

Small-Scale Independent Water Providers: The Informal Private Sector - Ghana

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Abstract

In developing countries, including Ghana, the water sector faces tremendous challenges in attracting investment into the sector. Moreover, attempts to introduce private sector participation have always attracted great resistance. In Ghana the water shortage problem has compounded over the ages due to a mixture of population growth, rapid expansion of the urban cities amidst poor regional planning. Private water suppliers (water vendors) have been brought in by the government as a short term measure for solving the urban water supply problems. These private suppliers charge exorbitant amounts to provide water to households irrespective of their social status. By using a preliminary field survey of the informal water sector in Accra and Tema metropolitan areas in Ghana, this study demonstrate that consumers are already paying very high amounts between GH¢2.00 - GH¢6.50 (\$1.35 USD – 4.39 USD) per m³ of water compared to the GH¢0.66 (\$0.45 USD) per m³ being charged by the official water company and therefore are able to pay for a reasonable tariff if the official services are improved and expanded to include all.

Introduction

Water supply in the developing countries are largely subsidised by Governments typically in an attempt to achieve social and health benefits for the low-income households forming the large part of the urban population. However a perverse result can arise if the benefits of subsidised water accrue primarily to wealthier households enjoying reliable services, with poorer households benefiting in a less than proportionate manner because they have irregular or non-potable water supplies and have to purchase water from other, non-subsidised sources (World Bank 1991, Brookshire and Whittington 1993). Irrespective of the state of public facilities, people need water to live, and to take care of their sanitation needs. According to Briscoe (1997), where there are deficits in formal supplies, households have to devise other ways of meeting these needs, generally at very high costs. He further indicated that water vendors are ubiquitous in developing countries, and typically charge around \$3 per cubic meter of water, which is ten or more times the cost of water through the formal system.

It has been established that poor households without good water supply services are more often willing to sacrifice a greater proportion of their combined income for service improvements (Acquah 2009). McPhail (1993) noted in a study of five cities in Morocco that households are willing to pay more than the 5 per cent of their total household expenditure - an unofficial norm in the sector - for individual water services. In a study to assess the quality dimension of urban infrastructure of water supply in Delhi, Zerah (1998) calculated that the cost

of coping with water supply unreliability was about 15% of the households' monthly income. According to Zerah, households in Delhi are willing to pay a 50% increase in their water bill for improved services. In assessing the effective demand for improved water supplies in two informal settlements, Vlakfontein and Finetown in Johannesburg, South Africa, Goldblatt (1999) indicated that 64% of the households are willing to pay 5% of their income to connect to the water system. According to the World Bank (1990), a study of the informal water sector in Port-au-Prince, Haiti, found that in the dry season many of the urban poor spend 20 percent of their income on water. Moreover, during the rainy season, many poor households in Tegucigalpa, Honduras, spend 8 percent of their income on vended water and 12 percent in the dry season. In Addis Ababa, Ethiopia, the urban poor spend up to 9 percent of their income buying water from vendors. Water vending is also widespread in such cities as Lima in Peru; Karachi in Pakistan and Jakarta in Indonesia.

According to MIT OCW (2005), 11% of households in Semarang, Indonesia obtain "all or almost all" water from private vendors at a cost of approximately US \$20 per month. MIT OCW noted that in Morocco, willingness to pay bids for improved water services were found to be high – but only about twice as high as actual expenditures on cigarettes. Research shows that in Manilla, the poor pay about 9 times more than 'regular' consumers, in Lagos, 10 times, in Cairo, 40 times, in Jakarta, 60 times, and in Karachi it is very high - about 83 times (Hutton & Haller 2004).

As explained by World Bank (1990) and Briscoe (1997), the cumulative payments to water vendors in the city of Onitsha in Nigeria, for example, were 10 times the annual revenues of the water utility. In Jakarta, 54% of households rely on private wells and 32% on street vendors, and household investments in septic tanks are estimated at about \$400 million. Throughout the developing world this "hidden water economy" represents an immense source of financing, which could be "attracted in" if the formal systems were available to all, and of reasonable quality. The Onitsha study noted that water vendors deliver more water than the public water utility and that revenues for vended water exceed revenues for water supplied by the public utility by a factor of more than 10. The study implied that the formal utility could capture a larger share of the water market, even if tariffs are high enough to cover the full costs of supply. The study however concluded that in order to attract consumers, the quality and reliability of the public service would have to be substantially improved.

The contribution of private water vendors in the provision of water to many urban households is increasingly gaining coverage in many countries and the impact on small households is also increasing. In Ghana the activities of the informal water sector is not well understood. This paper discusses the results of a preliminary willingness to pay survey to understand the services and activities of the small scale water vendors in Accra and Tema metropolitan areas and their contribution as the "other" private sector participants in the water supply sector. It is hoped that the outcome from this study will be useful to national policy makers as well as other stakeholders and investors in their decision making.

Water Crisis in Accra-Tema Metropolis

Ghana is one of the most stable and peaceful nations within the West African sub region, with a population of about 20 million and a land area of about 238,540 km². Its population is estimated at 20 million, with 58% living in rural areas and 42% in urban areas. While the urban population grows at a rate of 3.5% per annum the rural population grows at 1.5%. Life

expectancy is around 56 years. Per capita income is estimated at about US\$400 which places Ghana among the poorest nations in the world. Ghana has an external debt of US\$6.7 billion which is about 110% of GDP (Water Aid 2005).

Accra is the capital city of Ghana and covers an area of about 170 km². It has a resident population of about 1.6 million with an annual growth rate of 3.4 % in the city itself but up to 10% in its peri-urban districts. The city has a poverty index of 5%, meaning there are 90,000 people earning less than 1 USD per day (Abraham *et al.* 2007 and Ghana Statistical Service n.d.). Tema was originally a small fishing village which has grown after the construction of a large harbour in 1961 and now is the nation's largest sea port. It is also home to an oil refinery and is an important centre of manufacturing with a population of 506,400 (2000 census) is almost completely urbanized with its main township now classified as a metropolis. The Tema metropolitan area which is divided into four districts [Tema Township (metropolis), Ashiaman, Manhean and Kpone] is now growing and expanding rapidly (Ghana Health Service 2007).

Majority of the lands in the Tema areas are owned by the government and looked after by the Tema Development Corporation (TDC). The TDC then develops the land, providing a network of tarred roads, drains and gutters and the extension of electricity and Water supply network to the area. As such, land and property owners are able to connect to the services in and around the vicinity via the Ghana Water Company Limited (GWCL) unlike Accra where most of the lands are stool lands meaning they are own by the chiefs and people of the area. The stool lands are not serviced plots and therefore the onus is on the land or property owners to find a way of getting the services listed above into the local community. This has created serious problems in these areas with some households travelling long distances to get water to supply their basic needs. Such areas also wait until the government has extended the services to the community, thereby increasing further the length of time that residents will have to stay without the basic community services as listed above.

Due to the poor urban regional planning, many households in Accra do not have pipe connections in their homes or neighbourhood limiting access to the water distribution system. This coupled with rapid population increase together with rural migration into the urban centres have compounded the issues. Another major challenge had been the high levels of unaccounted for water also known as non revenue water in the magnitudes of about half the daily production through leakages and illegal connections to the distribution network. The daily supply is about 400 million litres per day which is about half the estimated daily demand (750 million litres) of the metropolis.

The provision of water supply services has undergone several changes in a quest to find a lasting solution to the challenges facing the industry. As indicated by Fresh Water Country Profile - Ghana (2004), prior to the water sector rehabilitation project which started around 1995, further reforms have been undertaken, with the intension to create conditions (through legal, business and regulatory interventions) to facilitate a favourable environment for increased private sector participation. The Ghana Water and Sewerage Corporation (GWSC) was also transformed into a limited liability company called Ghana Water Company Limited (GWCL), as one of the many steps for introducing the private sector to the management and operation of urban water supply systems.

The Public Utilities Regulatory Commission (PURC) was established in 1997 by Act 538 of the Parliament of the Republic of Ghana to regulate and oversee the provision of utility services

to consumers by public utilities as part of the restructuring of the utilities sector. The aim of the restructuring is to improve the performance of the sector in terms of its economic efficiency, through cost reduction and service improvement. These should be achieved continuously over time. The functions of PURC are inter-alia to: (1) examine and approve rates chargeable for provision of utility services; (2) monitor standards of performance for provision of services; (3) initiate and conduct investigations into standards of quality of service given to customers; (4) conduct studies relating to the economy and efficiency of public utilities. The Water Resources Commission (WRC) was also established by an Act of Parliament (Act 522 of 1996) with the mandate to regulate and manage Ghana's Water Resources and co-ordinate government policies in relation to them. It is responsible for regulating the water resources and also in charge of issuing licences for water abstraction and wastewater discharge.

The creation of the above institutions paved the way for privatisation and later led to the award of a management contract to Aqua Vitens Rand limited (AVRL) a company established by the joint venture of Vitens-Evides International (a Dutch company) and Rand Water Services Pty (South Africa) for the operation and maintenance of the drinking water infrastructure.

Privatization of Water Supply in Ghana

According to Acquah (2009), privatization of water companies in the developing countries most often attracts protest and resistance and in Africa and for that matter Ghana, it is no different. Acquah further noted that many people believe that privatization of the water sector in a developing nation like Ghana should not be an issue of debate. The Ghana National Coalition Against the Privatisation of Water, called the 'Ghana National CAP of Water' (2001), in its protest against the privatization of the GWCL argued that water is a fundamental human right, essential to human life to which every person, rich or poor, man or woman, child or adult is entitled. That water is not and should not be a common commodity to be bought and sold in the market place as an economic good. Acquah (2009) noted that similar to the Ghanaian experience, there are many organizations and agencies fighting against privatization of the water sector due to the experience from other developing nations. Surprisingly much focus and attention has not been given to the activities of the "other" private sector (the small scale water providers).

Secondary markets - Private Water Vendors

It is the belief of the PURC that the rates charged for the provision of water supply services to secondary markets by vendors and tanker services are subject to free market forces and therefore do not warrant regulatory intervention other than to ensure water quality, a factor that is outside the scope of a tariff policy. On the other hand, the prices charged by GWCL to the providers of secondary market services are subject to PURC price regulation (PURC 2005).

Over the past decades, water vendors have contributed to the supply of water to unconnected customers or households. These are made up of people who have occupied recently build homes where there is no pipe connection into the formal supply systems and also poor households who do not have connection in their homes. Another set of people who have benefited from private vendors are the relative few who are not able to pay their bills and have therefore been disconnected and lastly those who are not able to pay for the connection fees to have their own supply system installed. Most often such people pay more than those who get their supply from the formal sector. The amount paid by such people for water supply is more than double what others are paying through the formal sector.

According to a news article “Ghana’s water battle heats up” by Addo (2003), residents of Teshie-Nungua, Madina and Adenta which are sprawling residential areas in the South-East and North-Eastern parts of Accra are paying between GH¢ 0.05 – GH¢ 0.10 per bucket (4 gallons). According to another news article by the UN Media IRIN (n.d.) water vendors, who sell from tanker trucks in the street or from storage tanks and wells in their back yard, charge up to GH¢ 0.10 (11 US cents) per bucket for the precious liquid - 10 times more than the state-owned Ghana Water Company. Around the same time Cudjoe (2004) also reported in a news article “*Time up for Commodification and Privatization of Urban Water Supply in Ghana*” that his Aunt who lives about 6km away from him pays GH¢ 0.12 (8 US cents) for a bucket of water whiles Cudjoe pays GH¢0.02 for the same amount of water. The difference is that Cudjoe is connected to one of the 96 urban pipe borne systems in the country whiles the Aunt is not.

Research methodology

Data on water vendors were collated as part of willingness to pay survey which was conducted between mid-March and mid-April 2008 in Accra and Tema. The survey approach and instrument were developed after review of previous studies, discussion with experts, colleagues, family members and friends living in the study area, and informal qualitative interviews. The survey instruments were piloted, amended, and re-piloted. In all 264 households were sampled across ten communities.

Discussions

With water vendors charging varying amounts, consumers pay different prices for the same volume depending on their location if the water is delivered by tanker operators. During the preliminary survey, informal interviews were undertaken to ascertain the current water cost in the secondary markets as supplied by water vendors. Samples were drawn from different suburbs of Accra and Tema Metropolitan areas. Table 1 shows the areas sampled, volume of water in gallons as supplied by the small scale providers and their corresponding charges in Cedis. The column labelled **D** shows the cost per m³ as computed from the **B** & **C** using the conversion rates of 4 gallons to 20 litres and 1000 litres to 1m³.

Table 1: *The cost of water supplied by secondary markets (Field survey mid-March to mid April 2008)*

City	Area	No. of Households (A)	Volume of Water in Gallons (B)	Average Water Charges (GH¢) (C)	Cost of water per m ³ (GH¢) (D)
Accra	Ashongman (MH)	15	400	8	4.0
Accra	Kwabanya (MH)	18	2000	30	3.0
Accra	Osu (MH)	12	2000	50	5.0
Accra	Osu (L)	14	4	0.065	3.25
Accra	Korle - Gonno (LM)	22	4	0.05	2.5
Accra	Labadi (LM)	29	400	7	3.5
Accra	Madina (LM)	17	2000	60	6.0
Accra	Adenta (MH)	15	2000	65	6.5
Accra	Teshie-Nungua (L)	16	4	0.07	3.5

Accra	Teshie-Nungua (M)	19	400	9	4.5
Tema	Ashiaman (L)	14	4	0.05	2.5
Tema	Ashiaman (MH)	18	2000	55	5.5
Tema	Sakumono (M)	20	400	10	5.0
Tema	Sakumono (MH)	20	2000	65	6.5
Tema	Community one (M)	15	400	10	5.0
GWCL/AVRL		N/A			0.66

Key L = Low income; M=middle income; LM= low & middle income; MH=middle & high income areas.

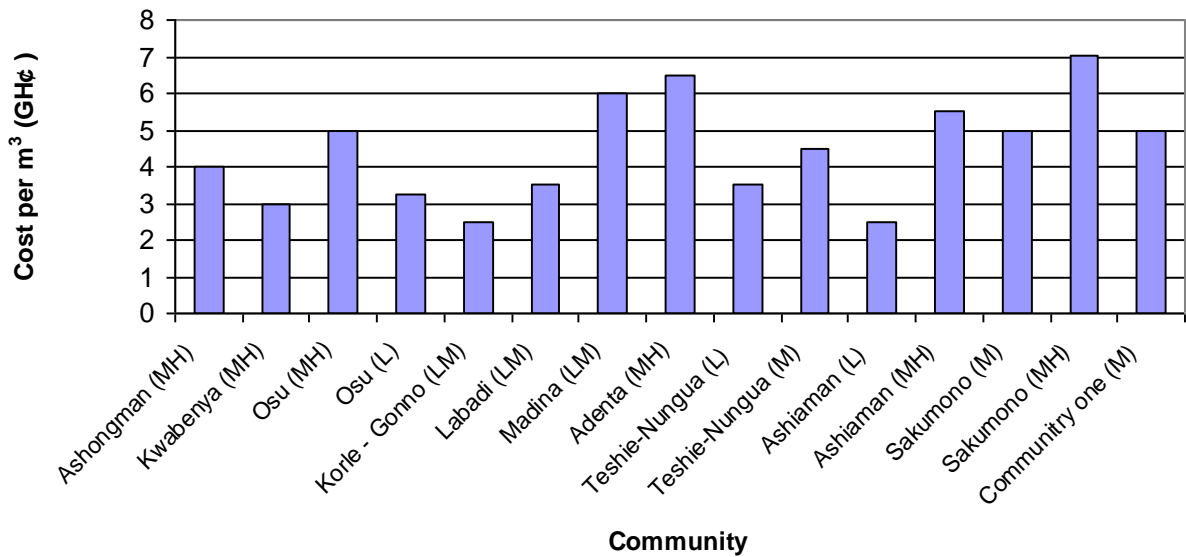


Figure 1: Cost of water per m³ in selected communities in Accra and Tema

The results indicate that charges are low when residents buy from nearby vendors stationed within the communities. An example is Kwabenya where the tanker operators are located in close proximity to the community. This is also indicated by areas where most charges are in buckets (4 gallons), for example some parts of Korle-Gonno and Osu areas in the Accra metropolitan areas. This applies to both low income and middle income areas or a combination of these. It was also noted that where residents buy in huge volumes say 400 to 2000 gallons, the charges are high. This also varies with the farthest away a tanker operator is to the household being supplied.

Table 2 Independent T-Test results

	City	No Households	Mean	Std. Deviation	Std. Error Mean
Cost per m3 (GH¢)	Accra	177	4.1750	1.31260	0.41508
	Tema	87	4.9000	1.47479	0.65955

T = -0.0970; F = 0.052 with DF = 13 and p > 0.05

The average cost of water per m³ supplied by water vendors in selected residential areas in Accra and Tema is shown in figure 1. These households depend on water vendors for their daily supply. It can be inferred that although consumers who buy from water vendors pay so much for the same volume of water when compared with the formal sector, those who buy in huge volumes pay more. A *T-test* performed on the two cities indicated equal variance with no significant difference between the results in Accra and Tema suggesting the communities are all paying so much for the provision of water from the private vendors. It was noted that residents in Kwabenya who buy in huge volumes pay less for the same volume of water as compared with the other sampled towns. The price of water for the first block of the GWCL/AVRL connected consumers is 0.66 per m³ yet unconnected customers are paying between GH¢2.50 to GH¢6.50 for the same goods as shown in Table 1. Moreover, non connected customers are spending a lot of money amidst stress and with long hours queuing during shortage periods.

Conclusion

Water supply situation in Ghana has deteriorated over the past decades, with demand increasing beyond supply infrastructure. This has given way to the spring up of many small scale water providers, ranging from home sellers per buckets (20 litres) to home delivery via tanker suppliers in high volumes (2000 – 10,000 litres). Although the private vendors are contributing to the supply of water to deprived communities without formal water supply and to many more households during supply shortage, their charges are very high compared to the amount being charged through the formal sector by GWCL/AVRL. The charges from these private suppliers according to PURC (2005) are not subject to regulatory interventions except to ensure compliance with water quality standards. This has created a loophole in the informal markets for higher charges by private water vendors. If these informal suppliers are regulated and given the necessary assistance by policy makers they could improve upon their services at the same time offering regulated cheaper prices to their consumers. On the other hand, if the formal system is expanded to include all, consumers will be able to pay for the good and improved services as the survey results indicates they are already paying more. These high charges might be more than what a multi-national foreign company will charge for the provision of water services. These small scale water providers are the “other” private sector participants – the informal private sector.

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