

The involvement of community leaders in healthcare, the environment and sanitation in areas of social vulnerability

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Abstract *The main purpose of this article is to identify access to: social assistance inclusion programs; assistance from health agents; public water supply services; and water saving practices, in areas of irregular occupation in Brazil. A stratified random sampling technique by clusters was adopted with a simple sampling strategy. In the universe of 14,079 households, 68 community leaders were identified, representing 6,800 households on average, in a normalized distribution (mean zero, standard deviation 1), deemed to include situations covering 96% of the cases with a margin of error of + or – 1% of the average. The theoretical approach proposes a reflection and verification through questionnaires on the mechanisms of exclusion. Poverty perpetuates the vicious circle of inequality, risks to health and the environment, and it is necessary that these should be considered in the policies and procedures for urban expansion. As a conclusion, various challenges were identified for serving areas of social-environmental vulnerability – the needs to: improve the low quality of health and water services in subnormal agglomerations; modify the behavior of the population accessing the networks in a clandestine manner; and to put inclusive governance mechanisms in place.*

Key words *Health, Water, Water services, Environment, Communities*

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Introduction

Water resources and water supply services are important pillars in dealing with the stress of today's cities, and the absence of access to potable water is one of the first signs of a population's vulnerability. In the context of the provision of these services, the lacunas that exist in Brazil still show a challenge in management for sustainable development.

The 2010 Brazilian census¹ reported 3,224,529 households, occupied by 11,425,644 people, located in 6,329 subnormal agglomerations, and 77% of the households were in Metropolitan Regions; 59.4% of the country's total population of subnormal agglomerations was in five metropolitan regions: São Paulo (18.9%), Rio de Janeiro (14.9%), Belém (9.9%), Salvador (8.2%) and Recife (7.5%). A further 13.7% were in four other metropolitan regions: Belo Horizonte (4.3%), Fortaleza (3.8%), Greater São Luís (2.8%) and Manaus (2.8%). The locations most sought for establishment of subnormal agglomerations were margins of creeks, rivers or lakes, according to the IBGE¹.

This portrait captured by IBGE² reflects the population growth that has taken place in a concentrated manner in urban areas, from 45% in the 1950s to 85% in 2013, and generated transformations in social structures, accentuating

conflicts relating to the use and occupation of land and effects on the environment.

Although various studies by IBGE^{3,4} and IPEA⁵ indicate that the rate of coverage of water supply services in urban areas of the country approximates to 100%, principally in the South and Southeast regions, field surveys show that settlements in these regions have only clandestine access⁶. They also highlight that access to the public sewerage networks has been growing, but is still insufficient, especially in areas of subnormal habitations, according to Emplasa^{7,8} and the Cities Ministry⁹. According to Juliano et al.¹⁰, there are various data available on the coverage of supply and sewerage in legal areas, but there is a lack of indicators to measure disparities of the situation of the user in questions of universalization.

Given the positive effects of water services there is certainly a need to seek universalization of a guaranteed service, not only providing access for the low-income population, but also making sure they are able to consume under a regime of efficiency. Chart 1 summarizes some of the principal externalities caused by access to or lack of access to a water services network.

Guimarães et al.¹¹ defines *inclusive universalization* as: 'provision of essential public services to the life of a sub-citizen, previously sub-included in public policies, and not counted in sector

Chart 1. Externalities inherent in access to the basic water services network.

Focus of the externality	Availability of water services: positive externalities	Non-availability of water services: negative externalities
Human rights	1) Increased human dignity 2) Exercise of human rights 3) Insertion into society	-
Public health	1) Less dissemination of diseases 2) Reduction of child mortality 3) Reduction of illness time	1) Proliferation of illnesses linked to improper use of water 2) Increase in child mortality 3) Increased burden on the health services
Environment	1) Sustainable use of water resources 2) Environmental health	1) Pollution of water 2) Environmental pollution with the use of alternative sources of sewerage provision
Economic development	1) Increase in value of property 2) Viability for small businesses 3) Social empowerment	1) Perpetuation of poverty 2) Increase in the cost of water and sewerage treatment.

Source: IADB¹².

targets, through a participative process, conducted by the service provision concession holder in partnership with the Concession-Granting Power and other players in society, to provide water and sewerage services, even in areas of social exclusion, through social/technical arrangements in singular constructions, which are inclusive and care for fundamental human rights⁷.

In this regard, the Federal Constitution¹³ establishes the protection of the environment as a competency of the three spheres of public power, for promotion of basic water service programs and combat of pollution in any of its forms and promotion of programs for construction of housing and improvement of housing conditions. At the same time, it confers a right for all citizens to health, and makes it a duty of the State to institute, through social and economic policies, actions that aim to reduce the risk of illness and other adversities, and also universal and equal access to the actions and services for promotion, protection and recovery of health, to an ecologically balanced environment, a common good of the people and one that is essential to a healthy quality of life, imposing on the public power and on society as a whole the duty of defending it and preserving it for present and future generations. It establishes competencies of the Unified Health System (*Sistema Único de Saúde – SUS*) for participation in Water Services Policy.

When vulnerable populations access water for their needs in a clandestine manner, the volumes are accounted as social losses, representing between 8% and 12% of production, according to Guimarães⁶. In spite of the pressure by various players for provision of basic water service infrastructure services, the complete response to the whole of this collection of problems is complex and slow to emerge, because it involves regularization and ownership of land.

Also, universalization is, in this sense, a key point of leverage of the efforts of the governmental and non-governmental players for protection of the public health of these populations in a precarious situation, in the form of construction of dialogs, empowerment of players, and transparency, especially in critical aspects of regularization and ownership of land related to the management of urban basins and the losses of water arising from social causes.

Methodology and objective

A technique of stratified random sampling by clusters was adopted, with a simple random sampling strategy – i.e. the strategy in which the whole unit of the population studied has an equal chance of being included in the sample, and the probability of a unit being selected is not affected by the selection of other units. Four stages of probabilistic techniques were used for inspections and research with community leaders: The municipality; the census sector of the IBGE; the classification of the municipality by the São Paulo State Social Vulnerability Index (IPVS – *Índice Paulista de Vulnerabilidade Social*); and the household and/or individual. Data was collected by personal interviews and inspection visits to the location. The survey adopted the ANEP-ICC/ESOMAR ethics code, supplied by the National Survey Companies Association, ANEP (*Associação Nacional de Empresas de Pesquisa*). In the universe of 14,079 households, 68 community leaders were interviewed, representing 6,800 households on average, in a normalized distribution (average zero, standard deviation 1), including situations that cover 96% of the cases with a margin of error of + or – 1% of the average.

The case study in question was carried out in communities of the *Baixada Santista* – the ‘Coastal Plain’ area of the city of Santos, in São Paulo State, where practices aligned with the concept of inclusive universalization, as presented, have been and are being applied.

This article aims to present an assessment and discussion of the social and environmental conditions of the subnormal agglomerations, observing whether the families were assisted by programs generated by the state and by the utility provider, according to the mapping of social vulnerability by the Seade Foundation for subnormal domiciles in *favela* areas on the margin of creeks and the impacts of social exclusion, as per Triviños¹⁴.

Results

Various challenges for universalization of basic water services in Brazil were identified: non-existent or low-quality basic services in areas of social vulnerability; behavior of the population accessing the water networks in a clandestine manner; external results in terms of public health and the environment that call for measurement; differing management and governance practices;

commitment of the regulatory indicators; and a high entry barrier, related to the population's low income.

According to McMichael¹⁵, poverty not only makes a person more vulnerable, but also perpetuates a vicious circle. The agglomerations are sources of poverty, inequality and risks for health and the environment. The inequalities, and risks to urban health and the environment need to be considered in policies and procedures – because disorganized developments convert themselves into major metropolitan regions due to urban expansion, and the environmental indicators and indices can, according to Sobral & Freitas¹⁶, Anthony McMichael¹⁷, and Alier¹⁸, show varying tendencies.

Indicators of externalities of the sector on health should: (i) be focused toward the objectives of detecting risk situations related to environment and health problems; (ii) monitor trends in the environment and health risks; (iii) compare environmental and health risk conditions in different areas, making possible the identification of priority areas; and (iv) evaluate the impact of policies and interventions on the conditions of health and environment in relation to evaluation of the environment^{19,20}.

One of the aspects observed was how the community leader evaluates the treatment dispensed to his community, in relation to inclusion in universalization programs, accessibility to health and water services, habits in the community's use of water, social-environmental responsibility and inclusion in the social programs managed by the municipalities, such as *Cadunico* and *Bolsa Família*, and the perception of the impact on the family budget compared to the price of other public services.

In Graphic 1, each community leader represents on average 100 households of the urban agglomeration, according to information of the community agents of the utility concession holder that operates in the region. The replies supported a proposal for innovation of management by the supplier, as to the needs of the communities for service, frequency of meetings, parameters for environmental education and disclosure of tariff benefits, and identification of the number of users of the services that were registered in the social programs for the area under study.

The chart shows the good relationship that the concession holders have with low-income users, and a low percentage of citizens interviewed in irregular areas – which we believe can be attributed to fear of confessing invasion. Even so,

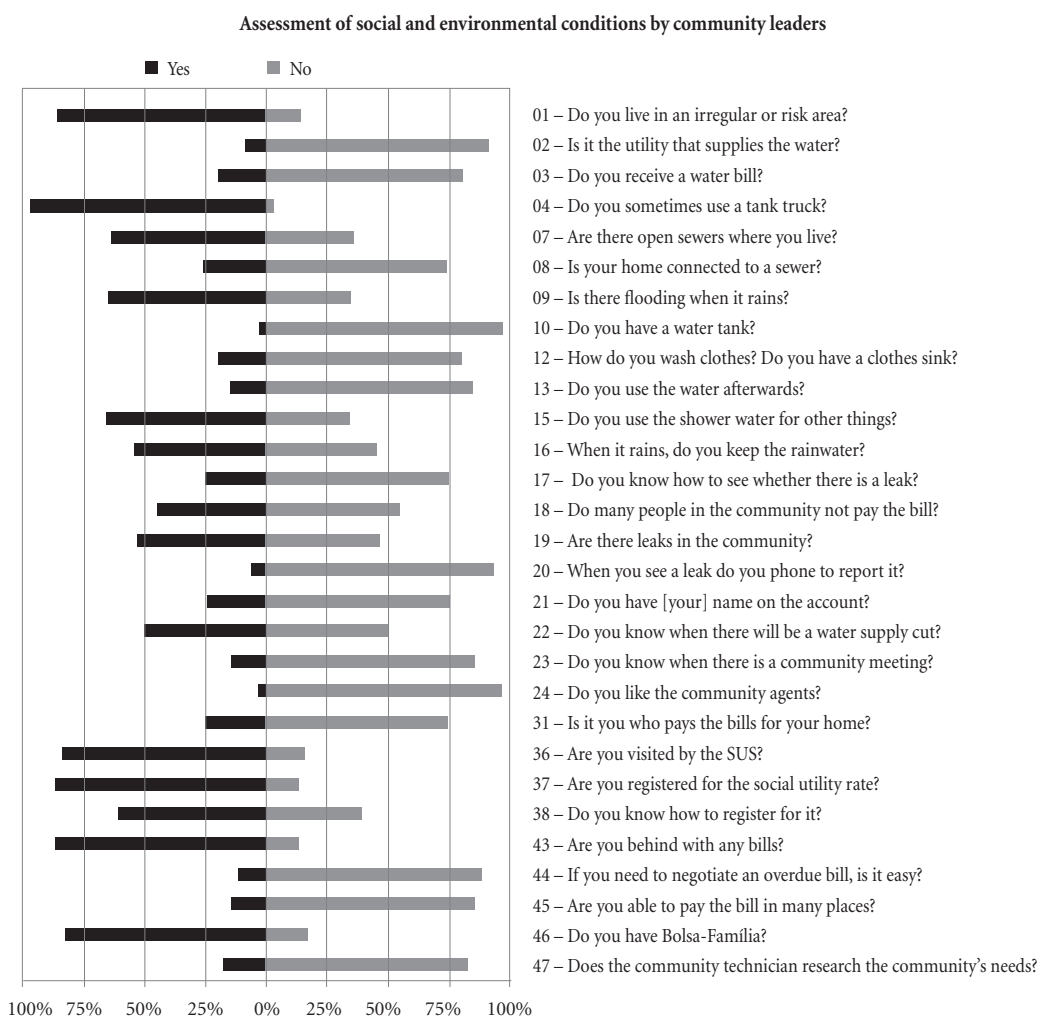
we saw a low percentage of households using the social tariff, indicating the users' unawareness of the procedure for registry and conditions of applicability, distanced from the reality; and a low percentage of leaders being visited by Agents of the SUS (Brazil's Unified Health System – which might explain the difficulty in obtaining these local data; a high percentage of open sewers; and a concern with saving of water. It was also found that the percentage of people registered in the Bolsa Família and Cadunico did not reach 25% of the users interviewed. It should also be highlighted that only 35% of those interviewed were in the formal economy.

Discussion

The community leaders that answered the questionnaire took part in monthly meetings intended to pass on demands of the communities, to be served or explained by the next month's meeting. As well as community leaders (in positions of leadership in shantytown areas), the following also took part in meetings: community agents (the employees of the utility operator, usually social assistants and sociologists that create the interface between the company and the community 25 hours a day, seven days a week, attending the public by mobile phone for all and any emergencies that the community leader identifies in the community); *Conseg* – the State Safety Council; and representatives of the Prefecture, the Justice Ministry, and the Health Ministry. The participating leaders mostly lived in irregular areas or areas of risk, and were supplied by the operator: they did not use a tank truck (in spite of the water shortage), and had a water tank – this meant that the concession holder overcame the factors impeding operation in these areas in a manner that was satisfactory for the users.

On the environmental question, 25% of the respondents are close to open sewers in the community, did not have a connection to sewerage facilities and were in areas subject to floods. Universalization had not been completed, and there are still technical, economical and legal obstacles in certain areas.

As to consumption habits, 75% had a small tank, stored clothes washing water for other uses, and knew how to identify leaks; 50% saved rainwater; 25% did not reuse bath water, showing the result of environmental education work to promote behaviors focused on sustainability of the users of the business unit.



Graphic 1. Responses by community leaders.

Source: authors (2015).

As to the community, 50% said that many people do not pay the water bill and they were angry about this, that there are leaks spread out through the community, and that they are advised by the utility when there will be an outage in water supply; 100% advise the community agents when there is a leak. These responses show how the relationship between the utility and the users is accompanied by a strong sense of citizenship on the part of the leaders, acting as guardians of the public services.

90% of those interviewed are not visited by the agents of the SUS.

These are the important points for analysis and strategy of communication with the community leaders:

- The psychographic profile of the leaders shows their inborn capacity for intermediation and representativeness of their communities in verbal form, but most of them felt embarrassed at being only partially literate when answering the questions, and for that reason the questionnaires were modified into the form of a yes-or-no test.

- As to their economic profile, they are initiative-takers in various activities relating to the

community – in activities ranging from orphanages, taking care of children so that mothers can work, serving as representatives of the guardianship council, community vegetable allotments, and other entrepreneurial arrangements of the low-income population; and they have no proof of income of any type.

- In the majority of cases, each one of them represents more than 100 families.

- There is a low number of citizens benefited by the federal social programs such as Bolsa Família, and 57% are in the Cadunico. Furthermore, 75% of the citizens are not visited by Agents of the Unified Health Service.

Conclusion

As a conclusion, we can recommend innovation in the relationship between health and environment: creation of mechanisms of measurement of agglomerations, decision on targets, planning and measurement of results with specific awards, and governance; measurement of the externalities, leading to reduction of illness and death, reduction of environmental damage, increase in the value of areas, and increase in the level of schooling. These factors should increase economic and social-environmental value; result in better measurement of the economic value of serving low-rental populations, with reduction of the cost of health; and also accrue economic gains due to reduction of real losses; obedience to the principle of inclusive governance, considering the effect on the social fabric of the community and its influence on the citizen's wellbeing; amplification of the strategy of environmental education and directed communication.

It is evident that the notion of human dignity should serve as the basis for decisions for a public policy and inclusive acts, promoting access even if precarious and irregular, in areas of social exclusion, mitigating the devastating effects on the environment, supply and lack of potable water and sewerage systems, and on collective health.

To institutionalize practices of interactive dialog, construction of agreed bases on the pillars of promotion and protection of public health and environment, and of transparency in social-technical arrangements, there is a need to create a National Program of Inclusive Universalization for Basic Water Services. The instruments of inclusive governance should be adopted, which through itinerant local decision-making forums can promote access to public water services for the community in irregular areas, on a transitory basis, negotiated with the instances that have specific competencies, such as the Public Attorneys' Office and legislative and executive bodies.

Agents executing the public policy on water resources, water services and health are important pillars in dealing with the urban crisis, and an important factor reducing the vulnerability of a population. The lacunas in Brazil still show the principal challenge for sustainable development: The context of growth of social exclusion in urban areas, not only due to the concentration of citizens that are in this condition, but principally because of the growth rates of these agglomerations.

The process of articulation and coordination with the professionals of the local prefectures, governmental entities in all the spheres, service providers, regulatory agencies, the Public Attorneys' Office, NGOs and civil society needs to be improved in a quest for improvements in the environmental and health conditions of the local and regional population.

Collaborations

EFGA Juliano, TF Malheiros and RC Marques took part in decision on the methodology for approach to the community leaders. TF Malheiros took part in the monitoring of the questionnaires applied; RC Marques in the conception and the final text; and EFGA Juliano, in the research, the methodology and conclusions.

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