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INCENTIVES FOR WATER SUPPLY TO THE URBAN POOR



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INCENTIVES FOR WATER SUPPLY TO THE URBAN POOR

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DEDICATION

This thesis is dedicated to the Almighty God for his grace and favour that saw me through all the travels and difficult times. It is also dedicated to my parents; Mr Atta Boakye and Mrs Victoria Adampah for their love, support and encouragement.

ABSTRACT

In recent years the marginalisation of the poor has become an issue of great concern. In addressing this problem of poverty, the global consensus has been that water and sanitation should be at the centre. However, current statistics indicate that drinking water coverage targets can be met without the poor being the focus. In Ghana, only 33% of the urban population has piped water on their premises without any clue about the coverage of the poor. Ghana has achieved the Millennium Development Goal (MDG) target on drinking water without the poor being the focus, hence the need for incentives to motivate the utility to serve the urban poor.

The study examined incentive mechanisms for expanding water supply to the urban poor in Ghana. Data for analyses were obtained by reviewing existing pro poor incentive mechanism, sector documents and policies on water service delivery to the poor in Ghana. There were also interviews with key stakeholders to identify the extent of implementation of the existing policies with respect to the poor. Field work in some selected communities (Ayigya, Kaase and Kentikrono old towns) were under taken to determine the level of access to water in the urban poor areas and also the extent of implementation of pro poor policies.

The study revealed that the Public Utilities Regulatory Commission (PURC) has developed a social funding for water supply to the poor. This social fund can be accessed through proposals to the Working Group of PURC.

The urban utility, Ghana Water Company Limited (GWCL) however, has no formal incentive mechanisms for delivering service to the poor. Infrastructure delivery has been on an ad-hoc basis without any special priority given to the poor.

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LIST OF ABBREVIATIONS

AWF	African Water Facility
CMMC	community maintenance and management committee
DANIDA	.....	Danish International Development Assistance
DAWASA	.....	Dar es Salaam Water and Sewerage Authority
DWAF	.....	Department of water Affairs
GPRS	.....	Growth and Poverty Reduction Strategy
GSS	.....	Ghana Statistical Service
GWCL	.....	Ghana Water Company Limited
JMP	.....	Joint Monitoring Programme
KMA	.....	Kumasi Metropolitan Assembly
KNUST	.....	Kwame Nkrumah University of Science and Technology
MDG	.....	Millennium Development Goal
MWRWH	.....	Ministry of Water Resource Works and Housing
NGO	.....	Non Governmental Organisation
NWSC	.....	National Water and Sewerage Company
PSP	.....	Private Sector Participation
PURC	.....	Public Utility and Regulation commission
SSPP	.....	Small Scale Private Providers
UNDP	.....	United Nations Development Programme
UN-HABITAT	.....	United Nations Human Settlement Programme
UPPB	.....	Urban Pro Poor Branch

WBSCD	World Business Council for Sustainable Development
WHO	World Health Organisation
WSP	Water and Sanitation Programme

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

In the year 2000, one-half of the world's population lived in cities. This proportion is expected to rise to two-thirds or 6 billion people by 2050 (UN-HABITAT, 2005). Following this anticipated trend, Kessides (2005) as cited in WSP (2009) indicated that the new urban residents in Africa are projected to rise over 300 million between 2000 and 2030.

An alarming accompaniment to this urbanization in Africa has been the growth of slums (UN-HABITAT, 2005). This high rate of urbanization in Africa has resulted in the spread of urban poverty and therefore requires effective policies and strategies to address it. If the trends prevail, the large majority of urban dwellers will be living in poverty in unplanned or informal settlements without access to basic services such as water and sanitation affecting public health adversely (Nyarko et al, 2005).

The adoption of the Millennium development goals (MDGs) by United Nations in the year 2000 could have therefore been a great relief since water supply and sanitation is central to improving the quality of life of the majority (Kayaga & Francey, 2001). MDG goal 7, target 11 could have given enormous boost to poverty eradication as it seeks to halve the population of the world that has no access to potable water by 2015. This argument emanates from the global consensus that lack of access to water and sanitation should be at the centre of the fight against poverty.

In the urban areas of Ghana, the water supply situation is such that the rich are served before the poor. Water supply is by piped water supply from the utility and small scale water vendors. In Accra (the capital town of Ghana), only 45% of the households has a house connection or at best a yard connection and this category includes the urban rich. The

remaining population who live in the low income areas depend on small scale water vendors who (partially) fill the gap between piped supply and urban demand (Van Roijen et al, 2008).

Water supply to the urban areas is intermittent.

The urban water utilities in developing countries often fail to provide water supply services to the low income communities for various reasons (Kayaga & Franceys, 2001, Mwanza, 2001) which include:

- poor infrastructure (deterioration of assets)
- utility's perception that low income dwellers are financially undependable (their source of income is irregular) and
- fleeting (they lack legal status and can also move from their residence at any time)
- lack of will among others.

These disincentives can be addressed if the necessary incentives (reforms and actions) are put in place (WSP, 2009). The incentives are the use of dedicated pro poor unit, grants from government and appropriate technology. Fundamentally, urban poverty and slums are not just a matter of local improvement but of a national development policy (UN-HABITAT, 2005). Kayaga & Francey(2001) further explains that institutional and technological innovations can act as incentives to improve water supply to the urban poor. This was demonstrated by the Durban Metro Water Services. The government of South Africa in 1994 set up a Department of Water Affairs and Forestry (DWAFF) under its Reconstruction and Development Programme. The DWAFF issued a white paper with a target of ensuring that all South Africans have access to water supply and sanitation seven years from the time of publication. The government also provided grants to the utilities for extension of services to the peri-urban areas. The Durban Metro Water Services used the grants from the government to establish ground tanks for providing water to the low income settlements at affordable prices but considerably higher service benefits to the customer (Kayaga & Franceys, 2001).

The study therefore, focused on identifying incentive mechanisms that have been used to assist the provision of water services to the urban poor in Ghana.

1.2 PROBLEM STATEMENT

The urban water sector in Ghana has not been able to deliver water services to all inhabitants. The worst affected by the lack of universal service coverage includes the urban poor. Yet the national and international targets for improving urban water supply do not have a poverty focus. At least the targets have not been disaggregated into poor and non poor. The result is that targets can be achieved while neglecting the urban poor. Besides, when there is a fund to serve the urban poor, appropriate technology for serving them is not yet in use in the urban water sector of Ghana.

1.3 OBJECTIVES

The main objective of the study is to determine incentive system for water services delivery to the urban poor in Ghana.

The specific objectives are:

- To assess water service delivery in urban poor areas in Kumasi
- To review successful practices in delivering water to the urban poor
- To examine pro poor incentive mechanism used in the urban water sector in Ghana

1.4 JUSTIFICATION

In order to eradicate marginalisation of the poor with respect to water supply, there should be incentive systems that will attract water operators and other stakeholders to proactively deliver services at desired levels to the urban poor thereby reducing poverty. This study shall clearly identify incentive framework that is specific to the urban poor. The study shall also contribute to the body of knowledge as pertaining to water supply services to the urban poor.

1.5 RESEARCH QUESTIONS

- How is water being supplied to the urban poor?
- What sector policies have been developed for addressing the challenges of water supply to the urban poor?
- What sector pro-poor incentive systems are being used for water service delivery to the urban poor?
- How best can utilities/operators be motivated to provide service to the urban poor?

1.6 SCOPE AND LIMITATION

The research was limited to the data available at Ghana Water Company Limited (GWCL), Public Utility and Regulation Commission (PURC) and Kumasi Metropolitan Assembly (KMA) at the time of study. The assessment of water supply to the urban poor was based on three communities in the Kumasi Metropolitan Assembly (Ayigya old town, Kentikrono old town and Kaase old town).

CHAPTER TWO

LITERATURE REVIEW

2.1 THE URBAN POOR AND WHERE THEY LIVE

Generally the definition of the poor remains a challenge since the factors that cumulate into its definition are several and varied. For instance, Adjasi and Osei (2007) as cited in Agyekum (2011) explained that poverty is a complex multifaceted phenomenon and its complex nature is replicated in many attributes like illiteracy, low economic power, and vulnerability to health problems all which can be summed up as economic, social and political deprivation of the individual or society. Also, the United Nation's world summit on Social Development, the famous Copenhagen declaration of 1995, described poverty as a condition characterized by severe deprivation of basic human needs including food, safe drinking water, sanitation facilities, health, shelter, education and information. Thus regardless of once income level if he cannot access the basic social needs then such a person lives in poverty.

Aside the social view, poverty can also be described in absolute terms, as a set poverty line at a certain income amount or consumption amount per year, based on the estimated value of basic goods like shelter, food, water etc necessary for proper living (Sanjay & Pogge, 2005). In line with the above definition the World Bank sets its poverty line at \$2 a day or less, and extreme poverty at \$1 a day or less (Poverty manual, 2005).

Generally, by superimposing the absolute and social definitions, the poor can be identified by where they reside, by the lack of access to basic facilities such as health, education, water and sanitation facilities, or the wealth group to which they belong (living on less than the nationally-determined earning per day).

In Ghana the definition of poverty also varies from one institution to the other. For instance the Kumasi Metropolitan assembly (KMA) adopts the \$1 per day poverty line definition of poverty (KMA, 2010). In addition to this, the assembly asserts that the facets of man's life that reflect the extent of poverty are access to basic needs and resources, vulnerability, political alienation, social/cultural and psychological deprivation (KMA, 2010). In line with the above, the following indicators have been identified by the assembly as manifestation of poverty in Kumasi:

- Poor physical condition of the environment
- Lack of decent accommodation (without basic facilities)
- High school dropouts
- Low productivity and income
- Poor living conditions
- High level of illiteracy
- Malnutrition
- Inadequate balanced diet
- High mortality rate and child labour

The Public Utility Regulatory Commission (PURC) also has its own definition with respect to access to water supply services. Thus, the PURC defines the urban poor as those without access to the utility's supply; who depend on secondary and tertiary providers; and who purchase water by the bucket.

In cities where there is a clear segregation between informal settlements and/or low income and more developed areas, it is not difficult to identify the poor and to target interventions (AWF 2010). However, in other cities, settlement patterns may be mixed, with poor people living amongst obviously affluent neighbours, or indeed the pressures of urban renewal, creates a transition for the poor and the rich to live together and such is the situation in Kumasi. This has implications for the water supply options available to the utility.

2.2 CHALLENGES OF URBAN WATER UTILITIES

Existing water services in many African cities and towns are characterized by intermittent supplies, regular breakdowns, inefficient operations, poor maintenance, and depleted finance (Mugisha et al., 2006, Cross & Morel, 2005, Kayaga & Franceys, 2001). Political interference and low tariff have led to inefficiency and persistent financial weakness of public utilities. This has resulted in the fact that subsidized services are reserved for those who are privileged to have direct connections to their homes while the poor end up seeking other alternatives which might be of lower quality or higher cost (Cross & Morel, 2005).

This weakness in the water utilities is as summarized below in Fig 2.1.

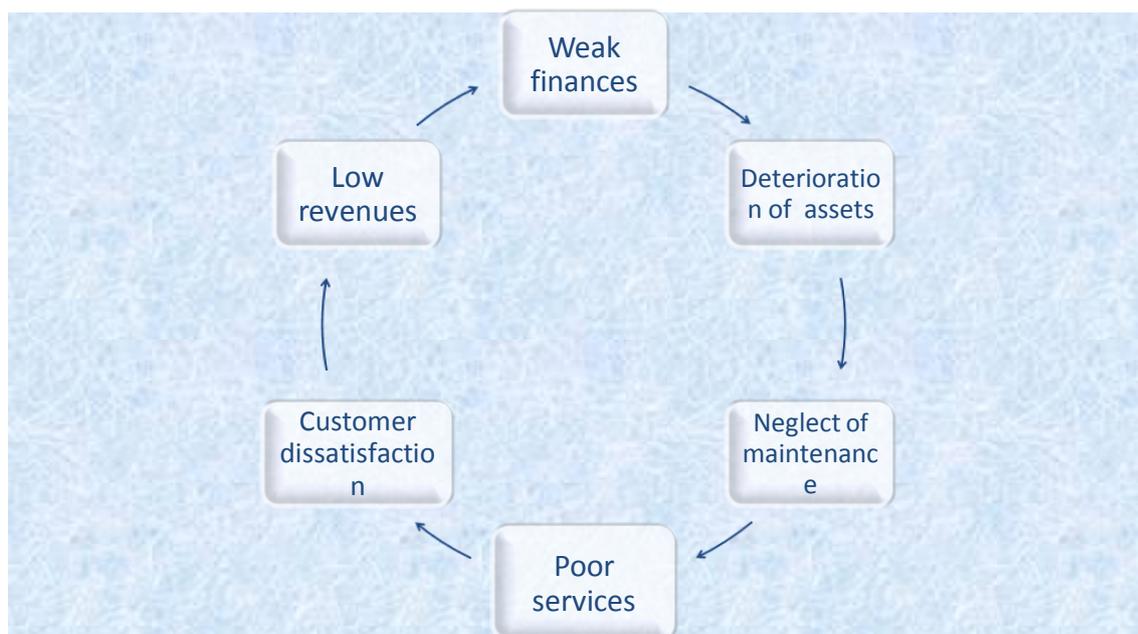


Fig. 2.1 The stagnation of WSS utilities in Africa (adopted from Cross & Morel, 2005)

It is therefore expedient to create incentive systems for urban utilities to perform better and draw poor and slum dwellers into the consumer base, (Cross & Morel 2005).

2.3 TRENDS IN WATER SUPPLY

The Joint Monitoring Programme of WHO/UNICEF report 2012 shows evidently that there has been marked improvement in urban water supply in Sub-Saharan Africa (WHO/UNICEF, 2012). This improvement is as a result of supply options that are available for urban areas (other improved drinking water sources) like standpipes, boreholes and well tubes (WHO/UNICEF, 2012). This improvement contrasts the supply option of piped water on premises. There has only been a small incremental success with respect to piped water on premises. In line with this trend, the percentage of the population using drinking water on piped premises in Ghana decreased from 37% to 33% while those depending on other improved water sources increased from 50% to 58% in the urban areas from 2000 to 2010 (JMP, 2012). This trend in supply options should not be lost as attempts are made to serve the urban poor. If the current trend should continue, then the poor in most developing countries will be served by other improved sources instead of piped water on premises.

2.4 PRO-POOR INCENTIVES

Organizational incentives refer to both the reason for staff to join an organization, and the way an organization rewards and punishes its staff (UNDP, 2006). Incentives measures such as salaries, rewards, recognition or sanctions have been known to be used traditionally to motivate staff for improved performance. Internal incentives designed to influence staff motivation could be financial or non financial benefits.

The financial incentives could be direct such as salaries, pension, bonuses, etc while the indirect ones include subsidized meals, housing facilities, transport services etc.

The non financial incentives come in the form of rewards, gifts, travels etc. Some of these are more tangible in that they can be compared with the financial incentives. These financial and non financial benefits constitute the internal incentives.

However, another of such internal incentive is incentive contracting. Incentive contracting as used by the National Water Sewerage Company of Uganda has shown to be an effective way of changing organisational behaviour from laziness, sluggishness, “I don’t care” to one of speed, commitment, effort and performance orientation (Mugisha et al., 2006, Chun et al., 2003). A study of Ghana public sector concludes that “The significance of internal factors in creating positive organizational cultures suggests that many of the changes needed to transform public organizations could be initiated by the organizations themselves without substantial external support”(UNDP, 2006).

Incentives according to Da Mota and Mendes (1996) as cited in Babosa (2010) can be grouped into regulatory and economic incentives. The regulatory incentive are also divided into the use of benchmarking tools, carrot & stick on one hand and regulations, policies and laws on the other hand (Fig 2.2).These incentives are discussed further in the sections below;

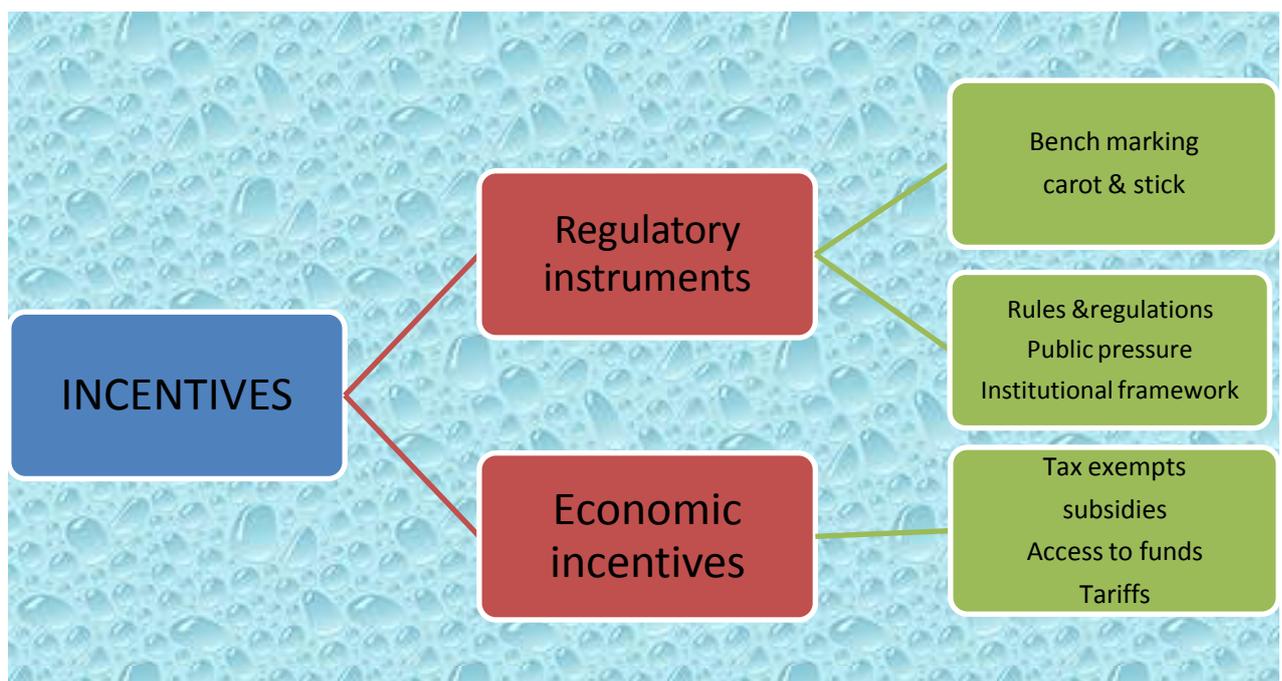


Fig. 2.2 Incentives source: Barbosa (2010)

2.4.1 Access to funds

This defines the options that are available for the utility to have access to funding needed for both capital and operational expansion of the network in order to sufficiently serve the urban poor. Expansion of the network to the un-served is capital intensive and therefore for the utility to embark on such a project there should be adequate funds from credible sources with a reasonable low interest/rate of return on the funds if any. According to the PURC Urban Water Tariff policy (2005), the barrier to the urban poor having private connections lies in the lack of adequate infrastructure. Thus, to overcome this deficit the utility should be well funded by the government to undertake expansion of its distribution network.

In Brazil, the federal government has set aside a special fund for the utilities to improve service delivery to the vulnerable areas. This fund is loaned to the utilities at a very low interest rate. The utilities are given fifteen (15) years to pay for the loan accessed. This fifteen years starts after two years of accessing the loan. Some utilities that have benefitted from this include Foz du Brazil, Sanasa etc, in the implementation of social tariff structure and urbanisation (Sanasa, 2011).

2.4.2 Targeted funds

This covers grants received from donor agencies and governments towards the attainment of a set objective. For instance, the government of South Africa towards the achievement of its policy on water to the peri-urban gave grant to the water utility for expansion in its network (Kayaga & Franceys, 2001). Also, the UPPB of NWSC, Uganda received substantial donor funding from donor agents in order to be able to under its pro-poor intervention in Kampala that resulted in increased customer base (approximately 50 customers a month) and revenue (AWF, 2010). The managing director had noted before this that their hands were being tied when the government of Uganda cancelled their debts in 2008 for the utility to commit them

to implementing many agreed projects (AWF, 2010). However, the donor funds helped the UPPB to achieve its vision of serving the urban poor.

2.4.3 Connection subsidies

Connection fees are set to recover the full cost of a connection from the mains to the customer including the service pipe, meter and ancillary components. This one off payment needed to obtain private connection is mostly unfriendly to the urban poor since they are quite high and inconsistent with their livelihood (Franceys, 2005). Subsidising or providing flexible payment arrangement will grant the urban poor the opportunity to have their own private connection (Jacobs & Franceys, 2008).

However, the urban water tariff policy of the PURC (2005) states otherwise. It regards the willingness and ability of the un-served customers to pay substantially higher volumetric rates to secondary market service providers than those connected to the GWCL system as a basis for this argument.

2.4.4 Public pressure/complaints

The poor are known to have little or no voice in societies and therefore cannot influence utilities to supply them with the desired level of services. This is further aggravated by the fact that the driving force stimulating utilities to deliver services are simply the rich and the middle class who are vested with the market power and political influence to lobby utilities to provide high level of service.

Paul (1992) argues that public pressure promotes accountability and performance thereby improving water utilities response to cater for the poor. The extent to which the public pressure can influence utilities remains debatable.

2.5 LAWS AND REGULATIONS (POLICY)

Laws and regulations are external factors that can influence the utility to supply the low income areas with water. For instance the South African water supply and sanitation white paper in 1994 set the target of ensuring that all South African have access to basic water supply and sanitation within seven years from the date of publication (Kayaga & Franceys, 2001). In addition the South African Water Service Act of 1997 provides a legal framework for the implementation of the Government's white paper (Kayaga & Franceys, 2001). The JMP of WHO/UNICEF report (2012) shows South Africa has had a success in this endeavour; 99% of urban populations and 79% of rural populations are reported to be adequately served with improved water supply. This clearly indicates that a high level of political will is needed to ensure that the urban poor areas are served with quality and reliable water supply. The political will is exemplified by the government of South African in the grants given to the water utility for expansion to peri-urban areas in line with the Water Services White Paper and Water Services Act (Kayaga & Franceys, 2001). The laws and regulations in Ghana include the National water policy, the PURC Act and PURC social policy as well as the GWCL Act. However political demands make it difficult for the full realisation of such reforms. For example, recent attempts by the GWCL to increase tariff to cover operational cost which was approved by the PURC saw its implementation being vetoed by the government who subsidized the difference to avoid public repercussion (Van Rooijen et al, 2008).

2.5.1 Drinking water policy in Ghana

The drinking water policy has it as an objective to ensure accessibility to safe drinking water by low income and peri-urban consumers (Nyarko et al, 2005). In order to achieve this two strategies are outlined;

- To adopt a tariff rate that that provides an optimal benefit to consumers including low-income consumers.
- to encourage cooperation between GWCL and small-scale independent providers, rather than grant exclusivity to either party, to facilitate adequate and affordable provision of safe drinking water to un-served and underserved areas

2.5.2 Public Utilities Regulatory Commission (PURC) Act

The PURC was established by an Act of parliament in 1997, Act 538. This Act gives the PURC the mandate to regulate public utilities in the country. The key functions are;

- Provision of guidelines for setting rate for provision of utility services.
- Protection of the interest of consumers and providers of utility services.
- Promotion of fair competition among public utilities
- Initiate and conduct investigation into standards of quality of service given to consumers
- Monitor and enforce standards of performance for provision of utility services

2.5.3 The PURC social policy

The PURC social policy outlines the objectives of PURC in performing its duty to protect water consumers. This includes both the served and un-served (PURC, 2005). Some key points in the policy include

- PURC will take the lead role in the resolution of pro-poor issues in the urban water sector in line with its regulatory mandate to protect the interest of consumers, as well as Government poverty reduction objectives
- PURC will support any interventions, which result in improved and more reliable access to water, with the ultimate goal of direct connections

- PURC will instruct urban water utilities to include pro-poor criteria when undertaking investments in water supply projects
- PURC will lead the formation of a working group of stakeholders to address provision of service to the urban poor. The group's tasks will include the targeting of any social funding or other relief schemes for the poor. PURC will undertake pilot studies to test interventions in delivering water to low-income communities to provide lessons that will inform its regulatory policies, the supply and payment options available to the utility and the criteria for determining investments targeted to the urban poor

Thus the social policy provides some policy framework for water supply to the urban poor in Ghana.

2.6 PRO- POOR UNITS WITHIN UTILITIES

The mandate, organizational structure and skills of utilities are often inappropriate to deliver service to the poor (AWF, 2010). The structure of an organization contributes immensely towards its success in achieving set targets. Organizations which are not pro-poor inclined therefore find it difficult to implement pro-poor strategies and interventions.

A measure to overcome the numerous bureaucracies in public utilities and secure funding as far as service delivery to the urban poor is concerned is the establishment of dedicated pro-poor units. The establishment of the unit should be backed by technical support and political will for effective implementation of pro-poor agenda. A case in point is the success story of Uganda.

As a public utility, the National Water and Sewerage Cooperation (NWSC) of Uganda has a duty to provide service to all, including the poor. The extent to which it can carry this out depends to a large measure on the willingness of government to exercise its policy and regulatory functions over the utility, and its willingness to prioritize water supply and

financially support it to effectively carry this out (AWF, 2010). In response to this, The Ministry of Water and Environment and NWSC of Uganda have signed a Performance Contract with an agreed framework within which urban water sector goals are achieved within anticipated timeframes, with penalties and bonuses. There were also agreed indicators for the delivery of service to the urban poor, measured by an increase in number of connections on subsidized tariff (low income consumers).

The utility also aligned itself to meet the challenge. Following recommendations made by various studies and political will the NWSC of Uganda established a special dedicated unit, the Urban Pro-Poor Branch (UPPB) with professional and technical staffing, to oversee the various interventions that the utility is pursuing. The overriding objective of this establishment is to execute NWSC's mandate to help meet the MDG goals by providing support to NWSC branches in the city of Kampala with informal settlements, and to work with headquarters and donors to implement capital works programs targeting the urban poor.

In Uganda, NWSC's UPPB has been able to attract substantial donor funding to undertake pro-poor interventions and to increase revenues, adding approximately 50 new customers a month, a situation which cannot be divorced from the proven efficiency of the utility itself (AWF, 2010). Another success story is the Durban Metro water services of South African. The Government established a new Department of Water Affairs and Forestry (DWAF) for reconstruction and development which led to the provision of standpipes and water kiosk for the urban poor (Kayaga & Franceys, 2001).

On the other hand WSP Africa (2009) as cited in AWF (2010) explains that the peri-urban unit of the Lusaka Water and Sewerage Company in Zambia is [even] struggling to gain priority within the company's operations. Thus, technical staffing coupled with political will and clear room for such units to operate is very essential to its success. 'The establishment of a specialized unit or programme provides momentum for the utility to tackle the challenges

that lie ahead and encourages the utility to be proactive rather than reactive' (Jacobs & Franceys, 2008). Table 2.1 gives a summary of pro-poor unit examples in Africa.

Table 2.1 Summary of pro poor unit examples

Country	Kenya	Tanzania	Uganda	Zambia
Utility	Nairobi city water & sewerage company	Dar es salaam water & Sewerage Authority	National water and Sewerage cooperation, Kampala branch	Lusaka water and Sewerage cooperation
Name	Informal settlements department	Community Liaison Unit (CLU)	Urban Pro-poor Branch	Peri-urban Department
Date established	2008	2003	2006	1999
Population in poor settlement	Approximate 1.9 million (60% of Nairobi population)	Approximately 900,000 (36% of the total population)	Approximately 450,000 (20% of the total population)	Approximately 1.5 million (60% of the total population)
Number of full time staff of unit	6 (expansion plans are underway)	5	10	14
Staff composition of unit	Manager Technicians (2) Lead sociologist Assistance sociologist(1) Secretary (1)	Manager Communications specialist (1) Engineers (2) Technician (1)	Manager Technical supervisor (1) Plumbers (1) Commercial staff Social workers(4) Cashier (1) I T support (1)	Manager Zone heads (3) Senior Engineer (1) Superintendents (2) Ass. Community Development officers (4) Customer services Assistance (3) Foreman (1) Community base contract plumber(4)
Model used	Headquarters department	Headquarters department	Branch office	Headquarters department
Purpose	To coordinate donor and partner initiatives, implement capital work programs (in coordination with the asset holder) and	To implement and supervise the community managed water & sanitation schemes; also responsible for DAWASA public relations and	To execute NWSC's mandate to help meet the MDGs by providing support to NWSC branches in the city of Kampala with informal settlement, and to work with HQ and donors to implement	Coordination, implementation and operations of services in peri-urban and informal settlements.

	provide guidance and support to branch offices for O & M and social issues	implementing the resettlement plan (RAP)	capital works programs targeting the urban poor	
Provided with annual budget	Starting in FY09-10	Yes	Yes	Yes
Reporting	The Department reports to the Technical director (who then reports to the managing director)	The Community Liaison Unit manager reports to the Chief Executive Officer	The branch manager reports to the the GM of Kampala and project managers of urban poor projects (located at headquarters)	The peri-urban manager reports to the commercial Director (who then reports to the managing Director)
Novel approaches	Strong focus on community and partnership	Off network schemes in peri-urban area	Pre paid meter	Semi-autonomous branch in informal settlements, partnerships with Community Water Trust

Source : WSP (2009)

2.7 TECHNOLOGIES USED IN SERVING THE URBAN POOR

In the light of modernity and technological advancement several technologies for supplying the poor with safe drinking water has evolved in addition to the traditional ones. These technologies take into account the income levels of the poor as well as the sustainability of the implemented technology. Such technologies include: the condominal system, the use of pre-paid meter, Bayan tubig etc.

The private operators have shown from works done globally that the option of technology chosen depends on some key drivers, Jacobs & Franceys (2008). These drivers include:

- the level of investment that is available (e.g. whether capital investment is to be met solely by users or subsidised by the state or international institutions)
- the technical feasibility (including condition of the network, its extension capacity, ability to deliver good-quality drinking water)

- social acceptability (meeting needs, willingness rather than ability to pay, improved facilitation of payment)
- potential for partnering
- Contractual obligations (flexibility in standards).

Such has led to the installation of prepaid meters (PPM) and yard taps in South Africa. Jacobs & Franceys (2008)

2.7.1 Condominial approach

This is a concept that was developed by Brazilian engineers in the early 80's. This approach predominantly aims at;

- reducing significantly investment by implementing appropriate technological solutions. However the level of service remains the same as in conventional system
- promoting community participation from the design to maintenance phases. This provides stronger identification with the project, better knowledge of the system and allows reduction of connection fees (WBSCD 2002).

This approach reduces house connection cost by using fewer pipes of smaller diameter buried under shallow trenches. The pipes would be damaged by heavy vehicles if buried under roads. The options of connecting the communities are many and varied: laying the pipes under side walk, under neighbour blocks or running along the backs of blocks where there is no vehicular traffic. Each community is allowed to choose the option it prefers. Aguas del Illimani (a consortium headed by ONDEO services) used this approach in La-Paz, El Alto to achieve a 100% water supply to low income areas in these twin cities of Bolivia in a matter of three years, two years shorter than the concessionary agreement (WBSCD 2002). In their case the households were involved in the design and installation of the project. Household

that took part were offered a reduction in the connection cost. They allowed the households to spread the payment for the connection over five years without interest. This aspect of community participation is very key to the sustainability of this approach because households are responsible for the maintenance of the pipes that run through their backyard (private lot) while the operator is responsible for the maintenance of the main network.

2.7.2 Bayan Tubig

This technology is very suitable for slums with high population density where access to households is difficult. The technology provides individual households with connections through appropriate technological, organizational and pricing strategies. The Bayan tubig is a specially designed network from the existing main water line to the community's border. A tertiary line then runs through the major alley (this could be above ground or buried, even fixed to a wall) to a battery of meters. One meter is allocated to each household; a plastic pipe is fixed to provide individual connections.

The selection of site for the installation of meters is done with the community to ensure that they are protected, easy to read and maintain and do not hinder the movement of people in the alley (WBSCD 2002).

This technology was employed by Manylad water services Incorporated to supply low income areas in Manila with safe drinking water. In this project the connection fee charged at the low income areas was the same as other residential areas. The difference was that low-income Bayan Tubig connections had instalment payments free of interest. The implementation of this technology has seen to about 58,000 households connecting, with the monthly bill for each household declining by one third (WBSCD, 2002)



Fig. 2.3 Water for the poor (WBSCD, 2002).

2.7.3 Public standpipes

These are public water points that allow the informal dwellers (urban poor) to purchase the quantity they need for their daily consumption. These standpipes are mostly installed (or initiated) by the utility, assemblymen and benevolent individuals within the community or those who trace their family line from such communities, NGOs and sometimes private individuals. In the case of the utility (GWCL) private vendors are employed to manage these standpipes. The other providers may do same or in most instances live them in the care of the unit committee within the area. The private individual standpipes are mostly managed by the owner and his household. The standpipe technology lives the households with some level of flexibility that is critical to their livelihood strategies. Looking at the pattern of their livelihood it is difficult to save for the payment of monthly bills (which sometimes is sporadic and infrequent) but this situation allows the low income dwellers to pay for the water as when needed. These standpipes often take their source from the main distribution

network that runs nearby and hence their quality is not that much of a suspect. In other instances, for the private case, boreholes are constructed to serve the households.

2.7.4 Private house connections

This is where individual household have direct connection from their homes to the main distribution network. Private house connection to the utility provides the most satisfactory way of supplying water to people. However, the urban poor households are unable to connect for a number of reasons. Such limitations include;

- affordability (raising the capital needed to pay the connection fee)
- insecure land tenure (they are mostly tenants and also live in unauthorised structures and places, making it difficult to provide the needed tenure documents for private connection)
- the settlements are not well planned and presents technical challenges

In the areas where some households are able to connect to the distribution network, they are shared by the entire households that live in the compound. In such houses yard taps are erected at vantage points within the compound. The water bills arising from consumption are shared by the households according to their sizes.

2.7.5 Hand dug well

Hand dug well is a source of supply employed to supplement water needs in low income areas. These wells are mostly provided by the low income dwellers or some individuals. In most cases the quality of this source is a major issue since little or no treatment is applied to the water from this source. The low income dwellers use this alternative source mostly for washing of clothing, utensils and other clean-up works since the quality is doubtful. They are

also not charge any fee for fetching from this source except in cases where the water is treated.

2.7.6 Rain water harvesting

Low income dwellers have various storage containers for harvesting rains. The water from this source is used for domestic activities such as washing, cleaning and even drinking. This is a natural source and hence households pay no charges for the harvested rains except the cost of the storage containers. The ultimate challenge associated with this option is the erratic nature of rainfall in Ghana leading to seasonal variations in supply. Quality becomes issue of concern when considering the mode of harvesting and storage. Some storage mechanisms end up contaminating the harvested rains.

2.7.7 Intermediate service providers

Private connections and standpipes may have limitation in that some low income areas are located at areas where there is no distribution network or occupy settlements formed in unstable areas the utility will not want to extend the network to. Thus, such low income dwellers depend on intermediate service providers for their supply. Intermediate service providers obtain water from the utility and

- install and manage network expansion
- install and manage water points or
- Deliver water to their customer via water tankers, trucks, carts etc.

Some communities in Haiti used such an approach to reach the un-served. Instead of waiting for CAMEP (*utility*) to extend water services into their neighbourhoods, the communities requested for the installation of a single metered access pipe that stops at the entrance to their district.

From that point forward, water committees elected by each community took full responsibility for distributing the water to points throughout the neighbourhood and for collecting payments. The committees also obtained legal standing that allowed them to draw up contracts with builders to install simple water distribution pipelines, holding tanks and standpoints where water is sold to consumers who fill up buckets and other vessels. They also hire individuals to run the standpoints, maintain the distribution network and collect fees.

The committees were paying CAMEP once a month for the bulk water delivered through the district access point (\$0.30 per cubic metre for the bulk water, and the committees sold it to residents at about \$1 per cubic metre).

Although, expensive it is much better than water vendors charge (\$3 to \$5 per cubic metre).

The \$1 charge covers administration costs, maintenance costs, salaries and reinvestment.

CHAPTER THREE

METHODOLOGY

This chapter presents the methodology used in carrying out the research. The methods used are as follows: desk study, literature review, key interviews with stakeholders and assessment of water situation in selected urban poor communities.

3.1 DESK STUDY

Relevant literatures with respect to the research were reviewed. This aspect was divided into two main areas. The first thematic area was the reviewing of incentive mechanism for delivery of water services to the urban poor based on intentional best practices. This was based on policies and actions taken globally to ensure improvement in delivery of services to the poor. The second area looked at sector documents (in Ghana) for incentive mechanism and the extent to which these policies and actions have been implemented.

Map and data relevant to the study were also obtained from stakeholders such as the GWCL and KMA (figs 3.1 & 3.2). These were used in identifying the urban poor communities in Kumasi.

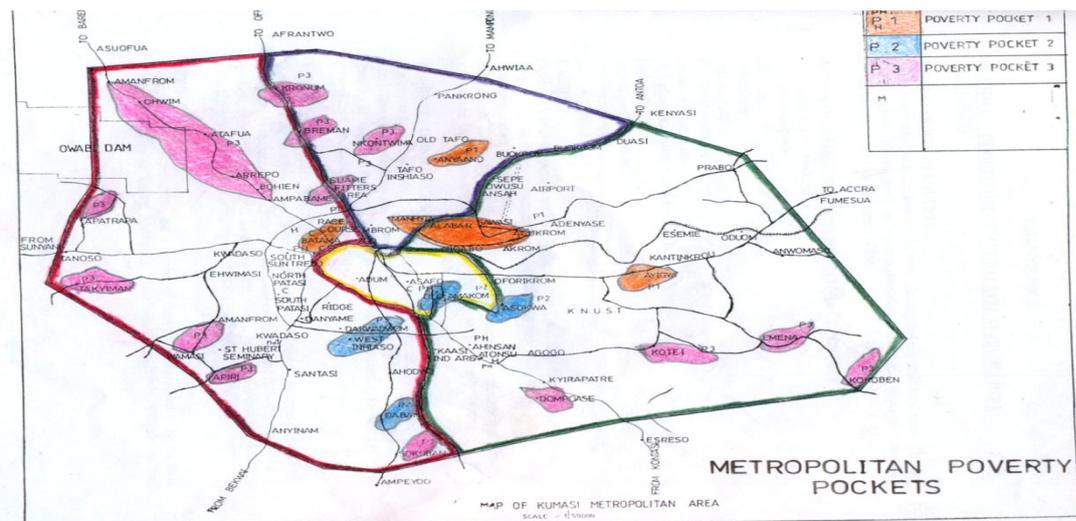


Fig3.1: Pockets of Poverty in Kumasi Metropolis

Source: KMA (2009)

3.2 INTERVIEW WITH KEY STAKEHOLDERS

There were some interviews with key stakeholders (the General Manager, Ashanti Region, Regional Customer Care Manager, Project Engineer and some District Managers of GWCL) to identify and determine the incentive systems that can help the utility to extend service to the urban poor communities. This interview also sought to identify any existing incentive mechanisms that were in use. The key informants were first asked to identify and assess the incentives that motivate them to serve the urban poor within their mandate. In addition, a list of selected incentives was given to the utility to indicate which ones will motivate them to serve the urban poor. The level of motivation was to be indicated by scoring from 5 (high degree) to 1 (poor degree). The utility was also to provide any other incentive that could motivate them to serve but was not included in the list.

Other sector actors who also play a key role in water delivery were also interviewed. The Public Utility and Regulatory Commission (PURC) has been mandated by an Act of Parliament to regulate public utilities in Ghana. The PURC developed policies to ensure equity in the services provided to consumers. The social policy has some important points on the urban poor. The PURC was interviewed with regards to the extent to which it has achieved the urban poor objectives outlined in the PURC social policy and other policies on the urban poor.

3.3 FIELD WORK

The research was focused on water supply to the urban poor. The assessment of water situation in the urban poor areas was based on the situation in three districts in Kumasi, the second largest city in Ghana. One community from each of these districts was selected: Kaase, Kentikrono and Ayigya old towns.

These factors (adopted from KMA) were used in identifying the urban poor communities for this study:

- Poor living conditions (household size occupying single room and physical condition of the structure)
- Poor physical environmental conditions
- Lack of decent accommodation (without basic facilities)
- Low productivity
- High mortality and child labour

3.3.1 Description of the Study Area

This section describes the communities that were selected for assessment of water situation in the urban poor areas.

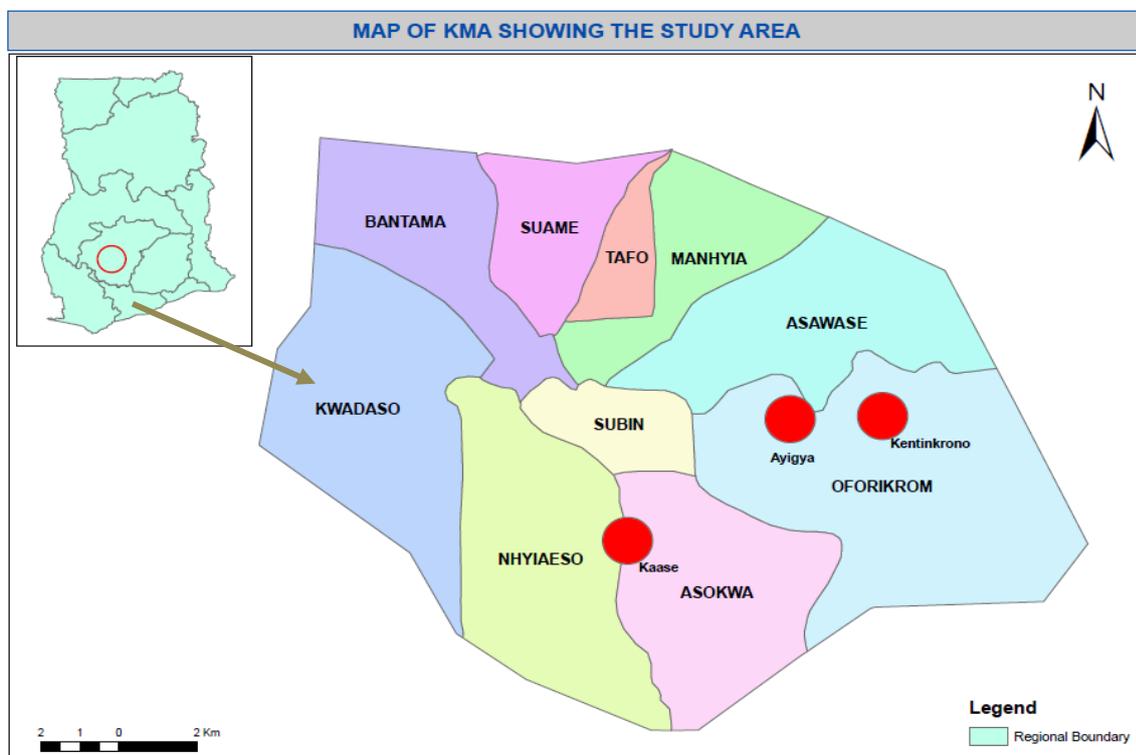


Fig. 3.2 Map showing the selected communities

3.3.2 Ayigya (old town & zongo)

Description of community

This community falls within The Ayigya Town Council which comprises three electoral areas namely Ayigya Zongo, Ahinbrunum and Akatago. The Town Council is bound to the North by Asokore Mampong, to the East by Kentinkrono, to the West by Bomso and to the South by KNUST. The significant role played by the Town Council in promoting higher education in the Metropolis and in Ghana as a whole cannot be underestimated. As adjoining settlement to KNUST it hosts most of the hostels that provide accommodation to students who are not fortunate to secure accommodation on campus.

The Ayigya Zongo is located in the heart of Ayigya Town Council. It constitutes the core from which the Town Council started spreading to the periphery. Thus, this electoral area is densely populated compared to the other electoral areas in the Town Council.

The 2000 Population and Housing Census Report put the population of Ayigya at 30,283. However with the current trend of urbanization, the population for Ayigya is projected to stand at 56,923. The increase in population is partly caused by natural increases and migration into the Town Council to take advantage of the job opportunities in the Commerce and the service sectors of the local economy

The increase in commercial activities has left the Town Council with a high number of makeshift and ramshackle structures springing up along the access roads in the area. Some of these structures have even encroached on the roads narrowing the roads to one lane

Again most of the houses built in Ayigya lack proper drainage system. This has resulted in the problem of erosion which has destroyed the various access roads in the area making it difficult for vehicles to travel on the roads.

Water and Sanitation

The main source of water supply for the people in Ayigyia is pipe born water form GWCL. However, it is plague with irregular flow, thus denying the residents of quality water. Children and women have to wake up very early in the morning in search of water. This has compelled some of the residents to use other sources of water that are either expensive or of poor quality.

The mode of solid waste management in the Town Council is mostly the Communal system and the Door to Door collection at some part of the Town Council. There are few waste disposal sites and public place of convenience. Facilities present include Aqua Privy, KVIP, VIP and Water closet types.

As a result of the fact that sanitary facilities are inadequate, indiscriminate solid and liquid waste disposal is the order of the day in the Town Council. Human, solid and liquid waste is poorly managed in the area. The major cause can be attributed to ignorance and non-existing/ inadequate sanitation facilities.

3.3.3 Kentikrono

Description

The Kentikrono-Ayeduase Town Council is located in the Oforikrom Sub-Metro, along the Kumasi-Accra road. It is located in between the Kwame Nkrumah University of Science and Technology (KNUST) and Oduom. The Town Council oversee the administration of Kentikrono and Ayeduase electoral areas. The annual growth rate of the Town Council is estimated at 5.4 percent as opposed to that of the region 2.7% and the nation, 3.4% (KMA, 2010).

The educational infrastructures in the Town Council lack basic logistics, has no drainage, urinal and toilet facility, inadequate school infrastructure and thus have interrupted on the smooth process of teaching and learning. This has seriously affected the academic performance of students in the area.

The built environment of the Town Council can be said to be developed to a lower extent since about 60% percent of the total land area has not been developed. Construction of houses is the major physical project that has significantly altered the landscape of the Town Council.

There are roads connecting the various communities to the adjoining ones. The Town Council has not been fully developed but the already sited structures have not been developed under any proper pattern. The inability to ensure proper development control has resulted in haphazard development of physical structures.

Water and Sanitation

The main source of water supply for the people in the Kentikrono is pipe borne water. However, it is inadequate to meet the water needs of the people. The pipe-borne water flows irregularly and as a result most people depend on other sources for their daily supply paying exorbitant fees for them.

The current sanitation leaves much to be desired as the Communal refuse sites are inadequate, with low coverage of house-house collection, Lack of refuse truck, indiscriminate disposal of solid waste and irregular collection of generated waste

This has resulted in indiscriminate disposal of refuse in open space. The other methods of solid waste disposal include the following; crude dumping, filling of excavation and bush dumping.

Another problem that pertains in the Town Council is poor drainage system. There are inadequate drainage facilities and the few ones are poorly maintained. The end result is that erosion has eaten deep into the lands of the area.

3.3.4 Data collection for Field work

Data collection for the field work was obtained in two ways: a field work to identify the various service providers and implemented pro poor policies and administration of questionnaires to the households.

3.3.4.1 Field survey:

A survey was conducted within the selected three low income communities, to identify the access to water by the urban poor communities. The service providers within these communities were selected randomly and interviewed to determine the various options of water supply technologies as well as their level of service. In all 7 GWCL standpipe operators out of 12, 15 private standpipe operators (GWCL source) and 5 private borehole operators were interviewed out of 5 (Table 3.1).The other part of the field work also concentrated on visiting the sites to see what has been implemented as a result of some interventions taken to alleviate the problems of the poor.

Table 3.1 Number of service providers interviewed

Communities	GWCL standpipe operator		Private standpipe operators (GWCL source)		Borehole operators		Hand dug well operators	
	No. interviewed	No. in community	No. interviewed	No. in community	No. interviewed	No. in community	No. interviewed	No. in community
Ayigya	3	5	5	NA	2	2	1	2
Kentikrono	1	1	5	NA	3	3	1	2
Kaase	3	6	5	NA	–	–	2	4
Total	7	12	15		5	5	4	8

*NA – not determined

3.3.4.2 Design and Administration of questionnaires:

The questionnaires were designed based on the objectives of the field work. The field survey provided a vital input into the design of the questionnaires. In all 96 questionnaires were administered, 32 in each community. This was done randomly to obtain a widespread coverage. This aspect of the study looked at investigating the reliability, cost and distance households travel to access the various water supply options.

3.4 METHOD OF ANALYSES

The method of comparative analyses was the main tool employed in this study given that the data is qualitative in nature. This method allowed for urban poor actions, incentive and motivational levels in the services offered by the service providers to be identified. It also provided the avenue for the pro poor policies and actions used globally to be compared with what is happening within Ghana so as to propose appropriate mechanism for improvement.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter gives the details of the results obtained from the research. It has been organised in three parts: the first part evaluates the ways by which the urban poor have access to water in the selected communities, the second part identifies the successful practices in water supply to the urban poor, while the final part looks at the incentive mechanism in the water sector of Ghana.

4.1 ASSESSMENT OF WATER SUPPLY

The following supply options were identified from the field survey;

- GWCL standpipes
- Private standpipes (GWCL source)
- Private borehole
- Direct (private) connection to GWCL mains
- Rain water harvesting
- Hand dug wells

4.1.1 Public standpipes (GWCL source)

The instalment of GWCL standpipe is both demand and supply driven. On the demand side customers approach the utility and request for a standpipe to alleviate water supply problems in the community. The supply side is when the utility as part of its mandate to supply water to the urban areas install standpipes at vantage points within the low income communities. This situation arises as a result of the following;

- There is no continuous flow through the distribution network due to low pressures

- The low income dwellers cannot afford the connection fees needed to get their own household connections
- The housing pattern provides technical difficulties for the utility to lay pipes for house connection.

In either way, the utility contracts the services of a vendor who manages and sells the water from the standpipe to the low income dwellers. The vendors are then informed to sell water at the lifeline tariff. The contract agreement is such that the vendors are paid a commission of the total consumption (at a price equivalent to the lifeline tariff).

4.1.2 Private standpipe (GWCL source)

The private standpipe results from domestic resale of water. Low income dwellers who may have private connections to the distribution mains seeing the plight of their neighbours resell water to the neighbourhood. The utility (GWCL) put such customers on commercial grade. This places them in a situation that makes it difficult to charge the lifeline tariff. Their price ranges from 7 – 10pesewas per 18 litre bucket (thus, between \$2.60 – \$3.60 per m³) compared to the lifeline of 5pesewas per 18 litre (equivalent to \$1.80 per m³). The operational hours are normally from 4.00am to 8.00pm and are dependent on the capacity of the operator's storage tank since water normally flows for a short period in the morning and in the evenings.

4.1.3 Private borehole

The private borehole operators have sunk boreholes within their premises and sell water by the bucket to the urban poor. They sell at 5pesewas per 18 litre bucket (equivalent to \$1.80 per m³). This is a more reliable source of supply since there is continuous flow at most times except when there is prolong power cut. In order to address this problem of power cut the operators have one or more storage tanks ranging from 2000 gallons (9m³) to 2500 gallons

(11.4m³). Operators contract the services of GWCL and sometimes other private borehole drillers to get it installed on their premises. The operators indicated during the interview that they tend to invest in other productions like sachet water, tanker supply services, fruit drinks etc to make up for the low patronage from the community because of the longer distance the low income dwellers travel to access this option. Thus, these other uses become a more reliable source of income and compensate for the low patronage by the community due to longer distance (about 200m) they will have to travel to access them. It can therefore be deduced that the private borehole providers are mainly incentivised by the fact that there are other production avenues that can provide them a more reliable source of income.

4.1.4 Hand dug well and Rain water harvesting

The hand dug wells and rain water harvesting are sources that are used by the communities to complement the other sources. Thus, the GWCL source is used as drinking water while the other household chores such as washing of clothing, utensils etc. are done with the water from these supplementary sources. This leads to seasonal variations in the patronage of water at the standpipes. In the wet season patronage at the standpipes is low compared to the dry season where there is little/no rain.

Generally, the motivation for the small scale operators to provide water to their folk is categorized into two;

- the fact that water is essential for life and as such everyone should have access to it (intrinsic incentive) and
- profit motive

Although the levels of service from these supply options do not measure to the level of service in the conventional system, it provides a means for the service providers to supply the urban poor with water in the short to medium term.

4.1.5 Parameters for assessment

The following parameters were used to assess the factors that influence a household's choice of supply source:

- **Cost:** the amount of money spent in getting water from the indicated water supply source. Respondents compared the price of the options and indicated if that influenced their use of a supply source.
- **Distance:** this covered the distance from the respondent's house to the indicated supply option. It was observed during the field visits that the distance from the respondents' houses to the private standpipe operators ranges from 5 – 30m, 20 – 50m to the public standpipes and above 50m for borehole operators.
- **Reliability:** this measured the number of days and hours of continuous water supply from the indicated supply source

4.1.6 Access to water (Kentikrono old town)

Figure 4.1 shows the ways by which low-income dwellers at Kentikrono have access to water. About 69% of the respondents use private standpipe, 28% and 3% use private house connections and public standpipes respectively. The option of borehole is used in times of shortages (thus, when there is no flow from the utility). 40% of respondents indicated that they use this source in shortages. Some of the household have storage facilities to store water due to the intermitted flow. About 38% of respondents are able to store enough water to cater for shortages. The others rely on hand dug well and sachet water representing 18% and 3% respectively.

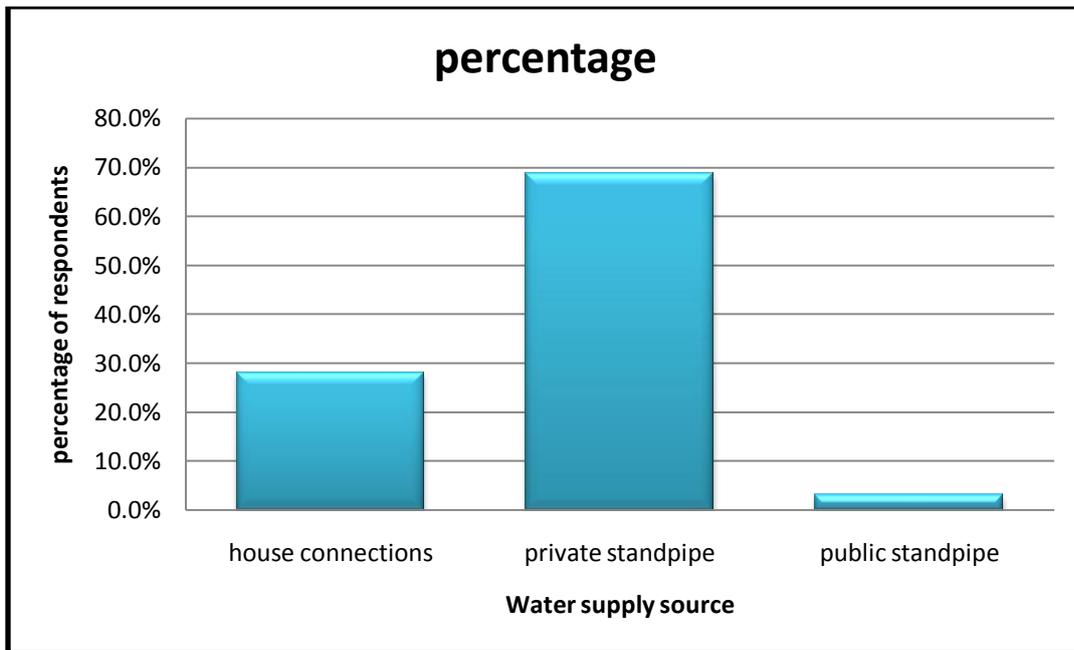


Fig 4.1(a) Access to water at Kentikrono old town

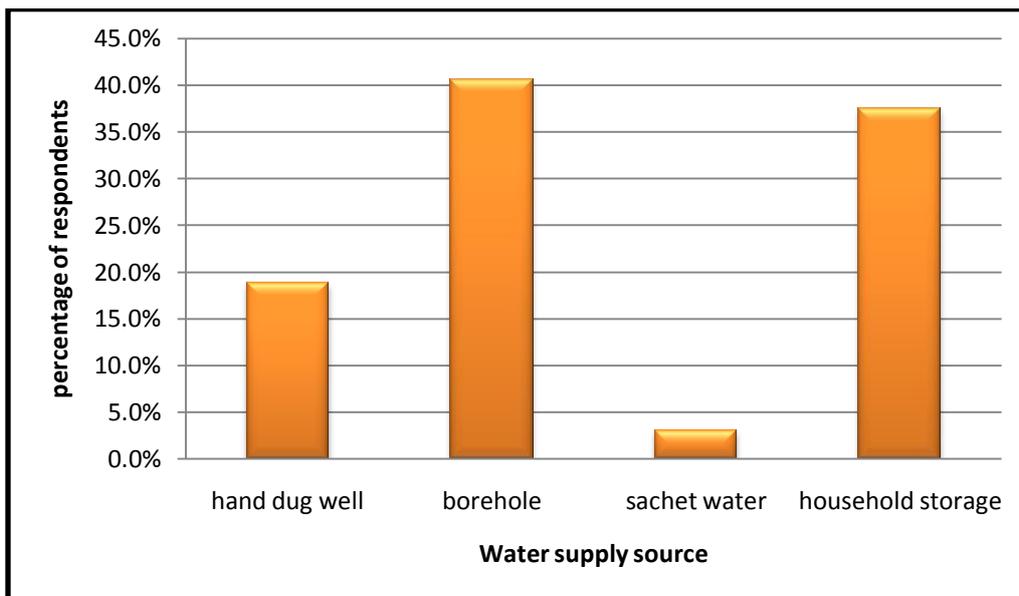


Fig 4.1(b) Access to water during shortages from GWCL at Kentikrono old town

The respondents indicated that, water flows through the main GWCL distribution lines for about 4 – 5 days on the average. When there is flow from the utility it lasts for about 6 hours, from 4:00am – 8.00am in the mornings, and for about 2 hours in the evening or at night. However, the people can easily get water because of the large storage facilities being used by the small scale operators.

4.1.7 Reason for selected option

Fig 4.2 shows that households' choice of water supply source is greatly affected by proximity. Majority (59%) of respondents indicated that their choice of option is based on distance as against 6.3% and 9.4% for cost and reliability of service respectively. This explains why the option of private borehole although a more reliable source is not a preferred option. The boreholes are often located at the outskirts where the affluent live. *Other* as used in the figure represents the percentage that could not give a definite reason for their use of a particular source.

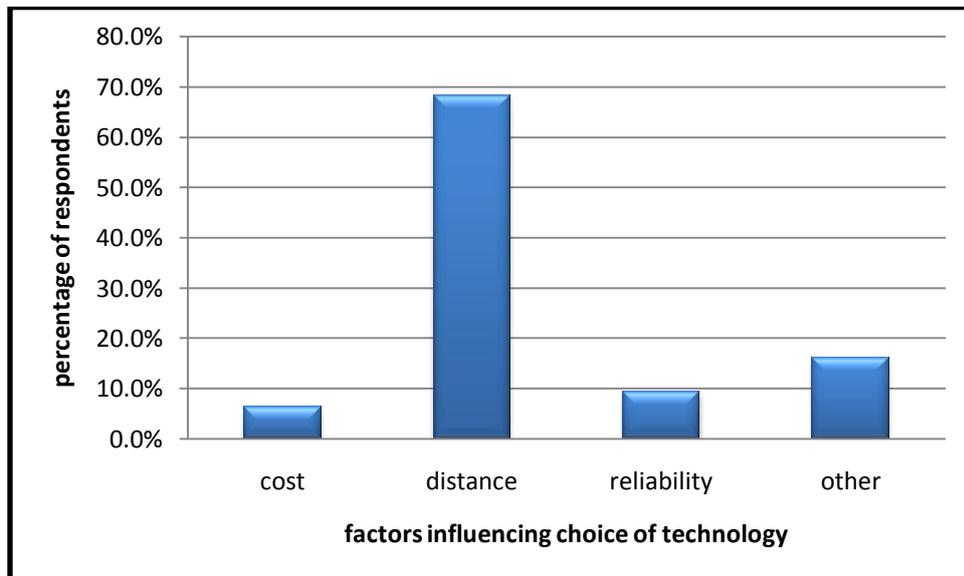


Fig 4.2 Reason for choosing a particular technology option

4.1.8 Access to water (Ayigya old town)

Most of the low income dwellers at Ayigya use private standpipe. This represents 81% of the people that were contacted. The option of house connection and public standpipe were represented by 12.5% and 6.3% respectively. About 46% of the households use borehole in times of shortages. Due to the fact that flow through the distribution mains is better than that

of Kentikrono, only about 15% have adequate storage facilities to store water for the unforeseen events. Another important source is the GWCL booster station at KNUST premises (‘water works’ the name given by the local people). Since there is continuous flow and accessing this option is for free most household that dwell closer to the main Accra – Kumasi road rely on this source in times of shortages. This option potentially reduces the percentage that would have relied on hand-dug well and storage.

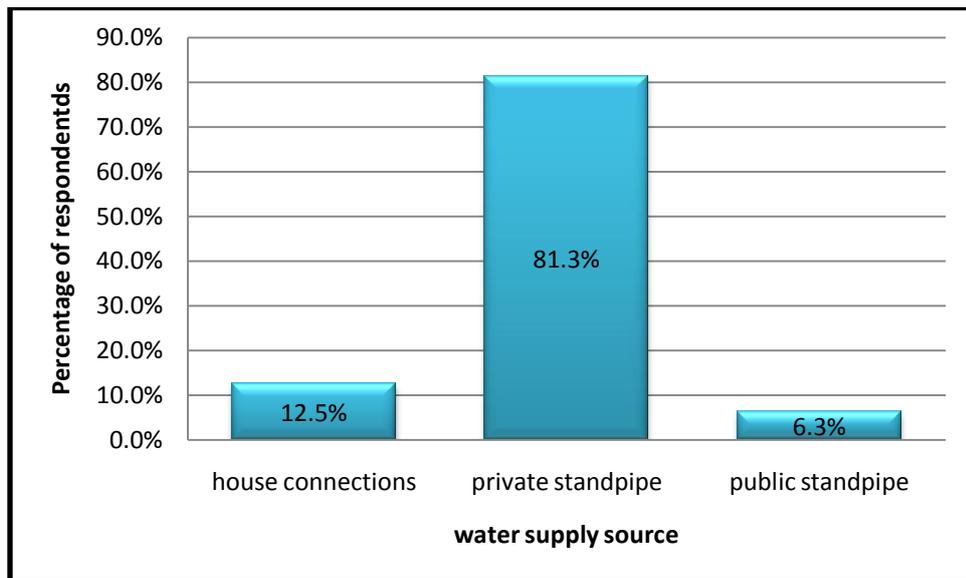


Fig. 4.3(a) Access to water at Ayigya old town

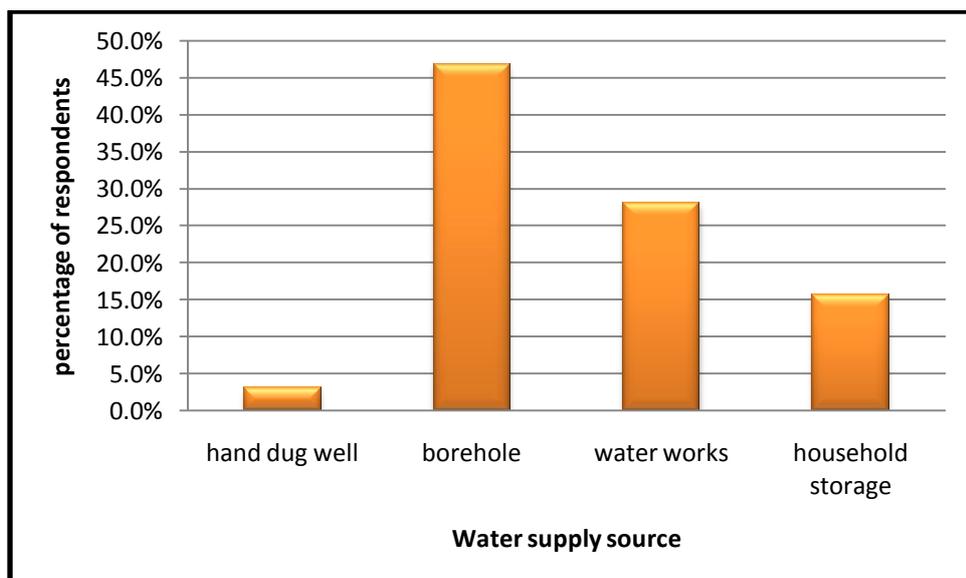


Fig. 4.3(b) Access to water during shortages from GWCL (Ayigya old town)

Most of the respondents indicated that water flow through the distribution network for about 6 – 7 days and about 12 - 24 hours each day. The general water supply conditions at Ayigya old town are better than Kentikrono. This is resulting from the fact that the pressures at Ayigya are far better than that of Kentikrono.

4.1.9 Reason for selected options

The reason why respondents chose a particular supply source is not too different from that of Kentikrono. Most of the respondents (about 72%, fig 4.4) indicated that their usage is tied to the distance they have to travel before accessing the source. The option of reliability of service scored 18% and others 9%. The *others* used in the figure refers to the respondents who could not give a clear reason as to why they use a particular option. Cost was not an issue of concern within the community since almost all service providers charge about the same price and the price difference is approximately insignificant.

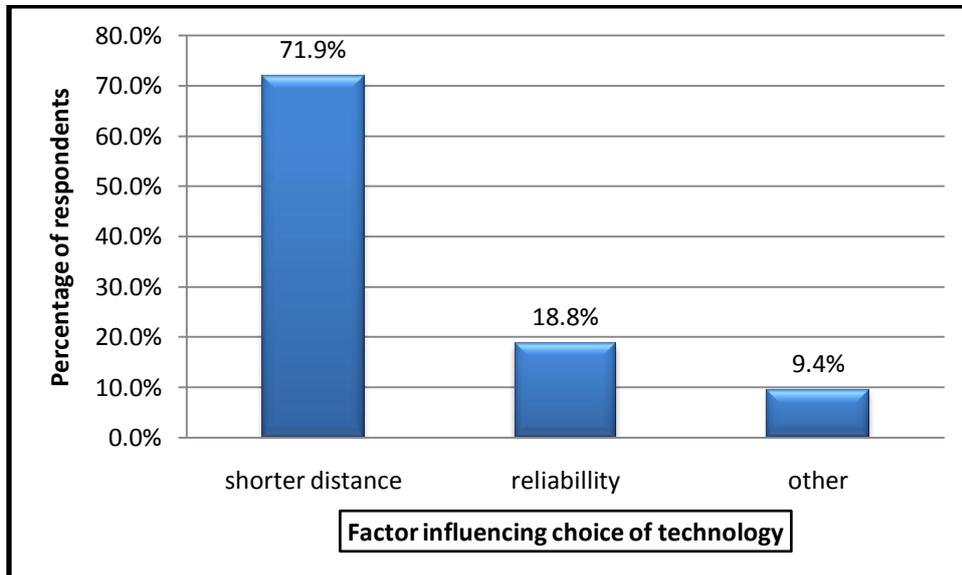


Fig. 4.4 Reasons influencing households' choice of option in Ayigya

4.1.10 Access to water (Kaase old town)

Majority of the respondents (55%) use public standpipe as shown in Fig. 4.5. This trend is different from Kentikrono and Ayigya. This could be due to the fact that there are many

public standpipes within the community and pricing at the public standpipe is marginally lower than those at the private standpipe (that is 5pesewas per bucket for public standpipe and 3 buckets at 20pesewas for private standpipe). Respondents relying on house connection and private standpipe were 16% and 29% respectively (Fig. 4.5)

Access to water during shortages is mostly by hand dug well within the Kaase community. In fig. 4.6, majority (90%) of households confirmed this option as their main source of supply during shortages. Respondents indicated that there are about four hand dug wells which have been positioned at vantage points within the community and so accessing water is not a major problem within the community. The use of hand dug well and regularity of flow from GWCL affected the households' preparedness to store adequate water to cater for shortages. Storage therefore scored about 6% with the option of borehole missing out completely.

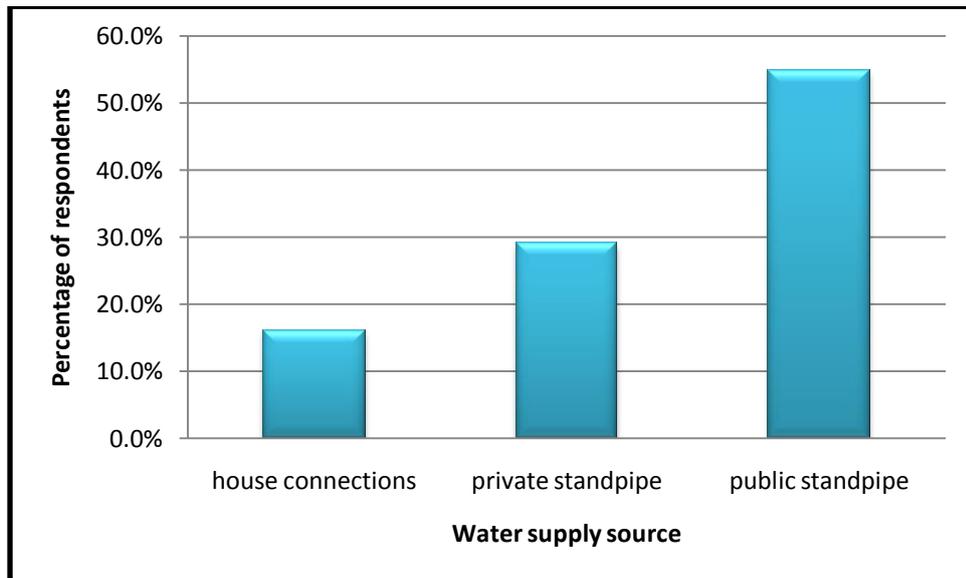


Fig. 4.5 Access to water at Kaase old town

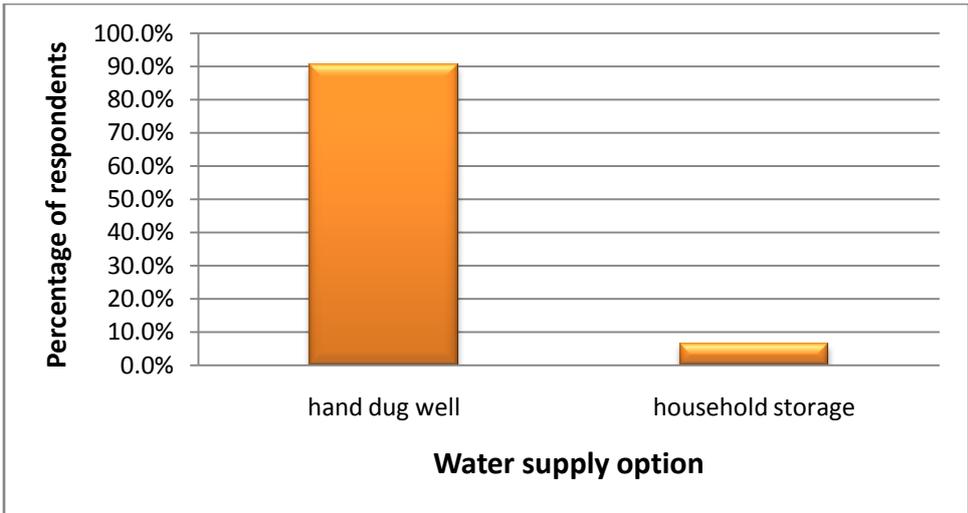


Fig. 4.6 Access to water during shortages from GWCL at Kaase old town

4.1.11 Reason for selected option

Although there is marginal price difference among the options, the distance travelled in accessing the water supply source was the major factor influencing households’ choice. 71% of respondents considered proximity while about 13% considered the cost element.

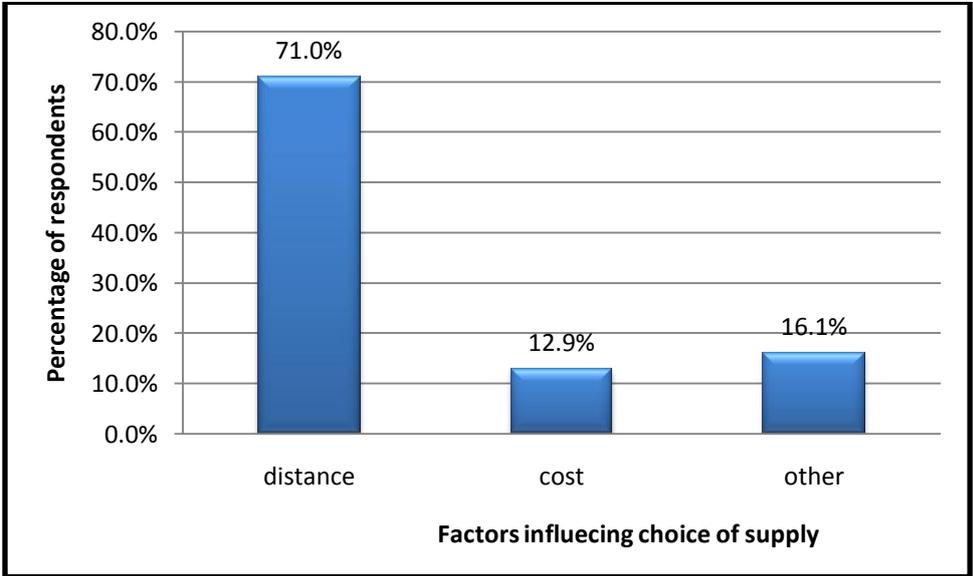


Fig. 4.7 Reasons influencing household choice of supply source (KaaseOld town)

4.1.12 Comparison among the three communities

The results obtained show that most of the respondents use the supply option of private standpipe (Ayigya and Kentikrono). At Kasse the trend changed to public standpipes because of better service and supply conditions. The preference for usage of a source was influenced by the shorter distance they have to travel in order to access water. Thus, in designing water supply interventions one of the factors that play a key role is the distance households travel to access the water or the means by which households can conveniently have access to water within the shortest distance.

The option of private borehole has low patronage when there is regular flow from the utility in that its location within the community is far from the low income dwellers residence.

It can be deduced from the assessment that:

- The use of appropriate technology for water supply to the urban poor is not yet in use in Ghana.
- The distance households travel to access water affect their choice of the supply source. Therefore, in designing pro poor interventions, the distance the household will travel to access the intervention should be considered.

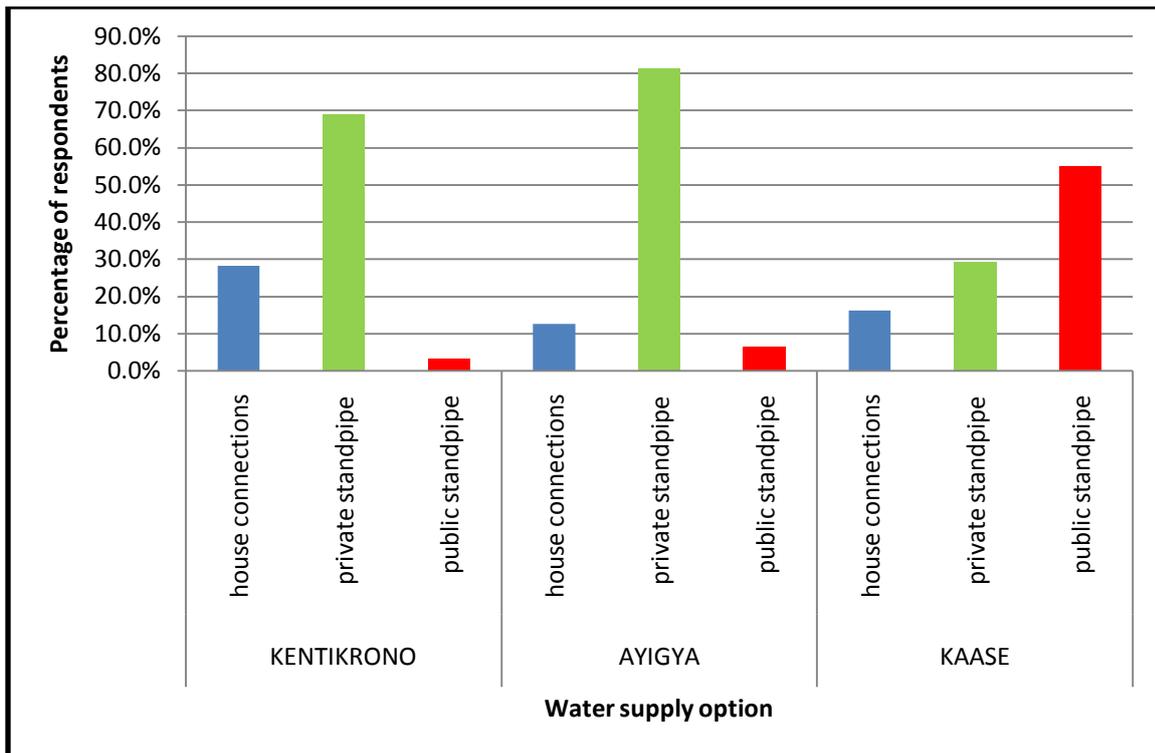


Fig. 4.8 Accessto water within the three communities

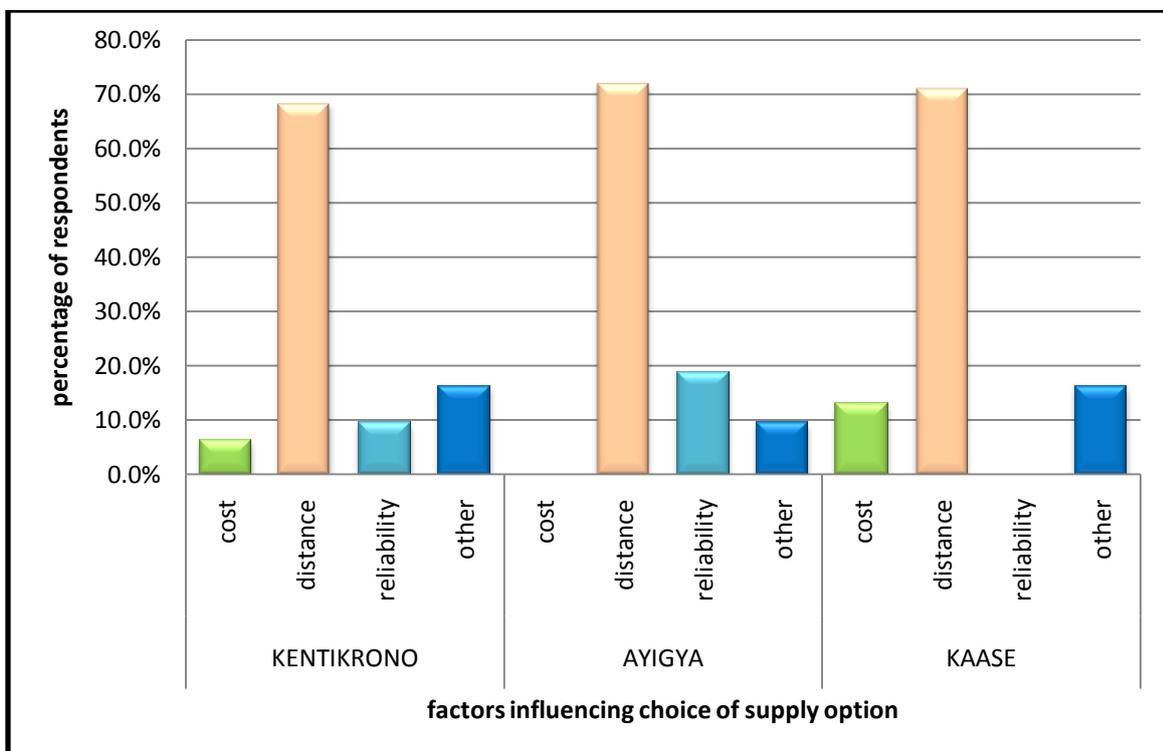


Fig. 4.9 Reasons for household choice of technology within the three communities

4.2 SUCCESSFUL PRACTICES IN DELIVERING WATER TO THE URBAN POOR

The literature reviewed revealed that several countries have adopted different strategies to ensure service delivery to the poor. Some of the implemented strategies include: the use of dedicated pro-poor unit, funds (grants or loans) from government or NGO's, appropriate technologies, policies etc. Some of these attempts have yielded positive results while others have failed to bring any substantial change to the conditions of the poor. These successes and failures have been largely due to the factors dictating the economies and politics of the utilities and countries. The strategies taken by governments and utilities to ensure that the poor are adequately catered for are described below:

4.2.1 Dedicated pro poor-unit

The urban poor are a section of the utility's mandate that needs special attention in terms of service delivery. A measure to overcome the various bureaucracies associated with public utilities as far as service delivery is concern is the use of a specialized unit. The Urban Pro Poor Branch (UPPB) of Uganda's National Water and Sewerage Company (NWSC) is a clear indication of the success that can be achieved with the implementation of a dedicated pro-poor unit. The UPPB has increased revenue collection, increased the customer base (adding approximately 50 new customers a month), intra-utility awareness of pro-poor issues and also attract donor funding for the utility. It has actually improved the utilities efficiency. These successes were achieved at a time when the Government of Uganda had cancelled all the utility's debts and required the utility in exchange to invest the equivalent in several agreed projects.

There is no such unit in the urban utility (GWCL) of Ghana. However some workers at the utility's headquarters (Accra) are assigned to address pro-poor issues whenever the utility is undertaking a pro-poor project. In addition, the utility is considering establish such a unit in the near future.

4.2.2 Appropriate technology

Conventional piped networks have been the traditional means of supplying water. In addition standpipes, yard taps, smaller diameter taps, surface level pipes and so on are technologies that have been employed to yield positive results in some poor communities. In Manila, tertiary network (bayan tubig technology) was employed to increase household connections (details in Chapter 2). The bayan tubig technology addresses the challenges related to lack of space, scattered and haphazard layout of dwellings.

Surface level pipes have been used to address population density and geographical conditions in Gabon and Manila.

In Ghana, such appropriate technologies are not yet in use. Standpipes are however used to supply areas with haphazard layout and other challenges that make it difficult to supply with the conventional system. Besides, the tertiary network (bayan tubig) approach is being piloted at Akaporiso (a poor community) by the Ghana Urban Water Limited (GUWL) with support from Water and Sanitation for the Urban Poor (WSUP) and USAID.

4.2.3 Funds (Grants and loans) from Government/NGO

Expansion of network to the un-served is capital intensive. The public utilities are therefore reluctant to invest in such areas. The un-served areas in Ghana are predominantly the poor areas where the utility is un-sure of getting returns on the investment. In Brazil, the federal government has set aside a special fund for the utilities to improve service delivery to the vulnerable areas. This fund is loaned to the utilities at a very low interest rate. The utilities are given fifteen (15) years to pay for the loan accessed.

In the case of South Africa the government provided grants for extension of services to the urban poor. The Durban Metro Water Services used the grants received from the government

to establish ground tanks for providing water to the low income settlements at affordable prices but considerably higher service benefits to the customer.

In Ghana, there has not been any such provision for the poor until the Public Utilities Regulatory Commission (PURC) developed its social fund for the poor. The social fund is a grant that can be accessed by the utility and districts that intend to undertake pro poor interventions. The applicants are to develop a pro poor proposal and forward it to the working group of PURC for approval. When approved, the applicant will be provided with the funds to implement the intervention. Some communities in Kumasi and Cape coast have started benefitting from it and plans are in place to expand the beneficiaries in this year (2012). The social fund for the poor started operating in 2011. A total of 100km of pipe network and 78 boreholes were installed in 2011 from the social fund.

4.2.4 Summary of the pro poor incentive mechanism

The sub section 4.1.1 to 4.1.3 has described the main pro poor incentive mechanisms in use in developing countries. A summary showing the country, the implementing agencies, incentive mechanism and impacts are shown in table 4.1 below.

Table 4.1 Summary of implemented pro-poor incentive mechanism

Country	Utility/Actor	Incentive mechanism	Impact	The case of Ghana
Bolivia (La-Paz, El Alto)	Aguas del Illimani (ONDEO services)	Condominial technology	100% water supply to low income areas	No such technology is being used in the urban sector of Ghana
Haiti	CAMEP/ Water committees	Intermediates service providers	Linked the un- served to the utilities distribution network	Tanker services and other water vendors (domestic resale, borehole operators) fill the gap between the GWCL and the urban poor
Manila	Manylad Water Services Incorporation	Bayan Tubig technology	Increased low income household connections	This technology is being piloted at Akaporiso (Obuasi)
Senegal	SONE	Government reform to introduce PSP	Subsidies connection for the poor, improvement in leakage reduction, collection efficiency & billing	The management contract between AVRL and GWCL has been abrogated.
South Africa	DWAF	Policy and grants from government	Successful implementation of water for all policy	The PURC Social policy and National policy has points that addresses the challenges of urban poverty
		Pro – poor units	Provision of standpipes and water kiosk for the poor.	

Tanzania	DAWASA	PSP	Social connection fund for pro-poor approaches financed through tax levy	No PSP is being practice currently
Uganda	NWSC	Performance contracting and pro-poor unit	Increase revenue collection twenty fold, connects approximately 50 customers monthly. Unaccounted for water reduce from 51% to 31% in 2006	There are no pro poor units. There are however plans to establish one in the near future
Zambia	LWSC	Pro-poor unit	Struggling to gain priority within company's operation	Same as above

4.3 INCENTIVE MECHANISMS FOR WATER SUPPLY TO THE URBAN POOR IN GHANA

4.3.1 Policy Framework

The sector documents in Ghana reviewed showed that a lot of efforts have been made in the area of policy development towards addressing the challenges of water supply to the urban poor. Some of the policies include: the National Water Policy, the PURC social policy, PURC Act, GWCL Act, PURC Urban water tariff policy, etc. The implementation of these policies to ensure that the urban poor are alleviated from the challenges associated with access to water supply is where much effort needs to be concentrated. There have however

been some areas where the sector has achieved a lot of success. Table 4.2 gives a summary of some of the policy statements and their corresponding level of implementation.

Table 4.2 summary of policy statements and their levels of implementation

Policy statement	Source	Actor within sector	Implementation
1. Take a lead role in the resolution of pro-poor issues in the urban water sector	PURC social policy	PURC	Undertaken pro poor projects (Mechanised boreholes) in Accra with funding from the world Bank
2. Undertake pilots studies to test interventions in delivering water to low income communities	PURC social policy	PURC	Pilot projects at Madina and other communities
3. Support interventions to improve reliable access to water with the ultimate goal of direct connection.	PURC social policy	PURC	In the process of signing contract for expansion of the distribution networks to some urban poor communities in Kumasi and Takoradi
4. Instruct urban water utilities to include pro poor criteria when undertaking investment in water projects	PURC social policy	PURC	This has not been implemented, Thus, not much has been done
5. Formation of working group of stakeholders to address provision of service to the urban poor	PURC social policy	PURC	A working group with members from PURC, GWCL, GUWL has been formed to evaluate pro poor proposals from utilities that intend to undertake pro poor interventions
6. Targeting of any social or other relief scheme for the poor	PURC social policy	PURC	PURC has a social fund for the urban poor through a levy paid by the utilities
7. Where the rising block tariff is applied for domestic customers the lowest band, define as the lifeline tariff shall be set at levels to reflect affordability but not less than the basic operational	Urban Water Tariff Policy	PURC/ GWCL	A life line tariff is allowed for the first 20m ³ of domestic water consumption

unit costs excluding depreciation and return on capital			
8. connection fees shall be set to recover the full cost of a connection from the mains to the customer including service pipe, meter ancillary components	Urban Water Tariff Policy	GWCL	This is being applied to the letter.

Policy statements 1 and 2:

The PURC demonstrated its willingness to help address the challenges of the poor by first developing a policy on water supply to the poor. They also went ahead and obtain funding from the World Bank to enable them undertake some pilots in Accra in order to inform their decision on the urban poor. The pilots informed the commission to provide the utility with grant to undertake network expansion, borehole drilling and provision of standpipes at some urban poor communities.

Policy statement 3

The regulatory function of PURC prevents it from implementing pro poor projects. In this regard the commission provides the utility with the necessary support in order to alleviate the challenges of urban water supply. The social fund for the poor developed by the commission serves the purpose of expanding the network to urban poor areas. Currently, the utility is undertaking network expansion in parts of Kumasi and Takoradi with the funding for the project coming from PURC's social fund.

Policy statement 4:

The PURC has not been able to implement this policy statement. The utility sees itself as a business entity and therefore instructing them to include pro poor investments where the returns cannot be guaranteed has become difficult. The utility is always reluctant as far as

implementing this policy statement is concern. The PURC as at now has not applied any sanctions for the utility's failure to comply with the policy statements. The PURC is now considering employing sanctions where necessary.

Policy statement 5:

A working group comprising of members from PURC, GWCL and GUWL has been formed. The working group evaluates proposal from GWCL and other poor communities/districts to ascertain if they meet the PURC's pro poor criteria. They are also responsible for reviewing and developing pro poor policies.

Policy statement 6:

The PURC has developed a social fund for water supply to the poor through special levy the utilities pay to the commission. This fund is facilitating improvement in water delivery to the poor. GWCL develops proposals for the areas that needs pro-poor interventions but cannot address them due to lack of funds on their part at that moment and forward it to the working group. When the proposals are accepted GWCL engages contractors to execute the intervention with PURC facilitating the payment.

The main pro-poor interventions undertaken with this fund include: provision of mechanised boreholes, standpipes and extension of distribution network. The extension of the distribution network is carried out in areas where the community has demonstrated that they can have their own private house connection (through the laying of long service lines). A case in point is Anagi estate in Takoradi where some residences have laid service lines of about 1km. In other cases, the network is extended to make room for the provision of standpipe to the community. At Amesano in Cape Coast the people depend on tankers for supply, the network is being extended to the community so that they can be provided with standpipe.

Policy statement 7

This policy statement on the hand does not have much significance on the urban poor. Majority of the urban poor do not have direct private access to the utility's supply and therefore do not benefit from the lifeline tariff. The PURC however argues that it shall retain the rising block tariff for the benefit of the small proportion of the population who benefits from the structure, although it is an ineffective mechanism for water delivery to the poor.

Policy statement 8:

The connection fee charged by the utility is a barrier for the urban poor to have their own private connection. The interview with the Regional Customer Care Manager and some district officers revealed that a major challenge to urban connection is the cost of new service connections. The pattern of their livelihood makes it difficult for them to raise the amount needed for private house connection. Some respondents who had connections (during the survey) indicated that their house connections have been disconnected due to non-payment of bills (although they pay three times more than those with private house connections). This emphasizes the fact that their pattern of livelihood does not support one off payment. This arrangement of charging full cost of connection from the mains to the customer does not benefit the poor.

4.3.2 Incentive mechanism from GWCL

4.3.2.1 Pro –poor actions (GWCL)

The utility as it stands does not have any clear-cut definition for the urban poor. However, the urban poor in the utility's view are those that are served with public standpipe. Poverty is not the only factor that influences the installation of such pipes. A core factor, according to a project engineer is the technical difficulty associated with extension of service lines to these

areas due to the haphazard establishment of structures. This elucidates why no deliberate attempts are being made to map the urban poor communities for pro-poor interventions. Water vendors at these standpipes sell water at a lifeline tariff of 5pesewas per 18litre bucket to the urban poor. As it stands, this lifeline tariff charged by vendors is three times more per cubic meter than the first block tariff of house connections (the first block is equivalent to 20m³ at a price of Gh¢ 0.85 per m³, exchange rate; Gh¢ 1.50 = \$1.00).

4.3.2.2 External incentives impacts on water supply delivery (GWCL's View)

The utility as at now does not have formal internal arrangements that have been structured to alleviate the problem of the urban poor in accessing water. Perhaps, these incentives are not in the forefront because the utility has not wholly accepted that the urban poor are a section of their mandate that needs special attention.

The utility was provided with a list of incentives (detailed explanation of the incentives is given in chapter 2) to indicate the degree to which each of them would motivate them to provide services to the urban poor. The scoring criterion adopted was 1,2,3,4 and 5 for poor, fair, satisfactory, good and excellent respectively (fig. 4.10).

The utility indicated that the urban poor are unable to raise the connection fee needed for direct connection and as such they do not have their own private connections. If the connection fee is subsidies for them, then most of the low income dwellers will be able to have their own private connections. The payment of the connection fee will motivate the utility to serve the urban poor. Also, where there are connections (mostly yard taps) the urban poor are not always able to pay their monthly bills frequently leading to disconnection. The introduction of tariff subsidy will help the urban poor to pay their bills and enjoy services from the utility. Besides, enforcing the laws and regulations on water supply to the urban poor will force the utility to supply water to the urban poor.

A major constraint to the utility's supply of water to the un-served is funding. The utility indicated that if they have funds available for supplying the urban poor communities then they will be motivated to do so. According to the utility (fig 4.10) grants (targeted funds) have a greater potential to influence the utility's supply of water services to the urban poor than loans (access to funds).

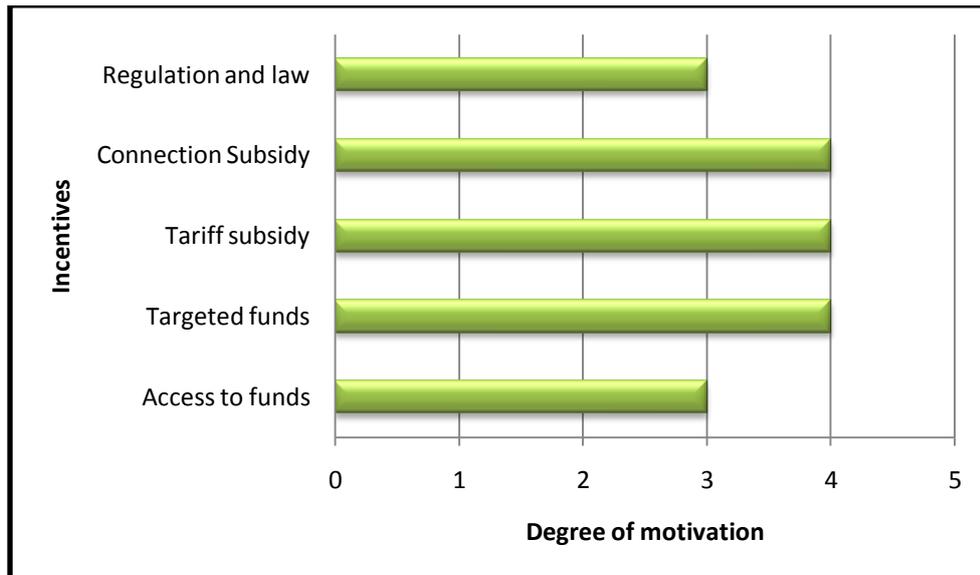


Fig. 4.10 Strength of incentives to stimulate pro poor action (GWCL's view)

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

From the study it can be concluded that:

- The successful practices identified include establishment of a dedicated pro-poor unit and innovative technology like Bayan tubig which is being piloted by the GUWL.
- The policy framework has made provision for delivery of services to the urban poor. Specifically, the National water policy and the PURC social policy. Some of the points that addresses the challenges of water supply to the urban poor are:
 - PURC will target any social or other relief scheme for the poor.
 - PURC will support interventions to include pro poor criteria when undertaking investment in water projects.
 - Government will establish programme such as a social connection fund to support the connection of low income consumers to the network

However, some of these policy statements and strategies such as

- PURC will instruct urban water utilities to include pro poor criteria when undertaking projects and
- Government will establish programme such as a social connection fund to support the connection of low income consumers to the network have not yet been implemented.
- There are no clearly defined incentive mechanisms which are identified to be associated with the utility's delivery of service to the urban poor.

5.2 RECOMMENDATIONS

The following are some recommendations

- The use of performance contract and dedicated pro-poor units has yielded positive results. Studies should be conducted to evaluate the possibility of implementing such a strategy in GWCL
- There should also be an agreed sector wide definition of the urban poor with its set of indicators. Since there is no agreed national definition, the various departments define it in ways that are convenient to them. This makes it difficult to transfer information from one institution to the other when targeting development projects.

REFERENCE

- Africa Water Facility (2010), 'Integrated Project of Water Supply and Sanitation Services for the urban poor in Kagugube Parish, Kampala'
<http://www.africanwaterfacility.org/fileadmin/uploads/awf/publicationsreports/Kagugube%20Case%20Study.pdf> date accessed; 9th September, 2011
- Agyekum E. K. (2011), 'Performance Indicators for Tracking Progress in Water Service Provision to Urban Poor: A Case Study of Accra', MSc Thesis, Civil Engineering Department, KNUST
- Babosa C. (2010), 'Pro-poor incentives for water and sanitation services provision: A case study of Water Utilities in the State of Sao Paulo, Brazil' MSc Thesis WM.10.04, UNESCO-IHE
- Cross P. & Morel A. (2005), 'Pro-poor strategies for urban water supply and sanitation services delivery in Africa', Water Science and Technology, vol. 51 No 88, pp 51 -57 PubMed PMID:16007927
- Franceys R. W. A. (2005), 'Charging to enter the water shop? The cost of urban water connections for the poor' Water Science and Technology: water supply vol. 5 No 6 pp 209-219, IWA publishing
- Fuest V. & Haffner A. S. (2007), PPP- policies, practices and problems in Ghana's urban water supply, water policy, pg 169 – 192, doi: 10.2166/wp.2007.060, IWA publishing
- GSS (2008), Ghana Living Standards Survey Report of the fifth round, Ghana Statistical Service, Accra, Ghana
- Jacobs, J. & Francey, R. (2008), 'Better practices in supplying water to in global PPPs', the institution of civil engineers journal, issue ME4, December, pp 247 -254.
- Kayaga. S. & Franceys, R. (2001), 'Incentives to serve the urban poor: South Africa' 27th WEDC conference, Lusaka, Zambia, pp 237 – 240.
- Kuma S. J., Owusu O. R. & Gawu K. Y. S. (2010), 'Evaluating the water supply system in Kumasi, Ghana', European Journal of Scientific Research ISSN 1450-216X Vol. 40 No. 4, pp. 506-514
- Kumasi Metropolitan Assembly (2010), 'Community Business and Development Plan (CB&DP)', Planning Department, KMA, Kumasi.

- Mugisha S., Berf S. V. & Muhairwe T. W. (2006) ‘Using Internal Incentive Contracts to Improve Water Utility Performance: The Case of Uganda’s NWSC’
- Mwanza D. D (2001), ‘Water and sanitation services to the urban poor’, 27th WEDC Conference, Lusaka, Zambia pp 252 – 255
- MWRWH (2009), ‘Water and Sanitation Sector Performance Report’
 wssp.org/downloads/4d8ca15ec1a12.pdf, date accessed: 8th July, 2011
- National Development Planning Commission (2005), “Growth and poverty reduction strategy (GPRSII)”
[http://siteresources.worldbank.org/INTPRS1/Resources/GhanaCostingofGPRS_2\(No v-2005\).pdf](http://siteresources.worldbank.org/INTPRS1/Resources/GhanaCostingofGPRS_2(No v-2005).pdf) date accessed; 12th September, 2011
- Nyarko K. B., Odai S. N. & Fosuhene K. B. (2006), ‘Optimizing social inclusion in urban water supply in Ghana’, First SWITCH Scientific meeting in university of Birmingham, UK, 9th – 10th January, 2006
- Paul S. (1992) Accountability in public services: exit, voice and control. World Development 20: 1047-1060
- Poverty Manual (2005), All, JH Revision of August 8, pp 42–67
<http://www.docstoc.Ncom/docs/92000376/Chapter-3-Poverty-Lines> date accessed; 20th October, 2011
- PURC (2005), ‘Social Policy and Strategy for Water Regulation’ Public Utilities Regulatory Commission, P O Box CT 3095, Cantoments-Accra, Ghana
- PURC (2005), ‘Urban water tariff policy’, Public Utilities Regulatory Commission, P O Box CT 3095, Cantoments-Accra, Ghana
- Sanasa (2011), ‘Escola de Engenharia de São Carlos’, presentation at 3rd PROBE conference, Brazil, 5th – 10th December
- Sanjey G. R. & Pogge W. T. (2005) ‘How not to count the poor’, version 6.2
<http://www.columbia.edu/~sr793/count.pdf>, date accessed; 9th December, 2011
- Tova M. S. (1999), ‘Small-scale entrepreneurs in the urban water and sanitation market, environment and Urbanization, vol. 11, No. 1
- UNDP (2006), ‘Incentive systems: incentives, motivation and development performance’ conference paper #8, working draft, November
- United Nations Human Settlements Programme (2005), ‘Responding to the challenges of an urbanized world’, ISBN: 92-1-131735-5, UN-HABITAT publishing

- Van Rooijen D. J., Spalthoff, D., & Rashid-Sally, L (2008), 'Domestic water supply in Accra: How physical and Social constraint to planning have greater consequences for the poor', 33rd WEDC International conference, Accra, Ghana
- Water and Sanitation program (2009), 'Setting up pro-poor units to improve service delivery' https://www.wsp.org/wsp/sites/wsp.org/files/publications/service_delivery_field_note.pdf date accessed; 17th October, 2011
- Water Supply and Sanitation Working Notes (2005), 'pro-poor subsidies for water connections in West Africa', www.worldbank.org/watsan
- Whittington D. (2003), 'Municipal water pricing and tariff design: a reform agenda for South Asia', IWA Publishing, Water Policy 5, pp 61 -76.
- World Business Council for Sustainable Development (WBCSD), (2002) 'Water for the poor' ISBN 2-940240-30-2
- Zerah, M. (2000), 'Early outcomes of public private partnerships on providing water supply to the urban poor: Lesson for India', international conference of sustainable development of water resources- Socio economic, institutional and environmental aspects, by Institute of Resource Management and Economic Development, 27 -30th November

Appendix I: Questionnaire for small scale water providers in the urban poor areas

Preamble

This questionnaire is aimed at obtaining data about water supply options that are available to the urban poor in Kumasi Metropolitan Assembly and assess their level of service and motivation/incentive to serve.

1.0 General Information

- 1.1 Water district
- 1.2 Zone/ location
- 1.3 Name of operator
- 1.4 Designation / status
- 1.5 Date
- 1.6 Sex of respondent

2.0 What is the source of your water supply?

Water supply option (operator)	Tick
Borehole provider who sells by the bucket	
Hand dug well operator who sells by the bucket	
Private standpipe (GWCL source)	
GWCL standpipe	
Water tanker vendor	
Others (specify)	

3.0 What encouraged you to provide this source of water?

.....
.....

4.0 What registration and regulations procedure did you go through before commencing this operation?

.....

5.0 How long have you been in this service?

.....

6.0 Do you have continuous flow of water?

.....

7.0 What are your operational hours? If yes at what hours

.....

8.0 Do people sometime queues at certain hours?

.....

9.0 What is the price of water per bucket (18L)?

.....

10.0 What are the challenges/hindrances to your operation?

.....

11.0 Do you have plans of expanding your operations?

.....

12.0 What motivates you to carry on with such expansion?

.....

13.0 How far is the next supply source from your post?

.....

14.0 How much did it cost you to provide such facility?

.....

- 12.0 What informed your preference for the option above
Less expensive [] shorter distance [] reliability []
- 13.0 How many buckets of water do you use per day?
- 14.0 What is the cost of water per bucket?
- 15.0 In case of water shortages where do you get water from and at what cost?.....
- 16.0 What improvements do you want to see in the level of service of your water supply source?
Increased number of facilities [] house connections [] regular flow []
other (specify) []
- 17.0 How much do you pay for water per day?
- 18.0 What is your income per day/month?

Appendix III: interview guide (KMA)

Preamble

The objective of this interview is to obtain data that will help me in outlining incentives that will help improve the water supply service in low-income (urban poor) areas as a part of my Msc. thesis on the above topic. The questions have been outlined below;

Pro-poor actions

1. How does the Metro define the urban poor?
2. Does the Metro map the urban poor communities? How and why?
3. What collaboration exists between KMA and GWCL towards water supply for the urban poor communities?
4. Are there subsidy schemes for the urban poor? Why?

Internal and external incentives

5. Do you have a special unit tailored for urban poor communities? Why?
6. How are they rewarded if there is a unit?
7. To what extent do the pro-poor actions taken by the small scale private providers (SSPP) and NGOs motivate or demotivate the plans of the KMA?
8. Do you involve local partners such as CBOs, NGOs and SSPPs while developing pro-poor strategies? How and why are they involved?
9. What in your opinion would be the possible solution for overcoming the challenge of service connections to the poor?
10. The table below is to assess how the under listed incentives can stimulate pro-poor action within the utility and its staff. Please provide the scores based on this legend;

1 = poor, 2 = fair 3 = satisfactory 4 = good 5 = excellent

MATRIX OF WATER UTILITY'S PRO POOR MOTIVATION

Internal incentives	Degree of motivation to expand water service to urban poor communities (scoring)	Existing condition within utility (extent of incentive scoring)
1. Salary increase		
2. Capacity building		
3. Reward and punishment		
4. Staff promotion		
5. Fringe benefits		
External incentives		
6. Public complaints		
7. Regulations and law		
8. Targeted funds		
9. Access to funds		
Others (from KMA's view)		
10.		
11.		
12.		
13.		
14.		
15.		

NB:

Targeted funds: funds that are given for the completion of specific projects

Access to funds: easy access to loans/funds needed for expansion/ projects.

Appendix IV: Interview Guide (GWCL)

Preamble

The objective of this interview is to obtain data that will help me in outlining incentives that will help improve the water supply service in low-income (urban poor) areas as a part of my Msc. thesis on the above topic. The question has been outlined below;

Pro-poor actions

11. How does the utility define the urban poor?
12. Does the utility map the urban poor communities? How and why?
13. Do you have subsidies for poor communities? Why?
14. Are there flexible arrangements for the urban poor to connect to the distribution network?
15. What are the processes and challenges associated with connecting the urban poor?
 - A. House connection
 - B. Public standpipes
16. According to the JMP of WHO/UNICEF report 2010, the use of piped water on premises has declined from 35% in 2000 to 30% in 2008. Why this trend?
17. Are there subsidy schemes for the urban poor? Why?

Internal and external incentives

18. How do illegal connections influence the utility to provide water supply services to the urban poor community?
19. Do you have a special unit tailored for urban poor communities? Why?
20. How are they rewarded if there is a unit?
21. To what extent does the pro-poor actions taken by the small scale private providers (SSPP) and KMA motivate or demotivate the plans of the utility?
22. Do you involve local partners such as CBOs, NGOs and SSPPs while developing pro-poor strategies? How and why are they involved?

23. What in your opinion would be the possible solution for overcoming the challenge of service connections to the poor?

24. The table below is to assess how the under listed incentives can stimulate pro-poor action within the utility and its staff. Please provide the scores based on this legend;

1 = poor, 2 = fair 3 = satisfactory 4 = good 5 = excellent

MATRIX OF WATER UTILITY’S PRO POOR MOTIVATION

Internal incentives	Degree of motivation to expand water service to urban poor communities (scoring)	Existing condition within utility (extent of incentive scoring)
16. Salary increase		
17. Capacity building		
18. Reward and punishment		
19. Staff promotion		
20. Fringe benefits		
External incentives		
21. Public complaints		
22. Regulations and law		
23. Connection subsidies		
24. Tariff subsidy		
25. Illegal connection		
26. Targeted funds		
27. Access to funds		
Others (from utility’s view)		
28.		
29.		
30.		

NB:

Targeted funds: funds that are given for the completion of specific projects

Access to funds : easy access to loans/funds needed for expansion/ projects.

Table 7.1 matrix of water utilities pro-poor motivation (KMA)

INCENTIVE	Degree of motivation to expand water service to urban poor communities (score)	Existing condition (score)
Strategic Water Policy (Regulation)	4	0
Collaboration with stakeholders	4	1
Access to funds	4	3
Technical Staff Capacity	5	2

Table 7.2 Matrix of water utilities pro poor Motivation (GWCL)

Internal incentives	Degree to motivate (score)	Existing condition
Salary increase	1	NA
Capacity building	1	NA
Reward and punishment	1	NA
Staff promotion	1	NA
Fringe benefits	1	NA
Eternal incentives		
Public complaints	3	NA
Regulations and law	3	NA
Connection subsidies	4	0
Tariff subsidy	4	NA
Targeted funds	4	NA
Access to funds	3	NA

NA implies that there is not enough information to give an answer.

Appendix VI: pictures of study area



Private standpipe facility with storage facilities at Kentikrono



Private standpipe at Ayigya



Hand dug well (Kaase)



Public stand pipe (Kaase)



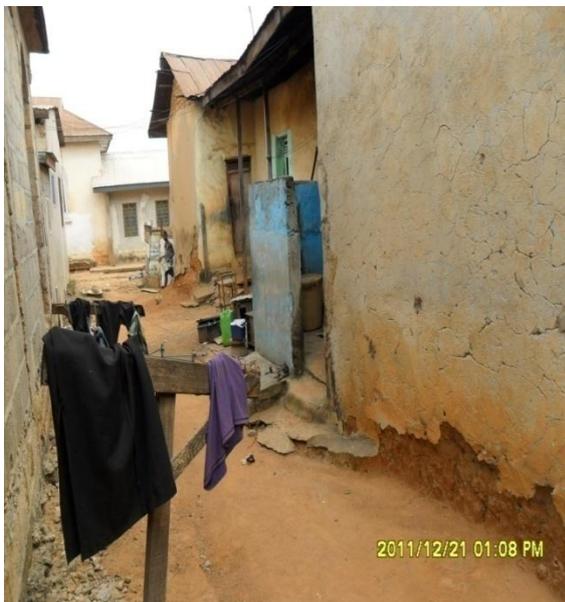
Public stand pipe (Ayigya)



Private borehole



private house connection (Kaase)



Physical conditions of the built (Kentikrono old town)



Conditions of the physical environment (Ayigya)



Condition of the environment (Kaase)