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Informal water suppliers meeting water needs in the peri-urban territories of Mumbai, an Indian perspective

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1. Introduction

Currently, much research activity is concentrated on the identification and analysis of informal, alternatives system of access to urban water, and the resulting new forms of governance in the metropolises of the South (Moretto, 2005). What we see is the emergence of new hybrid arrangements in order to fill the supply gap, as water policies fall short for present and future requirements in these areas.
We consider that the term of informal suppliers refers to all types of water suppliers who are not operating in the legal framework of water management in an area. It refers to any form of non-utility water service and it includes all small-scale entrepreneurs that are institutionally and contractually independent of the utility. In terms of urban water supplies, "informal" is related both to the technical systems of provision (which may include the infrastructure and the sale of water) and the resulting relationships.
Numerous terms have been used to describe the various different types of unofficial service providers: small-scale water providers (sswp), informal operators, small water enterprises, operators, suppliers, water vendors, resellers…. The limits in the definition of each term are difficult to assess, as there is no standard definition to describe and classify small-scale private providers. There is therefore considerably variety in the nature and the scale of sswp activities, which fill niche markets, depending upon local circumstances such as water resources, topography, utility service levels and the regulatory framework (McGranahan *et al.*, 2006). Various different types of sswp usually operate in parallel within the same city or settlement, serving different categories of customer (Kjellén, McGranahan, 2004).
Water vending can refer to any form of sale of water. In the water literature, vending refers to the reselling or onward distribution of utility water, or water from other sources (Kjellén, McGrahanan, 2006). Zaroff and Okun (1984) defined water vending "as the sale and distribution of water by container, ranges from the delivery of water by tank trucks … to the carrying of containers by individuals … The water may be obtained from private or municipal taps, stand posts, rivers or wells and sold either from a public vending station or door-to-door. Vendors may either sell directly to consumers or act as middlemen, selling water to carriers who in turn serve the consumers."
The term of "direct vending" often is referred as "reselling". In Katko (1991) "reselling means that the owner of the water connection sells water to customers who come and fetch it". Typically it refers to households selling water (unofficially) from their own utility connections, but it also refers to itinerant vending.
Different types of classification exist of sswp depending of the classification criteria. Just as there are many forms of water vending, there are several ways of labelling and categorizing the different practices. Whittington *et al*. (1991) state that all vending systems have one or more three types of vendors: i) wholesale vendors: obtaining water from a source and selling it to distributing vendors; ii) distributing vendors: obtaining water from a source or a wholesale vendor and selling it to consumers door-to-door; iii) direct vendors: selling water to consumers coming to the source to purchase water. Collignon and Vézina (2000) divide these operators in three categories depending on the degree of investment, legality and recognition:

i) standpipe vendors are small entrepreneurs who operate standpipes installed by the city water concessionaire; ii) licensed water resellers are micro entrepreneurs contracted to resell water piped to their homes and who may invest in standpipe installation and network extension; iii) unlicensed household water resellers, who are not seen as professionals, although they do provide water to a major share of the market.
Another classification of sswp proposed by Wegelin-Schuringa (1999) is relevant to the owning of the source. Sswp can be classified in 2 main groups: primary operators who provide the water and own the source; and secondary operators who depend on the utility or the primary operator to buy water. Another classification of sswp regards the relation with water utility: i) intermediate service providers working as an extension of the utility. They generally purchase bulk water from the utility and sell it to a group of their own customers; ii) independent providers work separately from the utility.
The importance of considering water supply in the peri-urban areas arise from the fact that these areas are a support of social, economic, environmental and institutional interactions between urban and rural areas (Allen *et al.*, 2006). Dupont (2005) emphasizes the "heterogeneity and segmentation of peri-urban spaces". The process of urban affects the peri-urban spaces themselves, where new forms of segregation, polarisation and socio-spatial fragmentation emerge. Urban fragmentation is a multi-dimensional notion (Jaglin, 2001), which combine spatial components (physical deconnexions, morphological discontinuities); social (residential segregation, community fallback) ; economic (dispersed employment); and last but not least political (fragmentation of actors involved in the different stages, often with little coordination and articulation within a wide range of urban regulation and management).

Considering water supply in the peri-urban of Mumbai, some crucial questions arise about its development and the role of informal providers in terms of access to water. Today, can we consider the informal water supply as a long term partner of water utilities, or is it simply a kind of status-quo, which cannot be changed? For tomorrow, can we imagine Indian municipalities where the water utilities collaborate with informal private suppliers in order to plan the water supply of an area? The answer to these questions is not obvious.
The aim of the paper is to provide a better understanding of small-scale water providers in the peri-urban territories of Mumbai. The starting point of this article is the idea that peri-urban areas experience a deficit in water services and they constitute the main markets for small-scale private operators. After a brief definition over the notion of informal water suppliers, next section presents the institutional environment and structure of water supply in the studied area. Section 3 gives the methodological framework of the research project. Next section presents the failures of the municipal supply and the development of sswp aver the area. The final section of the paper is about the possibilities of regulation of sswp and their contribution in the millennium development goals.

2. Background

2.1. Indian Reforms

Since the 1980s, India has been engaged in economic and political reforms. Decentralization reforms took place, with the adoption of the 74th amendment of the Constitution in 1992. This law grants Urban Local Bodies (ULB) with a constitutional status. It enables ULB the power and the authority in order to function as independent institutions to the local level. They become responsible for urban development and for the supply of urban infrastructures. Even if, the 74th Amendment of the Constitution makes water supply a mandatory function of the ULB, they are unable to serve the entire population within their jurisdiction due to numerous problems. The transfer of decisional power did not go together with the allocation

of more financial and technical means to the local authorities. Tows must insure their self-financing, collect their own resources and look for new types of financial resources (Chauvin, Lemoine, 2004). Small and medium towns organised in Municipal Council (towns of 20.000 to 500.000 inhabitants) have low autonomy in the collection of local taxes and remain depend in the transfer from the central government. They are incapable to reach financial markets. The result is that citizens get inadequate water from public agencies even in the areas served by the public agency (Raghupathi, 2003).

2.2. Water policies

Water supply in India is a State dominated sector. National water policy was defined from the Ministry of Water Resources in 1987 and revised in 2002 and the first Maharashtra State Water Policy was published in 2003. Yet, the Government of Maharashtra has not been very successful in achieving the basic objectives of improved water supply services for the citizens of the State. There is a general lack of accountability in the sector with several government institutions, of public bodies at the federal, State and local level, working at cross purposes. Some agencies elaborate and define policies, while others are limited to an advisory or planning role. The main problem is the lack of appropriate arrangements in the sector with the absence of effective regulation, controls and coordination between the concerned agencies (Llorent, Zerah, 2003).

Water policies in the studied areas, are defined by the water department of each ULB. There is no social policy of access to water. Since 2003, public taps are eliminated in the studied peri-urban towns of Mumbai. Municipalities suggest that everyone must pay for water. Poor population in slum areas have water connexion if they pay house taxes. Since 2005, water charges was revised, and water is not subsidized any more. Furthermore, in the absence of water meters, a unique tariff is applied to all consumers, independently the quantity of water collected and the economic profile of the household.

2.3. Water rights

The State has an absolute property right in surface water. There are more ambiguities about property rights over ground water sources. Ground water rights are associated to the property land rights. The owner of the land has the right to withdraw, use and sell water. This situation, does not allow to reach an equilibrium, in terms of access to water, as people with no land, are excluded *de facto*. This legal context does not promote neither equity, nor a sustainable exploitation of the aquifers. It brings in a competition in the withdrawal of water. For ground sources located in public land, there is a customary users' right to draw water (Llorente, Zérah, 2003) and it can be used it with no restriction. In this sense, water rights represent local structures' power and indicate who does or does not benefit from it.

In Vasai-Virar Sub-Region, there is no law over the control, withdraw and usage of ground water in urban areas. ULB are responsible to control this resource, but they fail short in doing so.

2.4. Municipal water supply in the studied area

Greater Mumbai and its peri-urban areas form the Mumbai Metropolitan Region (MMR). It extends over an area of of 4 355km^2 and comprises 4 Municipal Corporations; 19 Municipal Council, 7 Gram Panchayat (non-municipal urban centres) and 995 villages. The limits of the MMR have changed during the last 40 years, in order to integrate new territories. They do not have neither physical, not administrative limits.

The studied area of Vasai-Virar Sub-Region (VVSR) is situated in the North-West suburbs of the MMR. It covers an area of 380 km^2 and it includes 4 Municipal Councils (Vasai, Navghar-Manikpur, Nallasopara and Virar) and 67 villages.

The economic development and urbanisation of the area started in the 1970s with the development of a suburban railway system and the implementation of the Urban Land Ceiling and Regulation Act (1976). This law imposes restrictions in urban development in Mumbai and some other peri-urban centres. Most of the area of VVSR fell outside the limits of the Act and this attracted builders to the area since 1979. As Sharma (1990) indicates once builders entered into scene, as expected, the things went beyond control. All norms related to use of land and its development were flouted. The number of illegal constructions increased in the region and in the absence of infrastructural facilities like water and transport, many of the new flats were lying vacant. The rapid urbanisation of the area can be also explained by a high birth rate and a double migration movement: the first one from Mumbai to its peri-urban territories, the second one from the hinterland to the peri-urban territories. Residential population growth is occurring by an increase in density on existing settlements and expansion at the peri-urban fringe with the development of unauthorised settlements.
Originally water supplied in the VVSR was by wells and borewells, public and private. It is in the 1980s that were installed the first kilometres of piped network. Since 1985 a local water policy and planning of the resource are established, as new water sources are mobilized and the extension of the network took place. Surely, the most convenient water supply is either a household connexion or a yard from a reliable piped-water network. In-house or yard connexions are estimated to reach 69 % of the urban population in India (Census, 2001). In the 4 municipal towns of our survey, universal coverage of the population by conventional infrastructures, as far as the water sector is concerned, is still an unmet goal. Till 2005, the supply from the municipal network (individual, group connexion) was 33 MLD. Since 1996, a new water supply scheme (Surya Water Supply Scheme) is in progress in order to supply 100 MLD more to the Sub-Region. Today, only 55 MLD of the total quota supply the 4 towns. It seems obvious that municipalities have no willing to do better. For a long time, the service provision is in inadequacy vis-à-vis the needs of the current population.

3. Methodology

This research paper is based on fieldwork carried out in the peri-urban areas of Mumbai from January to October 2005. We return to the study area, once in October 2006 and once in September 2007 in order to check the evolutions and changes in water supply. The study consisted in a household survey in access to water and household preferences in the choice of water providers and in interviews with public utilities' representatives and informal operators.
The main extended research study was conducted in the 4 towns of VVSR. In order to have a better knowledge of the peri-urban areas of Mumbai and be able to understand the dynamics on the field area, a comparative study was conducted in Kalyan town in the North-East suburbs and in the town of Panvel in the South-Eat suburbs. This research paper presents results from the VVSR survey. This area was selected as it was found to have large number of water vendors.
We decide to interview and observe participants at all levels of the vending system, rather than ask one group about the activities of other groups. This strategy enabled us to cross-check information from different sources. There was no formalized sampling concerning the interviews of water vendors. The interviewees were introduced to us by previous respondents, by officials, NGO activists or simply identified in the street. Nevertheless, interviewees were more willing to answer when someone introduced us.

4. Results: Small-scale water providers filling the demand-supply gap

4.1. Service differentiation

Municipal data about water provision look better than the situation in the ground. Reality indicates that having access to a tap does not ensure that households get adequate water and of good quality. Having a tap at home only indicates that a household is connected to the water network; it does no reveal the operating capacity of the water supply system, or the average actual supply over a period. In fact, infrastructures are not relevant to the adequacy of the system.

In the meanwhile, because of the lack of adequate funding and plans, the municipal network cannot be generalized, at least in a short-term period. It is segregative and there is a minimum network developed, which brings about exclusion. This phenomenon implies the differentiation of the service which is in progression, follows the segmentation of the built up area, and implies the diversity of demand among consumers.

In fact, there is an incompatibility of the segmented spatial organisation with a modern water supply system, based on the principle of network planning. Indian cities are fragmented and it would be more adequate to consider water supply in terms of service available according to the areas to be provided services with centralized/decentralized solutions (Llorent, Zerah, 2003). The segmentation of the built environment in Indian cities and the diversity of settlements affect water services in terms of quantity and quality. A considerable population in the Indian cities exists outside the reach of the network. As Sharma (2000) indicates, the inhabitants of the cities can be categorised in 3 groups:

- the inhabitants who falls within the water service network and have legal access to it ;
- the inhabitants living beyond the network, with no access to public water services ;
- between these two, there is a third category, which represents people who live within or close to the network, but do not have legal access to it.

The second and third categories represent the *city-beyond-network*. The residents of this unanticipated city require basic services. The segmented spatial organisation would require that the solutions and management responses be adapted to the particular context. So, the idea of ensuring an adequate and regular water supply for everybody may be difficult to realise as long as the segmentation remains pronounced.

4.2. Water utilities failures

The survey indicates that both rich and poor people as well regularised and irregularised settlements suffer from an inadequate water supply. Although additional people have gained access to services over the recent years, fieldwork interviews indicate that households' needs cannot be met, and the demand–supply gap is growing.

Because of a lack of adequate planning, funds, political will, transparent pricing, technical capabilities and managerial skills, the service is unreliable. ULB can not completely satisfy present water needs and projected urban population growth, in these areas. Urban services will face great challenges over the coming decades to meet fast-growing needs.

Service level in most areas is inadequate. Part of the population is not covered or partially covered. Even areas fully covered are given intermittent supply resulting in a highly irregular supply system. Supply lasts 15 minutes to 2 ½ hours per day, every alternative day or even less often and the water pressure is low. As each area of the town has to get a certain quota of water, for a certain period of time, the quantity of water a household gets depends from the good management of the network. The access to water depends also from the number of household sharing a group connexion and the arrangements between families. Poor quality of water is another problem in the cities. Even if a water treatment plant exists, due to the intermittent nature of the supply, drinking water is contaminated and many households have

to treat it. Networks are old and poorly maintained. The quantities of water flowing through the piped systems are not known with any high degree of certainty and large quantities are estimated to be lost through leaking pipes and theft of water. Such failures to provide high quality service to the public is usually attributed to staff incompetence or lack of motivation, or perhaps to the political system's unwillingness to, provide adequate resources to the water utility.
Considering the number of people involved, the financial outlay required in terms of the costs of providing and maintaining conventional water supply infrastructure and the prevailing economic situation, it is unlikely that water utilities can (on their own) keep up with the water requirements of the rising urban population in the immediate and medium term, using conventional water supply infrastructure. (Njiru C., 2004). ULB are unable to cover the whole population from existing tariffs and with existing management structure. Water charges are fixed and depend on the diameter of the connexion and not the volume of water consumed. Furthermore, connexion fees may be a barrier to access to low income households as well as the yearly billing. In fact, Collignon and Vézina (2000) remark that city water authorities are caught in a vicious circle: poor service leads to poor payment of bills, and there is little incentive to seek better cost recovery in order to improve service and fulfil the terms of their contracts, which call for city-wide service.

4.3. Small-scale approaches to water service in VVSR

Currently water vending is very common in many Indian cities. Informal water operators are present in all the peri-urban territories of Mumbai. Despite that, water engineers, utility managers, municipal and government officials do not recognise the existences and the role of sswp in the areas where they operate. The operators have no official status. They are unregulated and untaxed and belong to the non-formal sector of the economy. Small-scale water providers operate in parallel and at the margins of the established legal framework, with no agreement between the two parties.
The role played by informal operators in water supply is strongly linked to the water service provided by the water utilities. Small-scale water providers proliferate in unserved areas (formal and informal) and in cities with low connection rates and low levels of service.
Depending of the activity, the entry into the water vending market may be easy, requiring little or no investment. Each sswp could be said to be a monopolist within its market niche and area of operation. The success of the private operators depends on creating customer loyalty (Solo T.V., 1999). Even if small-scale water providers are viewed as temporary agents, many have been in operation in the area for over 20 years and nothing indicates a decline of the phenomenon. In the Vasai-Virar Sub-Region, we identify four types of water providers:

- Water Tankers

Private tankers have been present in the area since the mid-1980s in parallel with urban growth and the massive arrival of builders. They are small companies, each one owning 1-3 lorries. In 2005, 205 water lorries existed, they belonged to 80 suppliers. They are not registered but there are organised in associations, in order to organise tankers' water supply in each town, to control the price and the entrance of newcomers on the market and to share the new consumers (new buildings). Tankers purchase water from private wells and borewells in the green zone and sell it to households, business and in construction activities. They have alternative sources of supply in order to cope with seasonal variation of the resource.
Tankers supply high and middle income households living in building societies. Buildings have underground water tanks, where the water is stored. It is difficult to even roughly

estimate what share of the water market these vendors supply. It is reckoned that water tankers supply 15 MLD to 75 MLD to the four towns daily. They have regular and seasonal customers. They charge regular customers Rs 500/10.000 litres, but water charges reach up to Rs 1.000/10.000 litres, for seasonal customers during summer. In fact, water tankers have the highest prices by volume but provide the most tailored service.

- Resellers of municipal water

This practice refers to the households unofficially selling water from a utility connection. These operators have no legal status. The reselling of municipal water is officially prohibited, but the prohibition is generally not enforced. The survey indicates that in areas where some households are connected to the network and others are not, water is typically obtained from neighbours located in a distance up to 1 km. Individual households with private connexion sell water in a daily base in small quantities (20 to 40 litres of water per family) to an average of 20 households. As connected households pay flat rates to the utility, the volume of water sold does not affect the household's monthly bill. A reseller charges a household Rs 50-70/month, while monthly water charges are Rs 200. The survey indicates that reselling of municipal water is a very lucrative business.

- Resellers of ground water sources

Today, many households sink wells and borewells in order to match demand and ensure a continuous supply. There are no official data about the number of wells and borewells in the 4 towns and the quantity and quality of water withdrawn daily.

Private reselling of groundwater to neighbours is a general phenomenon of the area. They are mostly located in areas with an important slum population, who cannot afford the borewell construction charges. People have to do queuing and transport water, and this is a very time consuming activity. These sources are cheap, but nor the quantity, nor the quality of water is guaranteed all over the year.

Since the 1990s, the Sub-Region has experienced problems of overexploitation and salinization of ground water. In fact, the availability and quality of water varies a lot between seasons and the location of the sources in the area.

- Free open sources

In this category, we include all sources of water which are not directly chargeable (some indirect cost may exist: transport, equipment, treatment), such as public wells and borewells, lakes and rain water. We consider these sources of water as "informal" as there is no control over them. The fieldwork indicates that only few urban households depend completely on free sources of water. In areas where these sources are available, most low-income households fetch water regularly or seasonal (rain water). The quality of these sources depends on the season and their location in the area.

There is a significant difference in the way households prioritise services and fund service expenditure, and this is true not only for poor people. There is variability in service consumption between consumers. Households will modify service needs to minimise expenditure or to get water of better quality. In fact, the survey indicates that households. They identify the type of source, the necessary quantity and quality to use and then, for each type of consumption, they define their capacity of payment.

The survey indicates a loss of confidence of households in public utilities because of a long experience of unreliable water supply, an unaccountable water department and unkept promises of better service, extension of the network and coverage of the area. They are

unwilling to pay more for new promises made from the water utilities, even if a private connection is the wish of most households.

4.5. Sswp's Advantages and inconvenient

The activity of small-scale water providers is not uniform in the area, as they respond to specific local demands. The presence of these operators depends from the physical and temporary availability and accessibility of water, the location of the demand, the type of settlements, and the financial means of households. As the fieldwork indicates, there is a big disparity in access to water from the alternative water providers.

The main advantage of independent providers is that they are demand responsive, as they increase their service delivery as demand grows (Solo T.V., 1999). They are able to adapt their offer to local conditions and to offer flexible, convenient services perfectly tailored to the needs of diverse customers with a flexible payment system. Prices may depend on factors such as water availability, water quality and customer loyalty. They are highly innovative and are typically not restricted by conventional engineering standards on service provision (Njiru C., 2004). Thus, technical, operational solutions found in one part of the city will not necessarily be transferable to another location. The demand may be seasonal (only in summer, when the municipal supply is insufficient), exceptional (for festivals and celebrations) or on a more regular basis. Exceptional supply conditions: extreme drought, heavy monsoon rains, or mechanic breakdown of the network may disturb water markets. For example, the heavy rainy season of July-August 2005, which destroyed kilometres of pipelines, made tankers' water supply essential for the survival of large parts of the peri-urban population of Mumbai. Because of their nature, sswp cannot easily access the sources of finance that formal companies do. Banks consider them as high risk and would not therefore advance funds for business purposes.

Research shows that sswp face a number of constraints mainly because of their informal nature of operation. Such constraints are related to factors such as regulation, policies, competition, lack of technical skills and capacities, financial resources and social discrimination. Being informal and often considered illegal, conventional water utilities regard sswp as enemies. Perhaps because of their innovativeness and need for survival, sswp operate whenever there is a need, regardless of whether the prevailing political climate is enabling or hostile (Njiru C., 2004).

These problems are specific to each location. The availability of the resource will determine the quantity of water supplied. So, providers have to diversify their sources throughout the year. They are often blamed for supplying unsafe water and households are very sensitive to this feature. The survey showed that people associate a certain quantity and quality of water for each use. Households are very keen to get at least 20-40 litres of good quality water per day for drinking and cooking. Often, the illegitimate character of sswp has inhibited the investments that would improve the reliability or quality of supplies.

5. Discussion: Which partnerships could be promoted between the utilities and small-scale providers?

5.1. Sswp and International Institutions

Much academic literature shares the opinion that there is a lack of analysis and understanding with regards to the current informal practices in accessing urban water services and with regards to their role integrating more formal systems.

The role of these informal alternatives is recognised as being important in two respects. The first one deals with the evidence that many urban dwellers currently gain access to water

through a variety of informal practises. The second one acknowledges that these informal practices or activities, interacting with more formal arrangements and institutions that belong to the public, private or community sectors generate a range of more or less formal and informal relationships, which are other forms of collective decision-making (Moretto L., 2005). These informal arrangements characterise the new orientation is progress of urban governance. We consider that they are currently acknowledged as a major system in accessing to water supplies, and they could be considered from the international development cooperation as a way to promote development.

The World Development Report 2004 (World Bank, 2003) does not mention explicitly the term "informal" in the delivery of drinking water. It makes reference to the small independent providers alluding their informal nature. The World Bank recognises their important role in the provision of urban drinking water, push towards the regularisation and enables their partnership with the formal and private sector. Nevertheless, they are not considered the best solution, as informal practices and arrangements do not represent a valid alternative on which to build a reform (Moretto L., 2005). The World Bank does not have a solution for low-income households.

The UN-Habitat points out the fundamental roles of both small-scale providers and civil society organisations in providing water supplies to the urban poor. They are considered the best solution in low-income countries or in the poor urban areas of middle-income countries. This institution does not argue towards the formalisation and legalisation of the informal small-scale providers. It considers that small-scale providers are not in competition, but they are involved in a partnership with community organisations and local governments, in which each has defined roles and performance standards.

Till recent years, sector reforms and modernization have focused exclusively on large-scale operators and have ignored the potential offered by community led initiatives and the local private operators. Today private sector involvement increasingly includes sswp and governments should include them in water supply strategies.

The interface between the utility and the informal water supply system was found to be a major source of problems (McGranahan et al., 2006). Significant changes in relations between sswp, water utilities and in some cases other actors should take place.

5.2. The contribution of small-scale water providers over the millennium development goals

According to the official indicators, progress towards the water target of the Millennium Development Goals is achieved as people switch from vendors (an other unimproved sources) to piped-water connections, or to free public standpipes, boreholes or rainwater citterns within a kilometre of their home (WHO and Unicef, 2000).

So, when collecting water international statistics on access to water those who buy their water from a vendor are classified as not having reasonable access to an improved water supply, along with people who get water from unimproved wells or surface water sources.

The problem of the targets set by the Millennium Summit (2000) is that there are infrastructure targets, with no guarantee in the quantity and the quality supplied. Being connected to an improved water supply does not imply automatically the availability of the source, neither the good quality of the supply.

Concerning the water vending, in terms of infrastructure, it can not be considered as an improved source of water and so they do not contribute in the millennium development goals. Furthermore, it is difficult to estimate the quantity and the quality of water provided. So, no improvement to vendors' provision can have any effect on the indicators of progress in reducing the proportion of people without access to safe drinking water. Yet, as McGranahan *et al.* (2006) indicate, improving the well being of the urban poor through sswp is clearly

within the spirit of the Millennium Development Goals. The emphasis that the goals brings to improving the lives of slum dwellers and to improving water supplies in deprived areas, ought to bring more attention to sswp.
Developing utility-sswp partnerships can improve the operating environment of sswp and the level of service among the un-served or under-served by the utilities (Njiru C., 2004). In so doing, these potential outcomes will contribute to achievement of the Millennium Development Goals for water. An important issue is to clarify in what circumstances people obtaining water from utility-sswp partnerships can be classified as able "to reach or afford safe drinking water".

5.3. Which regulation for the small-scale water providers

In many cities, water vending is actively discouraged (Kjellén M., McGranahan G., 2006). Government agencies have long been inclined to ignore or suppress sswp, as even a well-functioning system of sswp can be taken to reflect the failure of the government to supply piped water. The goal of the utility has been assumed to be one of replacing rather than assisting the sswp or develop a complementary partnership.
Today, there is absence of any dialogue between independent providers and public authorities. Despite that, recent research studies indicates that water vendors provide an important service, service even if they typically operate outside or at the margins of established legal frameworks. For governments and formal agencies, working with vendors under such conditions can be a real challenge. If governments take a negative attitude towards water vending and enforce strict regulations, they are likely to reduce the amount of water available on the market and there would be more difficult for deprived residents to obtain water. This may be seen as condoning a situation in which the poorest segment of the population has to pay the highest prices for water. In the same time, assuming that water vending is inherently desirable may be problematic (Kjellén M., McGranahan, 2006) and important opportunities for improvement are being ignored.
We believe that, seeing resellers and vendors as an integral part of the water system may help in the design and implementation of more comprehensive policies, which better serve consumers. Recognizing and understanding the role of small-scale providers will lead to a rethinking of the usual regulatory mechanisms, in terms of quantity and quality, in order to promote safe water supply. In a way, vendors could be recognised as the extension of the piped system. In this sense, there would be a better planning of investments and organisation of the service and better coordination between the different stakeholders of the water sector.
There is no need to formalize these private operators. This would probably drive many of them out of business, but there is a need to recognize them officially. The regulation of sswp is made difficult by the number and the variety of sswp in different markets. Regulation would ensure that the quality of services received from sswp comply with certain standards and private operators do not exploit the customers. Today, the standards are set so high, that private operators fail to deliver their service. New performance standards should be set in. These standards should represent the heterogeneous nature of the communities being served, their needs, the capacities to pay or the possibility of alternative service providers delivering an intermediate form of service. As Collignon and Vézina (2000) indicate in their study, by recognizing and regularizing the activities, roles and institutional position of independent providers, and by facilitating intermediation, coordination and partnership between city wide operators and independent providers, municipal and national authorities can set the stage for better delivery of water services to the urban poor. This implies the development of an enabling business environment to recognize and regulate their activities, roles and institutional position and to facilitate their access to financial resources, while also looking to the interest of the poor.

There is a general need to accept some of the more unconventional but practical methods of supplying water to people living in informal urban settlements. Informal sector entrepreneurs have come up with coping strategies in the form of unconventional methods of meeting the short fall in conventional water supply.

Bibliography

Allen A., Dávila J.D., Hofmann P., 2006, Governance of water and sanitation services for the peri-urban poor. A framework for understanding and action in metropolitan regions, Development Planning Unit, UCL, London, p. 126

Chauvin Sophie, Lemoine Françoise, 2004, « L'économie indienne en bonne voie », in Chevalier A. e.), *L'économie mondiale 2005*, La Découverte, Collection Repères, pp. 70-83.

Collignon B., Vézina M., 2000, *Independant water and sanitation providers in African Cities. Full report of a ten-country study*, Water and Sanitation Program, Washington D.C., p. 64.

Dupont Véronique (ed), 2005, *Peri-urban dynamics: population, habitat and environment on the peripheries of large Indian metropolises. A review of concepts and general issues*, CSH Occasional Paper, n°14, New Delhi, p. 142.

Kariuki M., Schwartz J ., 2005, *Small-scale private service providers of water supply and electricity. A review of incidence, structure, pricing and operating characteristics*, World Bank Policy Research Paper 3727, p. 38.

Katko T.S., 1991, 1991, "Reselling and vending water", *Journal of American water works association*, vol 83, n° 6, pp. 63-69.

Kjellén M., McGranahan G., 2006, *Informal water vendors and the urban poor*, IIED, Human Settlements Discussion Paper Series, Theme: water -3, p. 26.

Kjellén M., 2000, "Complementary water systems in Dar es Salaam, Tanzania: the case of water vending", *Water Resources Development*, vol 16,n° 1, pp. 143-154.

Llorente M., Zérah M.H., 2003, "The urban water sector : formal versus informal suppliers in India", *Urban India*, vol XXII, n° 1, p. 14.

Loach P.W., Melgarejo S., Lombardo M., 2000, "The small-scale water provider in Paraguay: bringing private sector efficiency to water resource use and the provision of drinking water to the poor", *Natural Resources Forum*, vol 24, n° 4, pp. 263-271.

Lovei L., Whittington D., 1993, "Rent-extracting behavior by multiple agents in the provision of municipal water supply: a study of Jakarta, Indonesia", *Water Resources Research*, vol 29, n° 7, pp. 1965-1974

McGranahan G., Njiru C., Albu M., Smith M., Miltin D., 20046, *How small water enterprises can contribute to the millennium development goals. Evidence from Dar es Salaam, Nairobi, Khartoum and Accra*, Water, Engineering and Development Centre, Loughborough University, UK.

McGranahan G., Owen D.L., 2006, *Local water companies and the urban poor*, IIED, Human Settlements Discussion Paper Series, Theme: water -4, p. 27.

McIntosh A.C., 2003, *Asian water supplier. Reaching the urban poor*, ADB, IWA, p. 139.

Moretto Luisa, 2005, "Urban governance and informal water supply systems: different guiding principles amongst multilateral organisations", presented in the *Conference on the Human Dimension of Global Environmental Governance*, Berlin 2-3 December, p. 24.

Njiru C., Albu M., 2004, “Improving access to water through support to small water-providing enterprises”, *Small Enterprise Development*, vol 15,n° 2, pp. 30-36.

Njiru C., 2004, “Utility-small water enterprise partnerships: serving informal urban settlements in Africa”, *Water Policy*, vol 6, n° 5, pp. 443-452.

Plummer J., 2002, “Developing inclusive public-private partnerships: the role of small-scale independent providers in the delivery of water and sanitation services”, Prepared and presented at the *Making services work for the poor people* World Development Report 2003/04, 4-5 November, Oxford.

Raghupathi U.P., 2003, “Small-scale private water providers – a growing reality”, *Urban Finance Newsletter*, vol 6, n° 3, p. 4.

Snell S., 1998, *Water and sanitation services for the urban poor. Small-scale providers: typologie & profiles*, UNDP, Water and Sanitation Program, p. 60.

Solo T.V., 2003, *Independent water entrepreneurs in Latin America. The other private sector in water services*, World Bank, Washington D.C., p. 34.

Solo T.V., 1999, “Small-scale entrepreneurs in the urban water and sanitation market”, *Environment and Urbanisation*, vol 11, n° 1, pp. 117-131.

Sharma R.N., 1990, *The grab of Vasai-Virar Hinterland of Mombay: A lesson in urban development*, paper presented at a Seminar on “Reconstruction Theories of Modernisation and Development” at J.N.U., New Delhi.

Sharma S., 2000, “Water services in a city-beyond-network”, *Third world planning review*, vol. 22, n° 1, February pp. 147-165.

Valfrey Bruno, Collignon B., 1998, “Les opérateurs privés du secteur informel qui approvisionnent en eau les petits centres et les quartiers péri-urbains”, Hydroconseil, II^{e} rencontre *Dynamiques sociales et environnement*, Bordeaux 9-11 septembre, p. 10.

Wegelin-Schurina, 1999, “The SSIP model and community-based providers of water and sanitation services”, *UNDP Conference on public-private partnerships for the urban environment*, Bonn.

Whittington D., Lauria D.T., Mu Xinming, 1991, “A study of water vending and willingness to pay for water in Onitsha, Nigeria”, *World Development*, vol 19, n° 2/3, pp. 179-198.

WHO-Unicef, 2000, Global water supply and sanitation assessment 2000 report, WHO-Unicer, p. 79.

Zaroff B., Okum D.A., 1984, “Water vending in developing countries”, Aqua, vol 5, pp. 289-295.