. During the 2000's, this model was called into question, primarily because conservative approaches of international private operators have eventually proven their ineffectiveness in contexts characterized by government financial scarcity and urban poverty (Baron and Isla 2005). There were also some negative externalities related to health issues, as described by Deedat and Cottle (2002) discussing the case in Kwazulu-Natal where people started to use free sources, which were polluted, to cope with their inability to pay for the rising price of the service. McClune (2004, cited by Jaglin (2012)) considered that in Namibia, the PPP had overwhelmed the health system and led to a financial and political crisis.

In addition, the debate was not focused on the re-assessment of the value of the service, but on the question of who paid for the service and what proportion should they finance their access. The commodification was generally followed by full cost-recovery by the sole user. However, there are four potential sources that can be used: tariffs collected from users, taxes, state participation, and international donors. In Senegal, during the 2000's, individual private connection to the network was completely financed by international donors (Blanc and

[2] See Goldman (2007) for details on what he calls the spread of the green-neoliberalism by international agencies.

Ghesquières (2006) cited by Jaglin, 2012)). This question is a local political choice. In particular, one issue is about what kind of tariff and fiscal arrangements can be equitable and efficient economically speaking. In Johannesburg, the "Lifeline service" that established the first 6 meters of water consumed as free was determined to be unfair, as it did not take into account household size. In addition, high consumption of the richest households was privileged to support the sustainability of the service, eclipsing the issue of the sustainability of the resource itself, in a context of scarcity (Blanchon (2005) cited by Jaglin (2012)).

Beyond these points of discussion, the dominant model is the universalism of the network, that is to say one operator, with diverse configuration, that manages one homogenous service, where possible, with one major consequence: the fragmentation of the urban space with, in one hand, neighborhoods and their dwellers, connected to the network and, in the other hand, disadvantaged settlements, which are largely informal and do not have access to basic services of any kind. As a response to the absence of the service in informal neighborhoods, a multitude of alternative solutions has emerged to provide water access, which combine market system and community governance. Moreover, they are characterized by adaptation to client needs and vulnerability. In Ouagadougou, based on a pro-poor approach, new delegated management arrangements were developed in informal neighborhoods: the company in charge of the service in formal areas had delegated the service to private small-scale providers in buying water from vendors (Dos Santos and Soura 2015). In other cities, as in Dar es Salam or Maputo (Jaglin, 2012), private vendors sell water taken from boreholes, with no consideration to the sustainability of the resource. For now, those alternative systems are the subject of new research, that examine new examples of population adaptation and auto-regulation, the issue of social fragmentation and its consequences, social polarization and dissolution of the urban cohesion. Those hybrids forms of governance are largely observed in informal settlements that posed the question of the regulation of these systems (Baron and Bonnassieux 2011).

The pro-poor approach could lead to increased vulnerability: in a certain context, by providing very poor households with network water connections at a low price , water providers could exacerbate their vulnerability if those households are not capable to pay the monthly bill. Also, this approach could miss some vulnerable households living in the center of the city, and not in the informal zones, which tend to be the focus of pro-poor policies. Households in precarious circumstances are not necessarily located in informal neighborhoods. On the other hand, due to intra-neighborhood disparities, all households are not necessarily poor in informal settlements. There exists a middle class, which is often households that could first benefit from the pro-poor politics, due to their capabilities.

Concluding remark

In the domain of the access to urban services, in which access to water and sanitation are pivotal components, the balance between efficiency and equity is the heart of sustainable urban development experiences. Yet, no economic arrangement should substitute for concerted political choices, which emerge from a social contract. The case of "guerra del agua" that took place in Coccabamba, the third largest city of Bolivia, from October 1999 to March 2000, is

certainly the most emblematic example of massive public mobilizations against political illegitimacy of economic negotiations (Castro 2007).

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