Scope and scale of Small Scale Independent Private Water Providers in 8 Asian cities

Preliminary Findings

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1. Introduction

In addition to the main survey done by ADB[2] on Water Supply in 20 Asian Cities, a specific survey has been conducted to gather and analyze information about small-scale independent private water providers (SSIPWP) in 8 cities : Cebu, Delhi, Dhaka, Ho Chi Minh City, Jakarta, Kathmandu, Shanghai and Ulaan Baatar[3].

Evidence suggests that a large percentage of poor urban populations have still no access to water and sanitation services from water utilities despite actual improvement in this sector.

Many surveys done in Africa and Latin America have demonstrated that a significant number of urban population are served by SSIPWPs, who provide a competitive and appropriate service to households without access to utility connection.

In Asia, only few data for some cities are available, and there is little knowledge of the role played by SSIPWPs for water supply, in particular to urban poor. The objectives of this specific study are i) to provide a picture of the water sector not restricted to water utilities, ii) to know about the type of services provided by SSIPWP, iii) to define the profile of most significant SSIPWPs, iv) to assess the main constraints and potentialities for SSIPWP.

2. Definition of SSIP and SSIPWP

In this study, we have defined as Small-scale Independent Private Water Providers (SSIPWPs) operators that have all of the following characteristics:

Small Scale : Small company according to the number of employees. Involvement at national level, and mainly at city/ district level.

Independent : they don't receive financial support from government, local authority or NGOs

Private :they invest in their business and their activities are driven by profit

Water Provider : Provision of water accounts for a big part in their business (> 75%).

Most of these SSIWPs provide services to the populations not served or underserved by the water utility.

Review of international experiences shows that privately managed SSIPWPs are more dynamic in filling the gap between supply and demand and have more incentives to grow and extend their services to new areas than Water Utilities or non-for profit institutions.

Due to this more promising approach, in-depth case studies have been more focused on SSIPWPs.

SSIPWP profiles[4]

3 main categories of SSIPWP can be defined :

Partners of water utilities

Some local operators work closely with the water utilities, whose water they distribute at kiosks or standpipes property of the utility. They buy water from the water company at a flat rate and sell on to end users with a margin. They do not receive a salary and do not invest in infrastructure to improve the service provided by the utility.

Vendors and resellers

Vendors include mobile water truckers, carters and water carriers as well as household resellers. They provide water (most often drawn from water company taps) at times and places that water utilities are unable to serve.

Pioneers of small piped networks

Pioneers bring piped water from their own sources or from the utility, to communities where water utilities have not yet expanded their networks.

The level of investment and initiatives but also the financial risk taken by these various typologies of water providers are quite different. The pioneers invest higher amount of money for permanent equipment and provide a higher quality of service than vendors or partners of water utilities.

3. Customer's demand : water at home

Surveys done on customer's demand for water service highlight the fact that users are more ready to pay for a service that fits with their expectation.

Regarding the "product", low-income users would like to get clean water at home to avoid wasting time fetching water at a standpipe. They ask for reliable service (full-time or on a regular basis) at affordable price that provides enough water to cover their daily needs. Regarding the

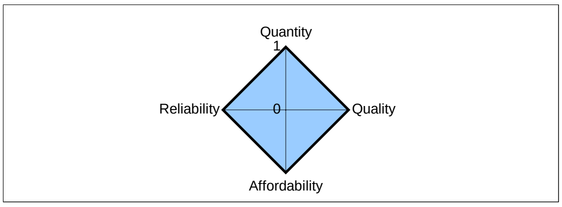
[1] Herve Conan . BURGEAP – 27, rue de Vanves – 92100 Boulogne Billancourt – France. h.conan@burgeap.fr This paper is based on the study reports provided by the 8 national consultants involved in the city survey and case studies.

[2] Asian Development Bank Regional Technical Assistance 6031: Promoting Effective Water Management Policies.

[3] Population : Cebu (720 000), Dehli (13.8 M), Dhaka (10.5M), HCMC (5.3M), Kathmandu (1M), Jakarta (8.35M), Shanghai (16.4M) and Ulaan Baatar (780 000)

[4] WSS services for the urban poor. Small-scale provider – Typologies and profiles. Suzanne Snell / WSP 1998

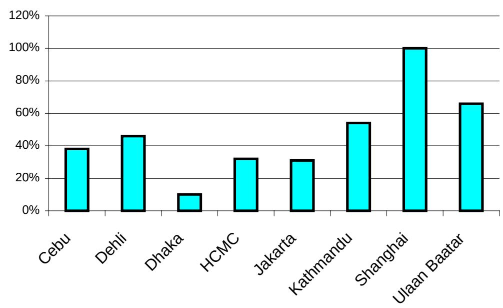
"management", they ask for more flexibility in payment, , in particular higher periodicity of water bill and the option to pay a connection in installments.
Full satisfaction of user's demand can be represented as followed :



When they rank services, household connection is the first choice followed by well –when easy access to groundwater- then preference is for shared services or community based approaches ranked according proximity and management issues.
Nevertheless, in most cities they have to cope with the existing water services provided by Water utility, which in most cases is far from their expectations or their reach.

4. Service provided by Water utilities

Unfortunately, although access to water has improved, large percentages of the urban poor remain un-served. Water utilities have been unable to cover the whole population with existing price strategies, management structures and investment rates. Less that 50 per cent of the urban population in Asia had access to a connection to the water utility in 2001.
In the cities under this study, the percentage of households connected to Water Utility network is often lower than that.



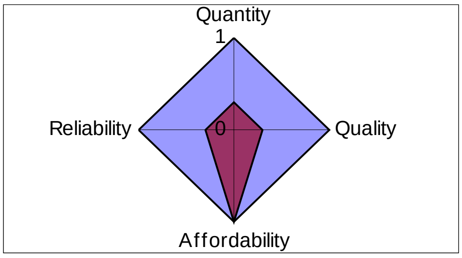
Graph1 : % of households connected to Water Utility network[5]

Excepted Shanghai where 193 Utilities currently provide high level of service throughout the city , water supply in the other 7 cities is weak.

The main reasons for the lack of coverage in poor urban areas are : (i) total available water is not sufficient to cover the whole population; (ii) weak economic incentives to deliver services in peripheral areas; (iii) land tenure and physical layout of housing in some areas prevent utility to extend services; and (iv) technical standards, pricing and/or management structures of the utility are not appropriate for this type of consumers.

The gap between the population supplied by the water utilityand the population demanding water at home is huge, and as a consequence, a large part of the population have to relay on other alternatives to fulfill their daily water needs.

[5] Based on number of connection divided by number of households



Level of satisfaction provided by Water Utility service in a city such as Dehli

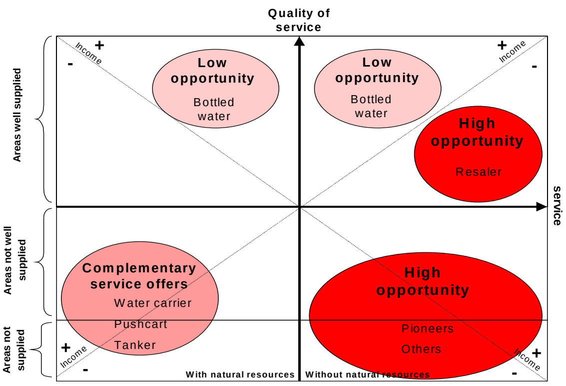
5. Wide range of contexts in the 8 cities

Context of water supply in the 8 studied cities is quite divers, and it depends on two variables: existing water utility service and availability of alternative water resources.

Cities	Coverage	Reliability of service	Affordability	Alternative resources
Shanghai	High	High	Low	Low
Dehli	Medium	Low	Low	High
Dhaka	Medium	Low	Medium	High
Kathmandu	Medium	Low	Low	High
Cebu	Low	High	High	Medium
HCMC	Low	High	High	Medium
Jakarta	Low	High	High	Medium
Ulaan Baatar	Low	Low	High	Low

Table : Various water contexts for the 8 cities

An analysis of the various contexts allows to define 4 different water supply contexts which will shape the market for SSIPWPs and their scope and scale.
SSIPWPs generally develop a business approach based on a niche market to fill the gap between existing supply(water utility and natural water resources) and existing demand. Better the service coverage and the water availability, the lower the niche market for SSIPWPs.



Niche market of SSIPWPs according water context

5.Scope and scale of SSIPWP in Asian cities

Method followed for households surveys

To have a better picture on the scope and scale of the SSIPWPs in Asian cities, a common customers survey has been implemented in each 8 selected cities by national consultants under ADB regional studies (see (1))

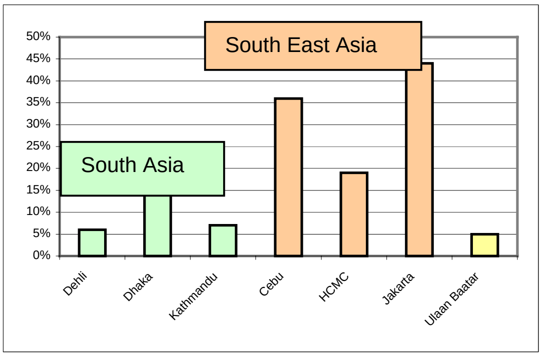
The household sample has been designed to cover the different water supply contexts present at city scale, inside and outside the area covered by the water utility.. Representative areas for survey have been selected for each context, and the sample size has been defined according the percentage of households living in such a

context. The size of the sample was around 500 households in each city, and surveyed households were selected at random.
Due to the limited size of the sample compared to the population living in the 8 cities (from 0.7 to 14 millions), the results are not statistically representative but provide an approximate estimate of the scope and scale of the SSIPWPs.

20% of cities population are served by SSIPWPs, corresponding to 7 millions people.

Two groups of cities emerged which fit with their location:

- In the cities located in South Asia, SSIPWPs play a **minor role (5 to 15%). They** complement the low water utility service in a very competitive context in the areas served by the utility (free water at standpipe, easy availability of groundwater).



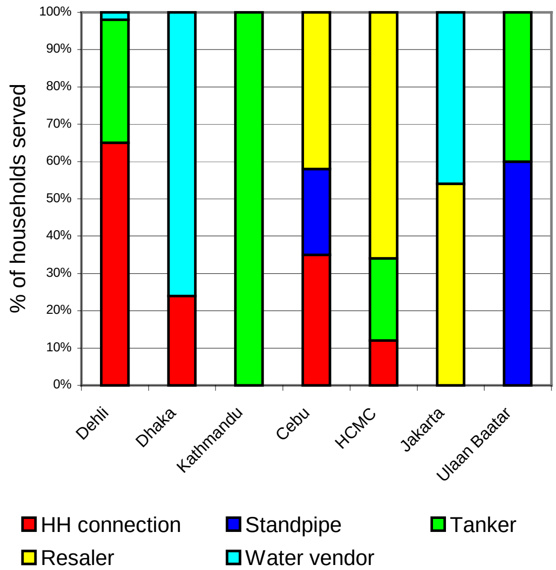
Graph : % of household served by SSIPWPs

- In cities located in South East Asia, SSIPWPs play a **major role (20 to 45%)** by providing water in large areas not served by water utility and providing services to poor people who cannot afford the household connection offered by the water utility.

The better and cheaper the service coverage and the water availability, the lower is the niche market for SSIPWPs.

Scope of SSIPWP services in each city

The scope of services provided by SSIPWP is large and is linked to the context where they operate.



Graph : %of household served by the different SSIPWPs

Within the area served by Water Utility :

In South Asia, where the service provided by the Water Utility is not reliable, **water vendors and tankers are the main actors.** Services **demanded by** users are mainly having quick access to additional water to complement the basic service. The private tankers cater to the medium to high-income households who can afford higher tariffs and have the needed storage capacity (5m3 or more). Water vendors mainly cater to the low to medium income customers. Apart from the service provided by the Water Utility through individual connections, SSIPWPs have to compete with the utilities free water services such as standpipes (these stand pipes can be managed by the Utility (Dehli), a community organization (Dhaka) or by traditional custom, (public waterspouts in Kathmandu).

Typical public waterspouts (dhunge dharas) in Kathmandu

In South East Asia, where the level of service provided by Water Utility is high, **reseller and water vendors are the main actors**. They provide water to low-income users who cannot afford the connection fee from the utility.

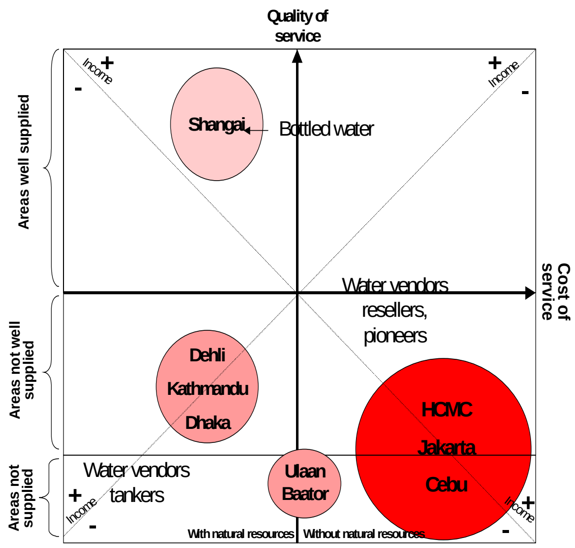
Pushcart in Jakarta

In **Ulaan Baatar**, SSIPWPs provide water service only in ger area (peri-urban area) through **kiosks (standpipe) and tankers.**

A phenomenon is emerging in most cities in the areas not served by Water Utility : local private entrepreneurs now develop **piped networks that** they build and finance by themselves to provide a connection to household.

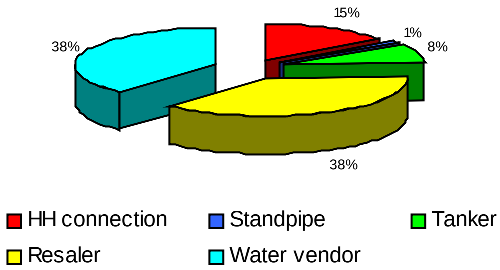
They are most active in Cebu, Dehli, Dhaka and Ho Chi Minh City and they served a population of approximately 1 million people.

The study surveys have confirmed that the scope of services is strongly linked to the existing niche market defined by water context.



Niche market opportunities in the 8 cities.

The results from the 8 cities in the study show that **reseller and water vendors are the most common type of SSIPWP**, and each serves around 2.5 million people.



%of household served by the different SSIPWP profiles

Emerging business : bottled water unit

In addition to these SSIPWPs services which provide water to customers to fulfill all or most of their daily needs, private entrepreneurs have started business to produce **bottled water**. Many small scale units exist in each city (from ten to a few hundred) and daily they produce around 5 to 10 m3. These small units treat water with various technologies from UV, ozonition to reverse osmosis, and they sell water in containers ranging in size from 1 to 20l. In general, they sell the bottled water directly to customers within the geographic proximity of their production unit.

This new type of business has extended quickly in urban areas due to the increase in demand for safe water which has arised because of the poor quality of the water provided by the water utilities, the higher income levels of the population and the increased awareness and education on health and water. Currently from 5 to more than 20% of the urban population in this cities drink bottled water.

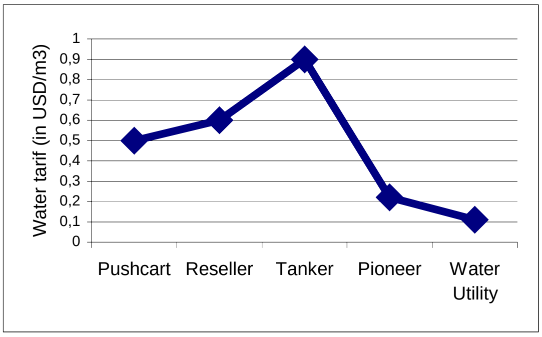
6. Water tariff : in line with the investment and the volume of water served

Vendors and resellers investment strategy has a very short term horizon. Their investment is low (< $150) and the amortization period is very short(< 3 months). There payment of their investments is tied to their revenues which occur daily and not monthly because it is linked to the capacity to pay of their customers. Their customers' income varied between $1 to $5 per day, they do not have the security of a contract and they are paid a daily wage. .

Tankers and pioneers have a mid to long term strategy, based on a significant initial capital investment ranging from $5,000 to 100,000. This investment can include water production, setting and a pipe network or buying a truck and it is generally done with little guarantees, which makes it a a risky investment. . The analysis of the business plans provided by the pioneers and tankers of the study show that their **amortization period varies from 3 years to more than 10 years** Their monthly net profit ranges from $200 to 500/month which is similar to the income of their customers.

The range of tariff charged by SSIPWPs ranges from $0.2 to 3.5 per m3.

The tariffs charged by SSIPWPs in Ho Chi Minh City are significantly lower than in other cities, which reflects the general trend observed in the study .



Average tariff charged for the different type of service provided by SSIPWPs in Ho Chi Minh City

Pioneers who provide the higher level of service and that better meet the consumers' expectations, charge a tariff lower than that charged by other SSIPWPs that provide a lower level of service. In the different cities where they emerged, their tariff is from $ 0.22 to 0.86/m3.

Promising business for serving the poor

Some local entrepreneurs have invested their own capital to develop a piped system in low-income areas to provide a house connection.
The type of service and the magnitude of the investment of these pioneers are significantly different to that of vendors and resellers. Pioneers offer a household connection with similar hours of service to that of the utility, which is the kind of service that most consumers aspire to. There are indications that the amount of investments made by pioneers, although started relatively recent, are growing rapidly due to the increasing demand and willingness to pay for the services they provide.
Investments by SSPWPs can be substantial and provide a water connection to a significant number of households. In Metro Manila there is an a SSPWP that has invested US$350,000 USD within five years, and it delivers water to approximately 25,000 households through a connection or through supply by a hose

In Ho Chi Minh City there are SSPWPs that have invested US$80,000 USD to produce and treat water to be distributed to 400 households through a house connection.
In Cebu or Kathmandu they serve less than 100 households and in Delhi from 50 to 700 households.

Water tower of small pipe system in Cebu

The following learning have emerged from the case studies on pioneers:

Flexible Management and Technical Strategy
In order to reduce investment and operational cost per connection, pioneers have developed their own management strategies and they have implemented technology choices that are best suited for their clients., The connection cost is generally limited to the cost of the materials and is lower than the Utility connection. They generally adapt to the settlements they serve, and they customize the billing to their customers revenue (daily or weekly instead of monthly billing). Due to their good knowledge of the customers they serve, payment rates are high and non-payment and non-revenue water is very low.

Water Utility as a model for level of service
Generally, pioneers imitate the Water Utility which is their main competitor and they provide the same or a similar level of service than the one provided by the water utility.

City	Level of service provided by Water Utility		Level of Service provided by SSIPWP	
	Hours of Service	Billing	Hours of Service	Billing
Dehli	Low 2-4 hrs/day	Fix tariff	Low 1-2 hrs/day	Fix tariff
Kathmandu (nearby the city)	Low 2-4 hrs/day	Fix tariff	Low 1-2 hrs/day	Fix tariff
Ho Chi Minh City	High 24hrs/day	Meter	High 18-24 hrs/day	Meter
Cebu	High 18-24hrs/day	Meter	High 24hrs/day	Meter

Table : comparison between levels of service provided by water Utility and pioneers

Low recognition from local authority and water utility
These pioneers are rarely recognized by the local authorities and or the water utility. Because they rarely have an authorization from the existing water utility the risk of their investment is high. In addition, their business is seen by commercial banks as risky (illegal), non-profitable (catered to poor customers) and their assets have little or not value in the market. Consequently, they have limited access to long term credit and they have to borrow at high interest rates (5 to 10% per month). The cost of doing business under these conditions is past to the consumer through higher tariffs and it limits their capacity to expand and or improve their services.

A medium to long term amortization period
The amortization period for an investment on a pipe system offering a household connection depends on the level of investment and the characteristics of the area that is being served:

	without water treatment unit	with water treatment unit
High Density (urban)	< 3 years	3 to 7 years
Low Density (rural)	3 to 7 years	7 to 10 years

Table : Amortization Period of Piped Water Network by Type of Area and Service

Strong link between level of service and legal environment
Analysis of the level of service provided by pioneers in Delhi and in Ho Chi Minh City highlights the strong impact that the legal environment has on the type of service provided by pioneers.

Delhi	*Ho Chi Minh City*

Illegal environment	Legal environment
Service : 1 – 1.5 h/day	Service : 24h/day
No meter	Meter
No treatment of water	Treatment of water
Investment : $10/HH connected	Investment : $80 to 100/HH connected
Tariff : $0.28/m3	Tariff : $0.22/m3

Table : impact of the legal environment on pioneers business approach

Water treatment unit implemented in Ho Chi Minh City (Phuc Doan Company

Recognizing role of pioneers to increase service to poor

Given that 100 per cent service coverage by water utilities will not happen within the next decade, we must recognize the role that SSPWPs have and will keep having as a major providers of water to poor urban areas. By recognizing the role of these pioneers as partner of the sector, it is possible to increase and channel their investment capacity to contribute to the global investment required to reach the Development Millenium Goals set for the water sector. Ultimately, integrating SSPWPs in the water sector investment strategy would accelerate their expansion capacity and allow them to lower their tariffs, which would ultimately help to improve the services and choices available to the urban poor.