

SUSTAINABLE WATER SUPPLY TO THE URBAN POOR IN ACCRA:
FROM POLICY TO REALITY

KNUST
By

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DEDICATION

To the memory of my beloved mother, Madam Grace Boadu.

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ABSTRACT

Ghana, like other developing countries, is urbanizing rapidly. More than half of Ghana's population now lives in urban areas. The rapid rate of urbanization is hampering the capacity of the utility provider to supply water to its existing customers and extend services to new clients, especially to the urban poor. Available evidence indicates that in 2009 as many as 41% of urban dwellers in Ghana did not have access to water from the Ghana Water Company Limited (GWCL) network. Moreover, water supply to areas served by the utility provider is mostly erratic and increasingly unreliable. Many urban dwellers therefore rely on water vendors for water at a cost higher than the official tariff of the utility provider. Water service to the urban poor thus presents challenges to policy makers, policy implementers and other stakeholders in the water sector.

In an attempt to address the challenges, various governments in Ghana have since the mid 1990s, implemented a string of reforms in the water sector with the view to improving urban water supply. These reforms led to the establishment of the Ghana Water Company Limited (GWCL) in 1999 as the sole urban water provider and the formulation of a National Water Policy in 2007. In spite of this, water supply to the urban poor is still a challenge. The study therefore sought to examine the extent to which the National Water Policy is addressing the water needs of the urban poor.

A mixed method research design was adopted for the study; thus both qualitative and quantitative research methodologies were used in data collection, data analysis, and presentation of the research results. The study was conducted using the case study approach and covered 247 households in three poor communities in the Greater Accra Region, 78 water vendors as well as policy makers, policy implementers and other key stakeholders in the urban water sector.

The findings of the study revealed, among others, that the urban poor have challenges with water supply as only 22.3% of the households are connected to the GWCL piped network. Majority of the households therefore depend on water vendors for their water needs and pay high poverty penalty for water. The presence of water vendors in the communities has shortened the distances to the water sources and has also reduced waiting time at the water point. The study however shows that water is not affordable. The study also found that only three out of the five pro-poor urban water policy measures outlined in the National Water

Policy have been implemented with limited success. Moreover, the implementation of the policy is encumbered with a number of challenges such as inadequate investment; over aged distribution lines; high level of unaccounted for water (UfW); and poor corporate governance. This study argues that effective policy implementation is contingent on the implementation of pro-poor water policies and strategies.

The study recommends that to ensure effective and efficient implementation of the National Water Policy to improve water supply to the urban poor on sustainable basis, there is the need for massive capital injection to rehabilitate the over aged distribution lines and extend water services to the urban poor. It is also necessary to break the monopoly of the GWCL; establish dedicated pro-poor units, encourage private sector participation in the urban water sector; and improve governance and accountability in the water sector.



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CHAPTER ONE: GENERAL INTRODUCTION

1.1 Background to the Study

Water is essential for human survival and development. Indeed, the importance of safe drinking water to public health and economic development cannot be over emphasized. It has been established that access to clean water reduces morbidity and mortality, and improves the productive abilities of the poor (UN Habitat, 2012). In spite of this, access of the urban poor to potable water is a major challenge in the developing world.

Majority of urban dwellers in Sub-Saharan Africa lack access to safe drinking water and are plagued with numerous water borne diseases. Empirical studies affirm the immense scale and urgency of the problem. An estimated 1.6 million children under the age of five years die every year from causes attributed to unsafe water and poor sanitation (WHO/UNICEF, 2006). A study by Cheru (2005) also posits that in cities and neighborhoods well served by piped borne water and sanitation, child mortality rates are generally around 10 per 1,000 live births, whilst in cities and neighborhoods with inadequate provision of water and sanitation, child mortality rates are generally 10 to 20 times higher.

According to WHO/UNICEF (2010) almost all the 884 million people in the world that do not have improved drinking-water sources live in developing regions, and Sub-Saharan Africa (SSA) accounts for over a third of that number. WHO/UNICEF (2010) further indicated that SSA is lagging behind in progress towards the Millennium Development Goal (MDG) target of halving by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. Moreover, only 60% of the population uses improved sources of drinking-water. When it comes to households with piped water connections the situation is even worse in SSA. Whilst 73 percent of the urban population in developing regions use piped water from household connections, in Sub-Saharan Africa only 35 percent of the urban dwellers use water piped to the household WHO/UNICEF (2010).

Public policies for water in the developing countries are being outpaced by rapid urbanization (UN Water, 2011). Rapid increase in the size of cities in African coupled with declining economic growth has resulted in dramatic deterioration in the supply of basic infrastructure and urban services. The most visible has been lack of access to basic water and sanitation by the urban poor (Cheru, 2005). According to UN-HABITAT (2008), at least

14 African nations are already facing water stress or scarcity and many more will be experiencing the problem over the next decades.

With regards to urban infrastructure, especially water and sanitation facilities, investment is skewed in favour of the rich. Coming from an already disadvantaged position, the poor live under urban blight conditions with inadequate infrastructure compared to more affluent urban areas (Cheru, 2005). According to UNDP (2006), the distribution of access to adequate water and sanitation in many countries mirrors the distribution of wealth and that the crisis in water and sanitation is, above all, a crisis for the poor.

The origin of the water crisis can be traced to poverty, inequality and unequal power relationships, as well as flawed water management policies that exacerbate scarcity. Almost two in three people lacking access to clean water survive on less than \$2 a day, with one in three living on less than \$1 a day (UNDP, 2006). Moreover, access to piped water into the household averages about 85 percent for the wealthiest 20 percent of the population, compared with 25 percent for the poorest 20 percent (UNDP, 2006). In urban areas, the cheapest and most reliable source of water is usually from the utility that maintains the network; and that poor households are less likely to be connected to the network, and more likely to get their water from a variety of unimproved sources (UNDP, 2006).

A significant proportion of the urban population without direct access to piped connections or standpipes rely on other informal service providers such as water vendors and independent producers at a higher cost, and often of doubtful quality (UN Water, 2011; UNDP, 2011; Nyarko, 2007; UNDP, 2006). The impact falls heavily on the poor and vulnerable in society. The urban poor receive the worse water supply services at a higher cost (UN Water, 2011). A study by UNDP (2011) showed that the poor who are not connected to the utility's piped network pay a price which is much higher than the official tariff of the utility.

Although these revelations do not provide evidence to show that people might lack water because they are poor, or they might be poor because they lack water; they are strongly suggestive of a two-way relationship between income poverty and deprivation in access to water (UNDP, 2006). The perverse principle that applies across most countries in SSA is

that the poorest people get access to less water, and to less clean water, and also pay some of the world's highest prices. People living in the slums of Jakarta, Indonesia, Manila, the Philippines, and Nairobi, Kenya, pay five to ten times more for water per unit than high income areas in the same cities (UNDP, 2006). Not only do poor people in urban areas in developing countries pay more for water than high income residents of the same cities, they also pay more than people in rich countries. Some of the poorest people living in sprawling slum areas of Accra and Manila are paying more for their water than people living in London or New York (UNDP, 2006). More specifically, residents in New York and London pay about US\$0.50 and US\$1.60 respectively per cubic meter of water; whilst residents of poor neighbourhoods in Accra and Manila pay approximately US\$3.10 and US\$2.90 respectively for water as a result of reliance on informal water providers (UNDP, 2006).

Inequitable water pricing has consequences for household poverty (UNDP, 2006); and given the poor economic situation in SSA, where a significant proportion of their population are below the poverty line, the reliance on the alternative informal service providers at a higher cost could erode all potential savings to improve the quality of life (Nyarko, 2007).

The recognition of the important role of water in human and physical development, and its inherent value in health and poverty reduction has brought into focus the urgent need to improve access to safe drinking water. It is in the light of this that the Millennium Development Goals (MDG) 7, target 7c called for reduction by half the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015 (UNDP, 2003). Although significant progress has been made towards the achievement of the MDG target for water, there is the need to accelerate the pace if SSA is to achieve the water target by 2015.

1.2 Statement of the Research Problem

Ghana, like other developing countries, is having challenges with the provision of potable water to the urban poor. The Ghana Water Company Limited (GWCL), the utility provider, has not been able to provide and sustain adequate drinking water services to its existing customers and extend services to new areas, especially poor urban settlements. Available evidence indicates that in 2009 as many as 41% of urban dwellers in Ghana did not have access to water from the GWCL network (MWRWH, 2009). Moreover, water supply to areas with piped-water connection is mostly erratic and increasingly unreliable. Many urban

dwellers therefore have poor access to potable water. Water service to the urban poor thus presents challenges to policy makers, policy implementers and other stakeholders in the water sector.

The low access of the urban poor to potable water has been exacerbated by rapid urbanization. There is a growing recognition that as a result of rapid urbanization, Ghana faces serious challenges in urban water supply, which if left unchecked, could derail efforts and progress towards the attainment of the Millennium Development Goals and hold back human development. In fact, Ghana's rate of urbanization outstrips current levels of urban water supply and as a result water is considered as a critical resource in short supply among the urban poor (GoG, 2007).

The urban population of Ghana increased from 32 percent in 1984 to 44 percent in 2000 (Ghana Statistical Service, 2005) and then to 51% in 2010 (Ghana Statistical Service, 2012). The rapid rate of urbanization is straining the capacity of local governments to provide basic amenities and improve the quality of life of the urban poor. This has resulted in more pressure on urban water supply systems. In 2008, only 30 percent of urban residents in Ghana had piped water in their homes (WHO/UNICEF, 2010). Approximately two thirds of urban residents rely on neighbours and water vendors for water supply (GoG, 2007). In the peri-urban areas where the urban poor, low income residents and new migrants by default live as a result of high rents in the centrally located urban areas (CICRED, 2007), most people and households receive supplies once a week or none at all. As a consequence of this, most people and households depend on water vendors and tanker services for their water supply.

In addition to low access to water both in quality and quantity, the urban poor pays more for water than those with piped connections. A study by Van Rooijen et al (2008) in Accra indicated that as a result of the reliance of poor households without piped connections on water vendors, they pay between four to eighteen times more per litre of water as compared to households with water network connections. Another study by Ainuson (2010) revealed that residents in low income urban communities in Ghana pay three or four times the amount residents on the GWCL network pay for water. He argues that many of the 800,000 people living at or below the poverty line in Accra pay ten times more for their water than residents in high income areas.

In an attempt to address the problem, various governments in Ghana have since the mid 1990s, implemented a string of reforms in the water sector which culminated in the realignment of key institutions. Notable among these reforms are the separation of urban water management from rural water management through the establishment of Community Water and Sanitation Division (CWSD) in 1994 which was transformed into Community Water and Sanitation Agency (CSWA) in 1998; shifting of water regulation from the government to independent agencies namely the Water Resources Commission (WRC) and the Public Utilities Regulatory Commission (PURC) in 1996 and 1997 respectively. Other reforms include the establishment of government owned Ghana Water Company Limited (GWCL) to replace the Ghana Water and Sewerage Corporation (GWSC) in 1999 to cater for only urban water supply under the supervision of the Ministry of Water Resources, Works and Housing; the introduction of public private partnership in urban water supply; and the formulation of National Water Policy in 2007 (Bohman, 2010).

The overall goal of the National Water Policy is to —achieve sustainable development, management and use of Ghana’s water resources to improve health and livelihoods, reduce vulnerability while assuring good governance for present and future generations (GoG, 2007: 13). This is to be attained by addressing relevant issues under water resources management, urban water supply, as well as community water and sanitation. In the urban water supply sector, the policy proposes to halt the falling trends in water supply coverage and quality, thereby resuming the programme of expansion and improvement. In furtherance to this, the policy identifies the main challenges of improving access to urban water supply. These are rehabilitation and expansion of existing infrastructure; achieving equity in access to water supply for peri-urban and urban poor to meet the basic needs of the poor at affordable cost; improving operations and management; and reducing the high level of physical losses.

To address these challenges, the policy proposed among other things the introduction of private sector participation in the operations and management of urban water supply; carrying out of rehabilitation and upgrading of reservoirs; prioritization of new investments in system extensions and expansion of bulk water production based on well-established criteria that include health factors; and ensuring that an equitable amount of investment resources are dedicated to extending services to low-income communities.

With regards to water supply to the urban poor, the National Water Policy acknowledged pro-poor water supply as an important issue. Policy measures were therefore outlined in the National Water Policy to ensure improved and sustainable access of the poor to water for their basic needs. The implementation of the policy which commenced in 2008 is the responsibility of the GWCL under the supervision of the Ministry of Water Resources Works and Housing. The Public Utility Regulatory Commission (PURC) monitors and evaluates the performance of GWCL and also set tariffs for the utility.

The development partners have bought into the policy and have thus undertaken a number of interventions to improve urban water supply. In spite of these, water supply to the urban poor is still a challenge. The urban poor do not only have poor access to water both in quality and quantity, they also pay more for water than those with piped-water connections (Van Rooijen et al., 2008; Ainusion, 2010). It is a common sight to see people, especially women and children in the cities, with jerry cans searching for water on daily basis. Frequent water shortages and erratic water supply have been the norm rather than exception for poor urban dwellers. Although the government has put forward planned guidelines in the form of a national water policy to address the various water related challenges, the water supply still lags behind demand. It is against this backdrop that the current study seeks to investigate how the National Water Policy addresses the water needs of the urban poor.

1.3 Objectives of the Study

The general objective of this study is to examine the extent to which the National Water Policy is addressing the water needs of the urban poor.

The specific objectives of the study are to:

- i. Determine how the urban poor access potable water;
- ii. Assess how the National Water Policy targets the urban poor; and
- iii. Examine how access of the urban poor to water supply could be improved on sustainable basis.

1.4 Research Questions

To facilitate the realization of the above objectives, the study sought to address the following questions:

- i. How do the urban poor access potable water?
- ii. How is the National Water Policy targeting the urban poor?
- iii. How can sustainable water supply to the urban poor be achieved?

1.5 Justification of the Study

The study throws more light on contemporary challenges confronting urban water delivery, especially in poor urban settlements. It examines the extent to which the National Water Policy is responding to the water needs of the urban poor. It strives to identify policy gaps, implementation status of the pro-poor water policy measures outlined in the National Water Policy and policy implementation challenges. The study further broadens understanding on public policy implementation and provides information on challenges of public policy implementation in general. The study also makes available empirical data on access of the urban poor to water services and offers appropriate pro-poor interventions to improve access of the urban poor to water supply on sustainable basis.

The recommendations of the study, when implemented, will go a long way to ensure sustainable water supply to the urban and peri-urban poor. Viewed this way, the research findings and conclusion may be useful to policy makers, policy implementers, academia, Non-governmental organizations, and civil society organizations. The study shall inspire further investigations in the area of public policy implementation and sustainable urban water supply.

1.6 Scope of the Study

The study was conducted in three poor urban communities in the Greater Accra Region of Ghana, namely Adenta Village in the Adentan Municipality, La Old Town and Akweteman in the Greater Accra Metropolis. The study focused on access to water supply which was defined to include availability of water, accessibility of water source, affordability of water and acceptability of water source. The study also examined the implementation of pro-poor

policy measures outlined in the National Water Policy of Ghana. It was limited to the potable water supply. In view of this, issues relating to water resource management and rural water supply were beyond the scope of this study. The study covered households, water vendors, policy implementers, policy makers and other key stakeholders in the urban water sector. In terms of time, the study was limited to household heads that were living in the case study communities before 2008 when the implementation of the National Water Policy commenced. Moreover, the case study communities were selected based on the 2010-2013 Medium Term Development Plans (MTDPs) of the Metropolitan and Municipal Assemblies. Consequently, La Old Town was captured under Accra Metropolitan Assembly although it is now in La-Dadekotopon Municipal Assembly.

1.7 Organization of the Study

The study is organized into nine chapters. Chapter One provides background of the study and covers the introduction, statement of the research problem, research objectives, research questions, justification, scope, and organization of the study. Chapter Two presents the theoretical and conceptual approach to the study. It covers pro-poor water supply, the concepts of poverty, poverty penalty, sustainable water supply and access to water. It also discusses various perspectives on public policy implementation as well as the conceptual framework for the study. Chapter Three is devoted to research methodology and procedures that were employed for the study and ethical issues.

Chapters four, five, six, seven and eight deal with analysis of data collected from the field in relation to the research questions and objectives of the study. Chapter Four highlights the socio-economic characteristics of the research participants, Chapter Five focuses on water supply to the urban poor, whilst Chapter Six looks at water vending in poor urban communities. The implementation of the National Water Policy is examined in Chapter Seven. Chapter Eight covers the discussion of the findings of the study. The last chapter, nine, is devoted to the policy implications of the findings, theoretical implications of findings, contributions to knowledge, limitations of the study and recommendations.

CHAPTER TWO: THEORETICAL AND CONCEPTUAL APPROACH OF THE STUDY

2.1 Introduction

This chapter presents the theoretical and conceptual framework for the study. It examines urban water supply and pro-poor water supply initiatives. The chapter begins with a highlight of urban water situation in developing countries and presents case studies of successful pro-poor urban water supply strategies in developing economies. This is followed by an examination of pro-poor water policies in Ghana and the implementation of public policies. The chapter afterward defines some concepts used in the study such as poverty, poverty penalty, sustainable water supply and access to water. A conceptual framework is then developed to guide the entire study.

2.2 Urban Water Supply in Developing Countries

The provision of adequate water and other basic services is one of the most critical challenges confronting urban areas in developing countries. In fact, local governments in Africa, Asia, and Latin America are facing growing challenges to absorb and provide basic services to the ever increasing urban population, especially water and sanitation services (WaterAid, 2012; UN Water, 2011; Ryan and Adank, 2010; IIED, 2010; WSP, 2009). Public policies for water and sanitation services are being outstripped by rapid urbanization. The world population increased by 635 million people between 2000 and 2008, however, 511 million representing 80% out of this increase live in urban areas and are having challenges with water and sanitation services (UN Water, 2011). According to WHO/UNICEF (2010), the number of people without access to improved drinking water globally increased by 37 million between 1990 and 2008.

Cheru (2005) observed that as African cities continue to urbanize, their deteriorating economic situation has resulted in inadequate supply of basic infrastructure and urban services especially water and sanitation. Urbanization is actually enlarging the areas and number of people without access to water supply from public utilities and as a result more people, especially the poor, are forced to buy water from water vendors at a higher cost

(UN Water, 2011). According to GoG (2007) the rate of urbanization in Ghana surpasses current levels of urban water supply and as a result water is considered as a critical resource in short supply among the urban poor.

The situation is even grim in informal and low income settlements where the urban poor mostly reside (WaterAid, 2012, Ryan and Adank, 2010). Poor urban dwellers face several obstacles in accessing piped water services. Many of the utilities in developing countries lack the autonomy, financial and human resources and the incentives to supply water to the urban poor (McIntosh et al., 2009). Efforts by the utilities to provide the urban poor with water have therefore generally been piecemeal and limited to the provision of standpipes. Moreover, institutional arrangements for water supply tend to be weak (WSP, 2009).

The urban poor receive the worst of water services, if they even receive them at all. They pay the highest prices for water, often of poor quality, from water vendors (UN Water, 2011; UNDP, 2011; WSP, 2009; Van Rooijen et al. 2008; Nyarko, 2007). A study by Nyarko (2007) in Ghana for example showed that a substantial proportion of the urban population without direct access to piped-water connection or standpipes depend on water vendors and independent producers at a higher cost, and often of doubtful quality. Similarly, a study by UNDP (2011) revealed that on the average low income households in Kenya who rely on water vendors for water pay between 6 to 55 times the prices charged by the utility for water. Moreover, very little of the money, if any, derived from the sales of water by the vendors reaches the utility providers (WSP, 2009).

This has resulted in a cycle of declining investment, deteriorating services, and decreasing financial returns which translates into poor service, especially for the urban poor (Kessides, 2000 cited in WSP, 2009). A study by WaterAid (2012) revealed that the urban poor have peculiar challenges to water supply. Notable among them are high connection cost, bureaucratic processes involved in securing connection to the network, spatial location of poor settlements, and lack of legal tenure of the urban poor. Moreover, the urban poor do not have a voice in urban water politics and as such their views are seldom prioritized by decision makers (Petit, 2009; WaterAid, 2012). Another study by the International Institute for Development and Environment (IIED) concludes that although potable water is a daily need for all urban dwellers, service provision in poor urban settlements is challenging due to the costs of network provision and service expansion; lack of formal land tenure; lack of space and access for placing infrastructure (IIED, 2010).

The approach to the provision of water services for the urban poor by most governments and utilities in SSA is dysfunctional on both the supply and the demand side (WSP, 2009). On the supply side, managers of utilities are discouraged by poor impact on the limited resources they expend on serving the poor. Water supply interventions for poor communities tend to be economically unsustainable due to haphazard or project-by-project approach to serving low income consumers, as opposed to a mainstreamed approach. Moreover, long-term planning for expansion and maintenance of water systems is generally not factored into budgets and plans. The water needs of the urban poor are thus not mainstreamed by the utilities into their operations. On the demand side, the urban poor are also upset that utilities tend not to see them as viable customers and do not provide them with services in an organized manner and so they have to rely on water vendors for water at a higher cost (WSP, 2009).

It has been observed that the governmental mandate, organizational structure, and skills of utilities are most often unsuitable to deliver water services to the urban poor (WSP, 2009; AWF, 2010). However, the provision of water services to the urban poor requires a clear understanding of the complexities of the constraints and innovative models to be able to deliver tailor made solutions (Franceys, 2005; United Nations, 2008; IIED, 2010; WaterAid, 2012). A shift in perspective is therefore needed. This could be done through reforms of the operation of the utilities (Ryan and Adank, 2010; WaterAid, 2009; WSP, 2009) and private sector involvement in urban water supply (IIED, 2010; Ngowi, 2008).

2.2.1 Case Studies of Pro-poor Urban Water Supply

The peculiar situation of the urban poor settlements calls for reforms in the urban water sector and formulation of strategies aimed specifically at extending services to the poor. The starting point is that governments, utilities and the private sector in developing countries should accept the fact that the urban poor constitute a huge untapped market in most countries and there is the need to service the poor (WSP, 2009). This section presents selected case studies of initiatives that have been used to improve access of the urban poor to water services on sustainable basis.

The experience of the Naivasha Water and Sewerage Company (NAIVAWASS) described in Box 1 shows how partnership between the private sector, local government authority, and community can improve access of low income communities to affordable and high quality water services.

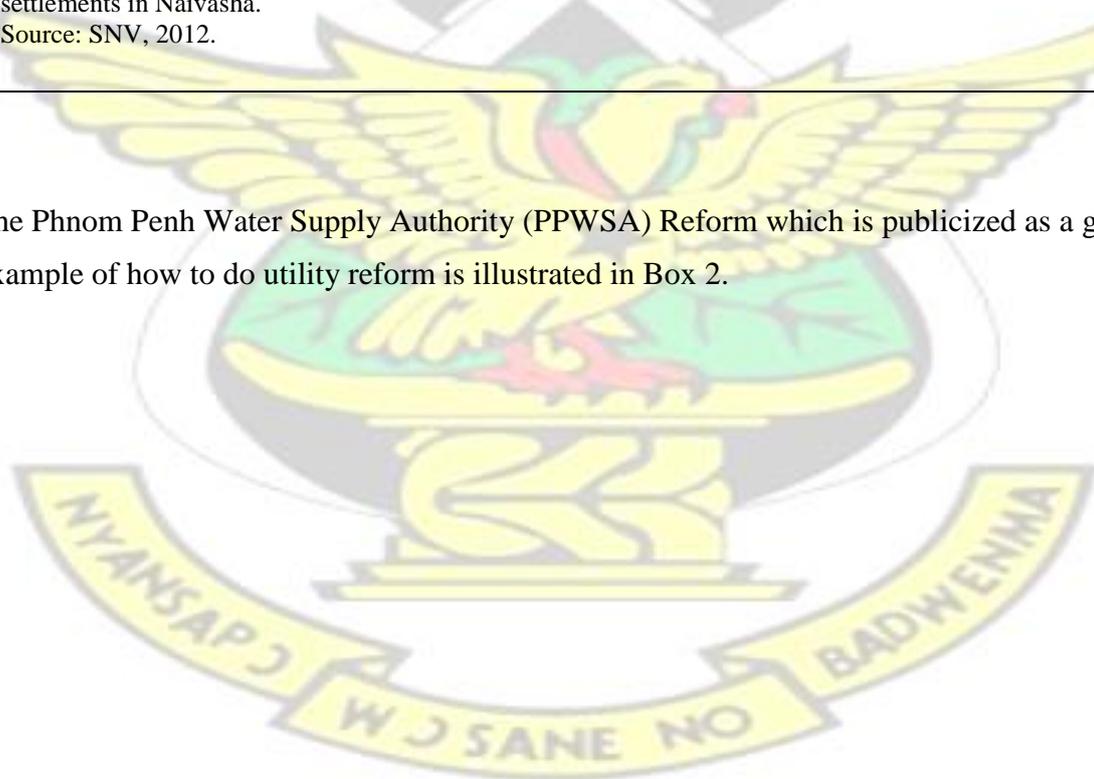
Box 1: Partnerships for the poor in Naivasha, Kenya

Naivasha Water and Sewerage Company (NAIVAWASS) is a local authority owned company that provides water and sanitation services to more than 300,000 residents of Naivasha, a town where 30% of the residents live in low income informal settlements. SNV partnered a UK based NGO Water & Sanitation for the Urban Poor (WUSP) to promote a business model for delegated management of local water services in the town. The model is designed to ensure the supply of affordable and high-quality water services for poor consumers; whilst at the same time safeguarding profitability for the operators, and sufficient revenues for sustainable asset management.

As part of the intervention, a private borehole owner is supported to invest in a larger pump and an innovative defluoridation system based on bone-char technology. Consequently, the water provider is able to sell safe water to the neighbouring communities through community-managed water kiosks. Through this arrangement, access to affordable but good quality water has been extended to an additional 40,000 residents of Karagita informal settlement. As a result of the intervention the cost of water access to residents of Karagita has dropped by more than 60%. Due to the successes made by the initiative, SNV is promoting this pro-poor service delivery model in other informal settlements in Naivasha.

Source: SNV, 2012.

The Phnom Penh Water Supply Authority (PPWSA) Reform which is publicized as a good example of how to do utility reform is illustrated in Box 2.



Box

2: Phnom Penh Water Supply Authority (PPWSA) Reform, Cambodia.

The Phnom Penh Water Supply Authority (PPWSA) is the municipal utility that supplies water to Phnom Penh, the capital of Cambodia, and its surrounding communities. It was established in 1965. It is touted as one of the most successful water utility reforms in Asia. Though initially successful, the operations of PPWSA became dysfunctional after decades of political turmoil, centralized management, and culture of inefficiency.

However, the utility experienced dramatic turnaround following the reforms in 1993 which focused on improving collection levels, minimizing illegal connections and non-revenue water, increasing tariffs to cover operational and maintenance cost, streamlining the organizational work force, and rehabilitating the entire distribution network and treatment plants. Table 2.1 highlights the significant increase in the performance of the utility which has resulted in sustainable urban water supply in general and pro-poor water supply in particular.

Table 2.1: Then and Now Situation of PPWSA

Indicator	1993 (Before Reforms)	2009 (After Reforms)
Coverage Area	20%	90%
Production Capacity	65,000 m ³ /day	300,000 m ³ /day
Total Connection	26,881	191,092
Metered Coverage	13%	100%
Supply Pressure	0.2 bars	2.5 bars
Supply Duration	10 hours/day	24 hours/day
Non-Revenue Water	72%	5.94%
Collection Ratio	48%	99.9%
Current Ratio	N/A	2.55 times
Financial Situation	Heavy Subsidy	Full Cost Recovery
Staff/1000 connection	22	3.2

The driving forces of the dramatic turnaround included investing in staff and providing incentives, The Kagugube Project promoting transparency, involving civil society, and investing in modern management procedures and in Kampala presented in Box 2 highlights how functional pro-poor units coupled with proper targeting technology. The PPWSA was given full autonomy by the government in 1996 and the utility took full can enhance sustainable access of the urban poor to responsibility for its operations such as recruitment of staff. The top management was restructured, and water services. dynamic younger personnel with more advanced qualifications were promoted to senior posts with more responsibilities. The utility progressively reviewed its tariff structure which led to full cost recovery in 1995 which in turn made the utility financially viable to invest in water infrastructure. Aside replacement of old pipe lines, the utility also expanded its network to increase access using state-of-the-art techniques that ensured prompt detection of leakages in the distribution system. The PPWSA provided house connection to the urban poor by subsidizing connection cost.

(Sources: ADB, 2007 cited in Ryan and Adank, 2010; WaterAid, 2009; Binayak et al., 2010).

Box

The Kagugube Project in Kampala presented in Box 3 highlights how functional pro-poor units coupled with proper targeting can enhance sustainable access of the urban poor to water services.

3: The Kagugube Project in Kampala, Uganda

The Integrated Project of Water and Sanitation Services to the Urban Poor in Kagugube Parish of Kampala (Kagugube Project) was designed in 2008 to establish water and sanitation services to the urban poor in Kagugube, an unplanned low income area in Kampala with a population of 13,750. It was funded by the African Water Facility (€800,000) and the Uganda National Water and Sanitation Corporation (€65,575) at a total cost of €865,575. It was set up as a pilot project to achieve four main objectives: establishment of sustainable water supply, sanitation and hygiene promotion services tailored to the needs of the urban poor; improve access to sanitation facilities; strengthen the urban pro-poor branch (UPPB) charged with the development of pro-poor water infrastructure and operational mechanisms; and ensure access of the urban poor to water at the National Water and Sewerage Corporation (NWSC) official tariff.

Prior to the implementation of the Project, about 80% of the 2,320 households in Kagugube did not have access to piped water or did not use piped water due to distance to standpipe and high cost of water from yard tap vendors. The Pilot Project which ended in November 2010 produced outcomes which have improved accessibility, affordability, and reliability of water, as well as social equity. The project beneficiaries now have 24 hours a day uninterrupted water supply. It has reduced distance to standpipe to not more than 200 meters from the furthest consumers. Cost of water has reduced to about 20% of what the residence used to pay. The extension of water supply through standpipes has enhanced accessibility to water. The pay as you fetch policy of standpipes has overcome the issue of monthly bill payments which did not meet the pocket of the poor. The project has also put in place a complaints mechanism through which customers can seek redress. The pro-poor focus of the Kagugube Project is also in line with the principle of equity. The UPPB has demonstrated that a dedicated pro-poor unit within a utility helps to realize the objectives of pro-poor agenda. It also enhances the intra-utility awareness for pro-poor issues and creates a win-win situation for all parties such as tenants, landlords, community, the NWSC, and the private sector.

The Project partners attributed the successful outcomes of the Kagugube Project to five key project drivers. These are a functional urban pro-poor unit; establishment of Kampala Water Zone Boundaries and Block Mapping of Urban Poor Coverage; substantial knowledge of informal communities; strong performing utility that exuded confidence in its ability to deliver services; and availability of funding support and goodwill of the donor community. (Source: AWF, 2010).

An innovative model on how private sector involvement can generate win-win outcomes for the urban poor through improved access to good quality water at affordable cost and for private companies by way of access to good and profitable business opportunities is described in Box 4.

4: Water for Poor Communities Programme -Manila, Philippines.

The Manila Water Company Incorporated (MWCI) is a private concessionaire that operates, manages and maintains water and sewerage infrastructure in Eastern Manila, Philippines. It is one of the two private concessionaires that was established after the privatization of the Metropolitan Waterworks and Sewerage System in 1979. The MWCI is adjudged as a success story. In 1998, the MWCI launched the Tubig Para Sa Barangay (TPSB) also known as Water for Poor Communities Programme. The TPSB was fashioned out to offer various service options to poor communities with the most common option being a group tap where two to five households are serviced through one metered connection. Since its establishment, the TPBS has expanded water services to 1.3 million people in 214,000 households.

entation of the programme, less than two-thirds of the inhabitants of Manila had access to pipedBefore the implem water. Many of the low income households were not connected to the piped network due to stringent connection application requirements, including land title. Poor households joined long queues at public taps to fetch water or had to buy water from private vendors at 10 times the cost of piped-water. There were many instances of illegal connection to the piped network which resulted in Non-Revenue Water level of 60% which was more than the industrial benchmark of 30%. Moreover, water borne diseases and mortality due to unsafe and inadequate water supply were prevalent.

The key driver of the TPSB was its strong emphasis on partnerships with local government and community organizations. The role of the MWCI includes identifying and assessing the TPSB area, organizing and coordinating with the recipient community, implementing the scheme chosen and monitoring operations on a daily basis. The role of the local government units (LGUs) and the community based organizations (CBOs) are mobilizing the community, endorsing and granting permits to facilitate construction, and providing support during project development and implementation to MWCI. The LGUs and CBOs are also responsible for the day to day management of TPSB facilities under community-managed water connection such as repairs and maintenance, monthly billing and collection, and remittance of household consumption charges.

One of the innovative features of the TP SB is the active role the poor play in decisions concerning programme design and implementation. The poor are responsible for choosing the connection scheme and collection arrangement for their community. The implementation of the TPSB has yielded positive dividend. Notable among them are:

- Streamlining connection application process enabling poor households to connect to the piped network. Land title requirements, for instance, can now be waived. Flexible payment schemes have also been introduced.
- Poor households now pay less for their water and payment of fees has been made easier through lower connection fees, different installment schemes, reduced monthly water charges, and socialized water rates.
- The incidence of water borne diseases such as diarrhea has declined which has improved public health in poor communities.
- The participatory approach adapted under the TPSB has created enhanced social inclusion and community development.
- The participation of the community in the design and implementation of project interventions has also empowered the poor to improve their quality of life. It has also given the community members a sense of ownership of the infrastructure which increases the likelihood that it would be maintained and sustained.
- TPSB has enabled the MWCI to fulfill its service obligations, increase its revenues and improve its operational efficiency. Bill collection efficiency is now about 90 to 95 per cent. MWCI estimates coverage of its service area to be 98%, with 24 hours a day water supply. It has implemented 600 projects targeting low income neighbourhoods which have helped to provide water to over one million people.

This shows that strong financial, institutional and operation benefits can be derived from pro -poor projects. The proven successes of the TPBS in commercial terms provide a good reason for MWCI to invest further funds in the programme. It should however be noted that certain issues of concern raised about the programme such as lack of consultation during the privatization, institutional mechanisms for consumer representation, absence of independent regulator and auditor should be addressed in subsequent interventions.

Source: IIED, 2010; WaterAid, 2009.

An example of how independent community based water networks with governmental support and strong regulatory mechanisms can improve access of the urban poor to water services is illustrated in Box 5.

Box 5: Water Trusts, Independent Service Providers in Lusaka, Zambia

Water Trusts, independent community based network providers, supply water to about 600,000 out of the one million peri-urban dwellers in Lusaka, Zambia. The Water Trusts are supported by the Lusaka City Council. The City Council is a signatory to the trust accounts. It facilitates the recruitment and appointment of board members and management team, audits their books and provides legal advice. Each water trust has a board of trustees that provides policy direction, develops service strategies, and hires a scheme manager. The scheme manager also hires and supervises staff, such as water vendors/tap attendants, plumbers, and cashiers. The water vendor/tap attendant individually signs a contract for the operation and maintenance of a water point and receives a percentage of monthly sales as commission. Residents can either buy water on a daily basis, or can opt for monthly prepayments. In some schemes, people who want household connections are given the option. The National Sewerage Commission regulates tariffs and connection charges. The commission is also supposed to regulate service quality.

One of the popular Water Trusts is the Water System in Chipate, a peri urban area in Lusaka, which is wholly owned and managed by the Residents' Development Committee (RDC) on behalf of the people of Chipata. The community management system which serves a broader function than just water supply was introduced to the Chipata community by Care International, an NGO, in consultation with the main utility, Lusaka Water and Sewerage Company (LWSC), and Lusaka City Council. The water supply system is made up of a groundwater supply to overhead tanks which is then reticulated to 39 community taps. The system service only Chipata and does not depend on water from the main LWSC supply. The project involved extensive community participation in terms of organizing and educating residents as well as contributing to the design of construction, operations and maintenance. In view of this, Care International built the capacity of the community and strengthened community management arrangements to enhance active participation of the residents in the development activities. Sources: WUP 2007 cited in Ryan and Adank, 2010; Lidonde, 2008 cited in Ryan and Adank, 2010.

The Water Kiosk, an innovative model of improving access of water stressed poor urban communities to affordable and good quality water is illustrated in box 6.

Box 6: Water Kiosk- An Innovative Pro-Poor Water Supply Model in Lugaba, Uganda

In 2005, WaterCan, a Canadian Charity and a Community Integrated Development Initiatives (CIDI), a local NGO, initiated a programme dubbed Improving Water and Sanitation Condition for Kampala's Urban Poor. The aim of the programme was to improve water and sanitation conditions in Lubaga, one of the most densely populated poor areas in Kampala with a population of 300,000. The Programme was launched in three most disadvantaged parishes in Lubaga Division, namely Kasubi, Nakulabye, and Nateete.

Prior to the implementation of the programme, about 50% of the households in Lubaga area did not have access to piped water. The water pressure was low and this resulted in unreliable water supply from the piped network. Consequently, the poorest households fetched water from other sources such as

unprotected wells and distant springs. To address this challenge, the programme constructed two water kiosks, connected through high-pressure water lines to the main municipal water supply network. Each of the water kiosks was fitted with two taps and a meter which is used to check the volume of water sold. The community participated in the programme with subsidized labour to lay the pipes, which considerably reduced the installation cost. The local landlords permitted the programme to lay feeder pipes on their lands at no cost. The water is sold per 20 liter capacity jerry can. The kiosk is manned by an attendant who sells the water and keeps the facility and its surrounding clean. The attendant also records the volume of water dispensed as per the meter reading before closing at night to ensure that the day's water sales match the volume of water sold.

The Water Kiosk Initiative has been very successful as it has ensured access to reliable and affordable water supply. Previously, the 20-liter container was sold at 100 Uganda Shillings, but now residents can purchase three 20-litre jerry cans of water for the same price. While some poorest residents still prefer a pay-as-fetch method, many households now have the option of a monthly user fee. Another outcome of the intervention is that it has enabled the residents to keep their homes tidy and bathe and wash clothes more frequently due to improved access to water at affordable cost.

The key success factors of the Water Kiosk Programme in Lubaga are community participation in the design, implementation and post implementation management of the facilities; formation of gender sensitive user committee; and recognition and support by the local government authority. The community was sensitized; meetings and discussions were held with local leaders and residents on suitable technology options. The capacity of local leaders, including councilors representing all 13 parishes of Lubaga Division, was built in planning, budgeting and resource mobilization. The user committee for each water kiosk operates and maintains the facility and ensures its sustainability. To ensure long term effectiveness of the projects, the user committees have been integrated into local governmental planning bodies. Source: Pangare and Pangare (2008).

An interesting trend in the above case studies is that none of the pro-poor interventions was national in character. All the case studies focused on either a district level or part thereof. This brings into question the status of Ghana Water Company Limited as a national utility provider and its ability to service the urban poor. It is also evident from the above case studies that good governance, transparency, sustainability, performance monitoring, responsiveness, inclusiveness and partnerships, among others, are basic tenets of pro-poor service delivery. The realization of these principles however is contingent on strong governmental support, careful targeting and enabling legislative framework. The Phnom Penh Water Supply Authority Reform for example succeeded due to strong governmental support, legislative reforms which granted the PPWSA full autonomy status and the establishment of pro-poor unit. The Kagugube Project also highlights the importance of good governance, transparency and partnerships in pro-poor water supply. It further demonstrates the critical role of pro-poor units in service delivery to the urban poor. The Water kiosk intervention at Lugaba lends credence to the established view that community participation in the design, implementation and management of projects creates a sense of ownership and enhances the

sustainability of projects. It also provides evidence that official recognition, regularization and regulation of water vendors improves efficiency and transparency.

The Manila case study on the other hand shows that the private sector can play an important role in providing potable and affordable water to the urban poor. This however calls for strong governmental support, both at the national and local levels, and enabling regulatory environment to enforce compliance to standards. Moreover, partnerships with local authorities, community participation, payment of realistic tariffs aimed at achieving cost recovery and innovative approaches are apt for sustainable service delivery to the urban poor. The Partnership for the urban poor intervention in Naivasha and the Water Trust of Lusaka further illustrates the important role of partnerships and innovation in pro-poor service delivery.

2.3 Pro-Poor Water Policies in Ghana

The Government of Ghana (GoG) deems the provision of potable water as a critical component in its policy for sustainable economic development of the country. This has been clearly articulated in its policy statements (PURC, 2005b) and development blueprints such as the Ghana Poverty Reduction Strategies. In line with this, the Government has undertaken a number of reforms in the urban water sector to improve access to water as already indicated. For example, the Government transformed the Ghana Water and Sewerage Corporation (GWSC) which was established in 1965 by Act 310 to the Ghana Water Company Limited (GWCL) to supply water to urban areas in Ghana in 1999 (Nyarko et al., 2006). The PURC was also established by Act 538 in 1997 to regulate the water and electricity services in Ghana (GoG, 1997). Aside the reforms in the urban water sector, a National Water Policy has been formulated. The 1992 constitution of the Republic of Ghana also enjoins the state to promote just and reasonable access of all citizens to public facilities and services which includes water services (Nyarko et al., 2006). The PURC has also formulated Urban Tariff Policy and the Social Policy and Strategy for Water Regulation to promote water supply to the urban poor. This section examines the pro-poor urban water policies.

2.3.1 National Water Policy

A National Water Policy was formulated in June 2007. The overall goal of the policy was to "achieve sustainable development, management and use of Ghana's water resources to improve health and livelihoods, reduce vulnerability while assuring good governance for present and future generations" (GoG, 2007). The National Water Policy outlines relevant issues on water resources management, urban water supply and community water and sanitation which need to be addressed in order to meet the overall goal.

In the urban water sector, the policy identifies four main challenges of improving access to water as rehabilitation and expansion of existing infrastructure; achieving equity in access to water supply for peri-urban and urban poor to meet their basic needs at affordable cost; improving operations and management; and reducing the high level of physical losses. To ameliorate these challenges, the policy sets as its objectives to ensure sustainable financing of the infrastructure deficit to meet present and future demand; and to improve management and operations. Four policy measures were fashioned out by the Government to facilitate the achievement of these objectives. These are the introduction of private sector participation in the operations and management of urban water supply; carrying out rehabilitation and upgrading of reservoirs to restore and increase their capacities, where feasible, using appropriate means (e.g. dredging, raising spillway levels), and new ones built where required; prioritizing new investments in system extensions and expansion of bulk water production based on well-established criteria that include health factors; and ensuring that an equitable amount of investment resources are dedicated to extending services to low-income communities (GoG, 2007).

The National Water Policy also identified that the urban water sector was not sensitive to pro-poor issues. The policy therefore seeks to ensure improved and sustainable access of the urban poor to water for their basic needs. In furtherance of this, the government decided to implement five policy measures to improve access of the urban poor to water services. These are:

- i. adopt a tariff structure that provides an optimal benefit to consumers including low income consumers;
- ii. encourage cooperation between private operators and small-scale independent providers, rather than grant exclusivity to either party, to facilitate adequate affordable provision of safe drinking water to unserved and underserved areas;

- iii. establish a Social Connection Fund to support the connection of low-income consumers to the network;
- iv. facilitate defining unserved zones and identify cost-effective alternatives for progressively extending services to these areas; and
- v. recognise the current roles of small-scale providers (secondary and tertiary) in the water supply chain and provide support where appropriate (GoG, 2007).

It is evident from the above that the National Water Policy provides a comprehensive framework for pro-poor urban water delivery. However, the translation of these policy measures into action by the relevant institutions is a challenge (WaterAid, 2011; WaterAid, 2012; WaterAid, 2013). Moreover, the policy measures and strategies to improve water supply to the urban poor fail to be backed up by adequate resources. A study by WaterAid (2013) reveals that funds allocated to the water and sanitation sector fall short of the required investment. Ghana needs an annual investment of 3.5% of GDP in the water and sanitation sector to meet the MDG target for water and sanitation; however the country has not invested more than 1.5% of GDP in the water and sanitation sector since 2008 (WaterAid, 2013). Investment in water is done mainly by development partners with little resources from the Government (WaterAid, 2011).

2.3.2 Social Policy and Strategy for Water Regulation

In its quest to improve access of poor households in urban areas to water, the PURC developed a Social Policy and Strategy for Urban Water Regulation in 2005. The document sets out the objectives of the PURC in fulfilling its duty to protect water consumers, which includes those served by GWCL network and those not served (PURC, 2005b). The social policy document contains 13 policy statements aimed at improving access to water, targeting water supply investments to the requirements of the poor and ensuring affordability of water. Notable among the policy statements are:

- i. PURC will take a 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;
- ii. PURC will support any interventions which result in improved and more reliable access to water, with the ultimate goal of direct connections;

- iii. PURC will instruct urban water utilities to include pro-poor criteria when undertaking investments in water supply projects;
- iv. PURC will support any interventions which will increase the number of the urban poor who benefit from the lowest possible water price;
- v. PURC recognises the role and importance of secondary suppliers in the water distribution chain, particularly in reaching the urban poor. It will therefore support initiatives that enhance their capacity to deliver acceptable service at an affordable price;
- vi. PURC will collaborate with the relevant agencies, NGOs, Community-based organizations and research institutions to address the provision of service to the urban poor and low-income households; promote the involvement of local communities in decisions concerning water supply and service improvements, and build and share knowledge on service to the poor; and
- vii. PURC will ensure that the utilities (and their operators) have in place systems and procedures to provide appropriate and timely response to customers' concerns.

A cursory look at the PURC policy statements shows that the Social Policy and Strategy for Water Regulation documents is urban-poor inclined. However, the challenge has been the implementation of the strategies. A study by Nyarko et al., (2006) revealed that although the social policy document indicates that the PURC will insist on inclusion of pro-poor criteria in water supply projects by public utilities; this is yet to be implemented. Moreover, both the PURC and the GWCL are not in support of the establishment of the social connection fund which is meant to subsidize connection of poor households to the piped network (Nyarko et al., 2006). The PURC for example argues that

it is often cited that the principal barrier for the poor to access water supply is the connection charge as opposed to the volumetric unit tariff. This is demonstrated in Ghana whereby the non-serviced customers pay substantially higher volumetric rates to secondary market service providers than those connected to the GWCL system. However, in Ghana the barrier is not through customer choice but as a result of a lack of adequate infrastructure. It is considered that the full costs of connections can be met by the customers once the service is expanded to reach them. Consequently, PURC sees no need at present to cross-subsidise connection charges (PURC, 2005a:8).

In view of this, the PURC and GWCL deem the rising block tariff structure which has an element of lifeline tariff and the provision of public standpipes in poor urban areas where

household connection is not feasible as a more appropriate means of addressing the concerns of the urban poor (Nyarko et al., 2006).

However, a number of studies have exposed the ineffectiveness of the lifeline tariff as a pro-poor measure. Recent evidence suggest that the rising block tariff system penalizes poor households that share a single connection as their consumption level fall in a higher tariff block. This is because of the large number of people who depend on the meter. Such poor households end up paying more per unit water than single family households (Ryan and Adank, 2010; McIntosh et al., 2009, Castro, 2009; Nyarko et al., 2006).

Moreover, a number of studies have established the association between subsidizing connection cost and improved access of the poor to water supply, especially when the subsidy comes with flexible terms of payment. Jacobs and Franceys (2008) for example, studied better practices in supplying water to the urban poor and found that subsidizing connection cost coupled with granting flexible payment terms on consumption charges has accorded the urban poor in Niger, South Africa, Senegal, Jakarta, Morocco, Ivory Coast among others the opportunity to get connected to the network. In 2010, the Mozambique Water-Sector Asset Owner and Investment Agency (FIPAG) in an attempt to improve water delivery to the urban poor and ensure greater service provider efficiency, reduced the connection fee by 50% (about US\$75 per connection) and staggered fee payment over a period of 12 months in Maputo and 13 other towns and cities (IRC and WSUP, 2012). The move resulted in a sharp increase in the connection rate among poor householders who hitherto relied mostly on informal water vendors for low quality water at a higher cost. The FIPAG was able to chalk this success by streamlining connection processes; reducing connection cost; levying a new surcharge on water supply to the country's ports; and setting up a revolving fund to finance the remaining balance (IRC and WSUP, 2012).

2.4 Implementation of Public Policy

The focus of this section is to examine public policy implementation. It looks at the concept of policy implementation and approaches to public policy implementation.

2.4.1 The Concept of Policy Implementation

Policy implementation, like other development concepts, has been variously defined. According to Pressman and Wildavsky, reputed as pioneers in implementation studies, policy implementation "means just what Webster [dictionary] and Roget [thesaurus] say it does: to carry out, accomplish, fulfill, produce, complete (Pressman and Wildavsky, 1973: xiii-xv)." According to the pair, policy implementation may be seen as a process of interaction between the setting of policy goals and actions geared towards the achievement of the goals.

Van Meter and van Horn, on the other hand, view policy implementation as —encompassing those actions by public and private individuals (groups) that are directed at the achievement of objectives set forth in prior policy decisions. This includes both onetime efforts to transform decisions into operational terms, as well as continuing efforts to achieve large and small changes mandated by policy decisions (Van Meter and Van Horn, 1975: 445). The authors postulated that successful policy implementation is contingent on six main variables. These are policy standards and objectives; availability of resources to facilitate the implementation of the policy; interorganizational communication and enforcement activities; the characteristics of the implementing agencies; the social, economic, and political environment affecting the jurisdiction or organization within which implementation takes place; and the disposition of the implementers towards a policy (Van Meter and Van Horn, 1975:462-465). They emphasized that the policy implementation demands that goals and objectives are identified and measured since implementation cannot fail or succeed without goal against which to evaluate it.

Moreover, policy implementers may fail to carry out policies faithfully because they reject the goals inherent in the policies. Van Meter and Van Horn (1975) further indicated that the disposition of policy implementers toward a policy or aspect of it also determines the success or failure of implementation as policy implementers may screen out a clear message if the policy seems to contradict a deeply cherished belief .

According to Mazmanian and Sabatier, policy implementation refers to —the carrying out of a basic policy decision, usually incorporated in a statute but which can also take the form of important executive orders or court decisions. Ideally, the decision identifies the problem(s) to be addressed, stipulates the objective(s) to be pursued, and in a variety of ways, —structures the implementation process (Mazmanian and Sabatier, 1983: 20-21). The authors revealed that the crucial role of implementation analysis is to identify the factors

which affect the achievement of statutory objectives throughout the entire implementation process. They identified and divided these factors into three broad categories as: the tractability of the problem(s) being addressed; the ability of the statute to favorably structure the implementation process; and the net effect of a variety of political variables on the balance of support for statutory objectives.

Howlett et al. (2009:160) define policy implementation as the process of—translating policy decisions into action. The authors argued that most policy decisions, whether at the national or local level, contain the means of carrying out goals of the policy. However, in order to successfully implement public policy, adequate funds must be provided, requisite personnel assigned and rules of procedure developed and adhered to.

Elmore (1978) also recognized that it is important for policy implementers to plan the implementation process and institute measures to control the implementation process since failures of implementation is due to lapses in planning, specifications and control. He argued that successful policy implementation is contingent on the presence of four main ingredients for effective policy implementation, namely:

- i. Clearly stated task and objectives that perfectly mirror the intent of the policy;
- ii. A management plan that allocates tasks and performance standards to sub-units; iii. An objective means of measuring the performance of the sub-units; and
- iv. A system of management controls and social sanctions adequate to hold subordinates accountable for their performance (Elmore, 1978:195).

One can infer from the above discussion that policy implementation is concerned with translating policy or decisions or plans into practice with the view to achieve stated objective(s). In other words, policy implementation is the carrying out, accomplishing, fulfilling, or completing a basic policy decision to achieve policy objectives.

2.4.2 Approaches to Policy Implementation

The term implementation as a popular concept in contemporary discourse among scholars of public policy dates back to the work that Jeffrey Pressman and Aaron Wildavsky did on the

Oakland project in 1973 and has since gone through some major phases of development (Hill and Hupe, 2009). As research on implementation evolved, two main schools of thoughts emerged as to the most effective way of studying and approaching policy implementation. These are the top-down and the bottom-up approaches (Sabatier, 1986; Matland, 1995; Howlett and Ramesh, 2003; Brynard, 2005). This section examines the two approaches and presents a synthesis of both approaches.

The Top-Down Approach

The proponents of the top-down approach contend that the process of policy implementation analysis starts with policy decisions by government officials and examines the extent to which its legally mandated objectives are achieved over time and why (Sabatier, 1986; Buabeng, 2010). The top-down approach assumes that the policy process is a series of chains of command where political leaders articulate a clear policy choice which is then carried out at increasing levels of specificity as it goes through the administrative machinery that serves the government (Clarke, 1992 cited in Howlett and Ramesh, 2003). Top-down theorists see policy formulators as principal actors and focus their attention on factors that can be manipulated at the central level (Matland, 1995).

Top-down theorists make a clear distinction between policy formulation and policy implementation as they are primarily concerned with the degree to which the actions of implementing officials and target groups coincide with the goals embodied in an authoritative decision. As Matland (1995) sums it up, top-downers have shown a strong desire to develop generalizable policy advice which has led to concentration on variable that can be manipulated at the central level. Matland (1995:147) synthesised the common policy advice as: Make policy goals clear and consistent (Van Meter and Van Horn 1975; Mazmanian and Sabatier 1983); minimize the number of actors (Pressman and Wildavsky 1973); limit the extent of change necessary (Van Meter and Van Horn 1975; Mazmanian and Sabatier 1983); and place implementation responsibility in an agency sympathetic with the policy's goals (Van Meter and Van Horn 1975; Sabatier 1986).

Paul Sabatier, for example, outlined the essential features of the top-down approach in his work ‘_Top-down and bottom-up approaches to implementation research’. He posited that the top-down approach starts with a policy decision by government officials, as already pointed out, and then asks the following questions:

- i. To what extent were the actions of implementing officials and target groups consistent with the objectives and procedures outlined in that policy decision?
- ii. To what extent were the objectives attained over time, i.e. to what extent were the impacts consistent with the objectives?
- iii. What were the principal factors affecting policy outputs and impacts, both those relevant to the official policy as well as other politically significant ones?
- iv. How was the policy reformulated over time on the basis of experience? (Sabatier, 1986: 273).

It is clear from the above accounts that the top-downers are extremely concerned with policy effectiveness, efficiency and impact, mainly from the perspective of policy output necessary for the realization of policy outcomes. In view of this, top-downers are largely concerned with the capability of implementers to put in place the required implementation act and their ability to guide and limit the behaviour of the different actors involved in the policy implementation process (Sabatier, 1986). The top-downers take the democratically established goals of a programme as the starting point of analysis, and seek subsequently to analyse the significance of the implementation process to establish whether the political intentions and programme goals are achieved or not (Rothstein 1998).

The top-down approach has been criticized for neglecting other actors in the policy implementation process by focusing on governmental decision makers. Its methodologies lead top-downers to assume that the formulators of policies are the key actors and those others are basically impediments. In view of this, strategic initiatives coming from the private sector, local implementing officials and other subsystems are therefore neglected (Sabatier, 1986; Hjern and Hull, 1982). In many occasions, policy implementers who are not familiar with the policy can interpret it wrongly which may cause different problems during the implementation process (Barrett and Hill, 1981 cited in Máiz-Tomé, 2010). Moreover, policy makers, and perhaps implementers, often make assumptions about the causes of things which differ from what pertains in the world of those on whom such policies impinge (Nudzor, 2009).

The Bottom-Up Approach

In the late 1970s and early 1980s, the bottom-up approach emerged in response to the perceived flaws in the top-down approach (Schroeder, 2001). In contrast to the top-down approach, the bottom-up approach starts by identifying gamut of actors involved in service delivery in one or more local areas and interview them about their goals, strategies, activities and network of contacts. The information gathered is then used as a vehicle for developing a network of techniques to identify the local, regional, and national actors involved in the planning, financing, and execution of the relevant governmental and nongovernmental programmes (Sabatier, 1986). According to the proponents of the bottomup approach, notably Benny Hjern, David Porter, Richard Elmore and Chris Hull, it provides a mechanism for moving from local implementing officials up to the policy makers at the top in both the public and private sectors by seeking to understand the dynamics at the bottom end of the policy system (Sabatier, 1986).

In his contribution to the policy implementation discourse, Michael Lipsky, a proponent of the bottom-up-down approach, introduced the concept of ‘street-level bureaucrats’. This refers to public service workers including teachers, police officers and other law enforcement personnel, social workers, judges, public lawyers and other court officers, health workers and other public employees who interact directly with citizens in the course of their jobs, and who have substantial discretion in the execution of their jobs (Lipsky,

1980:3). Lipsky’s work on street-level bureaucracy drew attention to the significant contribution of front-line workers to policy making. He argued that front-line workers contribute immensely to policy making through exercising discretion over the dispensation of benefits or allocation of public sanctions in their everyday work. It is therefore simply unrealistic to expect policy formulators at the top to be able to control the actions of frontline workers (Lipsky, 1980).

According to Howlett and Ramesh (2003) a large number of actors play a crucial role at all stages of the policy process when one adopt the bottom-up approach as success or failure of policies often depends on the actors directly involved in the implementation. In view of this, the bottom-up approach directs attention to formal and informal relationships constituting the policy sub-system involved in making and implementing policies.

Just as the top-downers have been criticized for overemphasizing the importance of the centre vis-à-vis the periphery, it has been observed that the bottom-uppers are likely to overemphasize the ability of the periphery to frustrate the centre (Sabatier, 1986). The bottom-uppers do not offer satisfactory solution to the problem of public policy. Its rejection of the authority of policy formulators is questionable in the light of standard democratic practices (Paudel, 2009). The approach underestimates the powers of central actors to structure the goals and strategies of policy implementers at the local level. Moreover, the institutional structure, resources allocation, and access to implementing arena may be centrally determined and thus substantially affect policy outcomes (Matland, 1995).

Synthesis of 'Top-down' and 'Bottom-up' Approaches

Although both the top-down and the bottom-up approaches exhibit distinctive strengths and weaknesses, they are complementary but not contradictory. This position is aptly espoused by Hewlett and Ramesh (2003:190) when they posited that:

—The top-down approach starts with the decisions of governments, examines the extent to which administrators carry out these decisions, and seek to find the reasons underlying the extent of the implementation. The bottom-up approach merely begins at the other end of the implementation chain of command and argues that the activities of the so-called street-level implementers be fully taken into account.

The bottom-up approach actually complements the top-down by recognizing and taking into account the activities of the street-level implementers (Hewlett and Ramesh, 2003). The observation by Charles J. Fox and Paul Sabatier, that when the top-down and the bottom-up approaches are taken together they provide better insight into policy implementation than either does on its own, epitomizes the complementary role of the two approaches (Hewlett and Ramesh, 2003).

Moreover, much of the debate between the two approaches is centred on methodology; mostly over the best way to analyse implementation activities and the best means to develop testable hypothesis about the nature of implementation process and the factors that influence success or failure (Hewlett and Ramesh, 2003). The top-down approach calls for eliminating the gap between formulation and output, whilst the bottom-up perspective emphasizes the inevitable, and perhaps desirable, participation of other actors in later stages of policy process (Paudel, 2009:51).

As pointed out by Paul Berman, —there is no universally best way to implement policy (Berman, 1980:206); either approaches can be effective if applied to appropriate policy situation, but a mismatch between approaches and situation compounds the very implementation problems these approaches seek to overcome. Many students of public policy have therefore turned away from the top-down versus bottom-up debate to examine policy implementation as a question of compliance and control. The primary focus is on reasons why both high-level and street-level implementers took the course of action they did, rather than what was expected of them by the decision makers (Hewlett and Ramesh, 2003). Moreover, since the 1980s there have been structural changes in public administration with some countries adopting some form of decentralization. Local governments have thus assumed greater responsibilities for service delivery (Devas, 2008).

2.5 The Concept of Poverty

There is now a world-wide agreement on poverty reduction as a prior goal of development policy; however, a concise and universally accepted definition of poverty has been elusive (Laderchi et al. 2006). This is largely because poverty affects many facets of the human conditions, including physical, social and psychological. Different approaches have, therefore, been used to define and measure poverty. Poverty may mean a reduced access or complete lack of access to economic and other material resources needed to satisfy basic needs or failure to attain capabilities. It can be conceived as absolute or relative, chronic or temporary. It is sometimes closely associated with inequality, participation, vulnerabilities and social exclusion Mbuli (2008). It must be noted however that clarification of how poverty is defined is very important as different definitions of poverty imply the use of different indicators for measurement. This may lead to the identification of different individuals and groups as poor and require different policy solutions for poverty reduction (Laderchi et al. 2006; Sameti et al. (2012)). In other words, —we must know what poverty is before we can identify where and when it is occurring or attempt to measure it before we can begin to do anything to alleviate it! (Alcock, 1993: 57).

Historically, poverty has been defined in terms of income, which still remains at the core of the concept to date (Townsend, 2006). The enduring popularity of the income approach to poverty can be traced to the work of Charles Booth and Rowntree (Tachie, 2008). Rowntree

for instance defines the poor as those families whose income is not sufficient for obtaining basic necessities of life (Tachie, 2008). According to Townsend (2006), people are said to be in poverty "when they are deprived of income and other resources needed to obtain the conditions of life—the diets, material goods, amenities, standards and services— that enable them to play the roles, meet the obligations and participate in the relationships and customs of their society" (Townsend, 2006:5). In recent years, however, there has been a shift in the definition of poverty to include basic needs, capacity deprivation, vulnerability and social exclusion.

The basic needs approach moves the concept of poverty beyond the lack of income to include access to such necessities as food, shelter, schooling, health, water, sanitation facilities and opportunities for both employment and participation (UNDP, 1997 cited to Shaffer, 2008). The capacity approach was developed by Amartya Sen. The approach rejects the income approach as a measure of welfare. It rather focuses on indicators of freedom to live a valued life. Amartya Sen therefore defines poverty as

—the failure of some basic capabilities to function—a person lacking the opportunity to achieve some minimally acceptable levels of these functionings. The functionings can vary from such elementary physical ones as being well nourished, being adequately clothed and sheltered, avoiding preventable morbidity and so forth to more complex social achievements such as taking part in the life of the community, being able to appear in public without shame and so on" *Sen (1995 cited in Musahara, 2004:24)*.

The concept of social exclusion as a development concept has been used, defined and interpreted in many different ways. According to Chakravarty and D'Ambrosio (2006 cited in Davids, 2010) a person is considered to be socially excluded if he is unable to participate in the basic economic and social activities of the society in which he lives. Wagle (2002:160) argues that the concept of social exclusion goes beyond income and capacity deprivation explanations of well-being because it also includes participation in political, cultural, and civic activities which are an essential part of well-being. The European Union on the other hand views social exclusion as encompassing a much broader array of issues when it declared in its Joint Report on Social Inclusion in 2004 that:

—Social exclusion is a process whereby certain individuals are pushed to the edge of society and prevented from participating fully by virtue of their poverty, or lack of basic competencies and lifelong learning opportunities, or as a result of discrimination. This distances them from job, income and education opportunities as

well as social and community networks and activities. They have little access to power and decision-making bodies and thus often feeling powerless and unable to take control over the decisions that affect their day to day lives (European Union, 2004:8).

According to Levitas et al., (2007:9) social exclusion "involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in society, whether in economic, social, cultural, or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole". Clearly, multidimensionality is an inherent feature of social exclusion, since deprivation in more than one, and perhaps many, dimensions is usually a distinctive feature of social exclusion.

It is evident from the foregoing discussion that the definition and measurement of poverty require a combination of approaches as single approach may be inadequate to define and measure it. Moreover no single definition of poverty can include all aspects or all of its dimensions. In view of this, poverty is looked at from a multidimensional perspective. The multidimensional nature of poverty was clearly articulated by the World Bank (2001) when it indicated that poverty is about people, the human beings behind the statistics, and that there is more to poverty than low income and low human development. It is also about powerlessness, voicelessness, vulnerability and fear (World Bank, 2001).

2.6 Working Definition of Urban Poor

It is evident that poverty, whether in a rural or urban setting, is not simply a lack of income. It encompasses the state of being without the necessities of day-to-day living including food, shelter, clothing, potable water, sanitation facilities, health, education and information. It also includes restrictions in opportunities, vulnerability to shocks and social exclusion. In view of this, in this study, the definition of urban poverty is looked at from a multi-dimensional perspective. The urban poor is therefore defined as people who live in high population density areas. Mostly they live in compound houses or unplanned building structures with high room occupancy rate. They have low and varying levels of income and do not have good access to urban services such as water, solid waste disposal and sanitation facilities.

2.7 The Concept of Poverty Penalty

According to Mendoza (2011:2), the concept of poverty penalty is defined as —the relatively higher cost shouldered by the poor, when compared to the non-poor, in their participation in

certain markets. The concept could be applied to the poor as consumers or as producers. However, this study focuses on the poor as consumers. The concept of poverty penalty as explained by Mendoza (2011) could take at least five possible forms, depending on the specific context under review.

First, the good sold to the poor could be of poor quality than those sold to the non-poor, albeit at the same price. Examples of poor quality goods offered to the poor that have a quality-related poverty penalty include expired medicines, spoiled or contaminated foodstuffs, faulty electrical and mechanical devices and products (Mendoza, 2011), and water from unimproved sources (UNDP, 2011). Quality related poverty penalty is difficult to analyse quantitatively, it is therefore measured through qualitative techniques.

Second, the poor could also pay a higher price for a similar product or service than the price offered to the non-poor consumer. The price related poverty penalty can be analysed quantitatively by calculating the 'poverty premium' which is the ratio of the price paid by the poor relative to the non-poor for a specific product (Mendoza, 2011:4). Simply put, it is the ratio of prices in a poor area to those in a non-poor area minus one. It is calculated as follows:

$$\text{Poverty Premium} = (\text{Price}_{\text{poor}} / \text{Price}_{\text{non-poor}}) - 1$$

Where $\text{Price}_{\text{poor}}$ = price paid by the poor and $\text{Price}_{\text{non-poor}}$ = price paid by the non-poor.

Third, if the price offered for goods and services are high enough it could result in nonaccess related poverty penalty. This is where the good or service is completely unaffordable for poor consumers and as a result they are effectively priced out of the market. Moreover, when the prices offered are high or the quality is poor, it could result in non-usage. The poor could decide to stop consuming the goods or service, thus effectively exiting the market.

Finally, poverty penalty could also manifest in the form of catastrophic spending burden. This is when the consumption of the good or service is a necessity and as a result the poor cannot opt out from consuming the good or service such as expenditure on health, energy and water. In such situations, the poor often do not have choice but to undertake a variety of

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coping strategies such as reducing expenditure on other basic necessities or even going into debt. In the health sector, health spending could be deemed catastrophic when a household must 'reduce its basic expenditure over a period of time to cope with health costs' (Xu et al. 2003 cited in Mendoza, 2011:8). Some scholars have identified 10 percent of household income as the best approximate level of a catastrophic spending threshold, which implies giving up other basic needs, disposing of productive assets, incurring debt or becoming (more) impoverished (Van Doorslaer et al. 2007, cited in Mendoza, 2008:9; Xu et al., 2003 cited in Mendoza, 2011:9).

Mendoza (2011) also outlines a number of possible reasons as to why the poverty penalty might arise in developing countries which may be applicable, although perhaps not in the same form, to Ghana. These include low income itself, as this tends to increase the average expenditure burden of the poor for any product. Living on a low income makes the poor vulnerable to any loss of income, increase in prices or any significant addition to the consumption basket. Another reason is the location where the poor live. This means impaired access to market for goods and services. People on low incomes often live in areas where transportation infrastructure tends to be poor. Moreover, the urban poor might find themselves in informal settlements with poor access to services. These factors, among others, combine to make serving the poor a costly endeavour for most type of businesses. This translates into higher prices of goods sold to the poor by business entities that are willing to service such areas.

According to UNDP (2011), although the poor in general shoulder a poverty penalty in markets for water, health, credit and telecommunications, there is evidence to suggest that the urban poor suffer an additional *urban* penalty. The urban penalty is associated with the fact that —cities concentrate poor people and expose them to unhealthy physical and social environments (Freudenberg et al., 2005 cited in UNDP, 2011:7). A study by Tacoli (2012) revealed that accommodation, even in inadequate and overcrowded housing in urban areas, takes up a disproportionate part of the income of the urban poor. In view of this, the default place of residence of many urban poor is low-income settlements, mostly in peripheral areas of cities where land may be easily accessible and affordable. However, such places often have limited employment opportunities and health and education services. The end result is that the urban poor have to endure long travel times and high transport costs to reach workplaces, schools and clinics.

The concept of poverty penalty applies to urban water market in low income settlements as urbanization is enlarging the areas and number of people un-served by public water supply utilities. In situations where the poor are not connected to the utility's piped network there is a combined quality and price related poverty penalty (UNDP, 2011). The urban poor who are not connected to the piped network, especially those in informal settlements, are compelled to buy water from water vendors at a price higher than that charged by the utility (Sarpong and Abrampah, 2006; UNDP, 2006; Nyarko, 2007; Van Rooijen et al, 2008; Adank et al, 2011; UN Water 2011). A study by Van Rooijen et al. (2008) for example showed that poor consumers in Accra without piped connections in their homes rely on water vendors for water and pay between 4 – 18 times the prices charged by the public water company.

The price-related poverty penalty is aggravated by the fact that the urban poor cannot afford large water storage tanks. Moreover, they also lack space to store large quantities of water, and thus tend to buy water in smaller units (UNDP, 2011). However, since water is essential to sustaining life and as such has 'perfectly inelastic demand', non-usage of available water supply is generally unlikely (UNDP, 2011:7). The disadvantaged position of the urban poor in the market for water is likely to expose them to catastrophic expenditure burdens. However, when the cost burden becomes too great, households may have little choice but to opt out of the market and resort to unimproved water sources at no monetary cost with its associated health risks (UNDP, 2011).

2.8 Sustainable Water Supply

The concept of sustainability has been defined in various ways by different people and organizations. The World Commission on Environment and Development (WCED, 1987:45) landmark publication entitled 'Our Common Future' defines sustainable development as 'development that meets the needs of the present without compromising the ability of future generation to meet their own needs' (WCED, 1987:45). The United Nations Agenda 21 Report (UN, 1993) defines sustainability as the integration of environmental and development concerns for the fulfillment of basic needs and improved living standards for all. According to the World Business Council for Sustainable

Development (2003 cited in Lockwood et al., 2003:4) —Sustainable development involves the simultaneous pursuit of economic prosperity, environmental quality and social equity.

Companies aiming for sustainability need to perform not against a single, financial bottom line but against the triple bottom line. It can be inferred from the above definitions that resource limitations, generational interdependence of human activities, and social equity are common features in the definition of sustainability.

Sustainability is a concept that takes its root from the attempts to protect or maintain the limited natural resources from over exploitation and shocks or stress. The concept has however been extended to encompass social, economic and institutional dimensions, among others (Lockwood et al., 2003).

The concept of sustainability is widely used in the water sector. However, due to conceptual differences various studies have used different definitions of sustainability in the context of water supply projects. A study by Carter et al. (1999), for example, states that sustainability is constancy in water and sanitation services which may be realized through evolving and adaptive mechanisms. On their part, Dayal et al., (2000 cited in Parry-Jones et al., 2001:7) argue that a sustained water supply is ‘a service that regularly and reliably provides enough water of an acceptable standard for at least domestic use. Breakdowns are rare and repairs rapid (within 48 hour) and local financing covers at least the regular cost of operation, maintenance (O&M) and repairs’.

Abrams (1998:2) also defines sustainability as ‘whether or not something continues to work over time. For a water service, this would mean that water continues to be available for the period for which it was designed in the same quantity and at the same quality as it was designed’. Abrams (1998:2) outlined six dimensions of water sustainability namely, technical, social, financial, natural environment, gender, and institutional sustainability.

He explained further that ‘if the water flows then all of the many elements which are required for sustainability must have been in place. There must have been money for recurring expenses and for the occasional repair, there must have been acceptance from the consumers of the service, the source supplying the service must have been adequate, the design must have been properly done and there must have been sound construction’.

For the purpose of this study, the definition of sustainable water supply offered by Abrams (1998) has been adapted for its practical implications. This study however focused on

technical, financial, institutional, and social sustainability. Technical sustainability is defined as carefully designed water supply system that responds to the needs of the poor. It also relates to functionality of water systems and mechanisms of monitoring the entire system. Financial sustainability refers to the availability of funds for meeting recurrent maintenance, occasional repairs requiring replacement of parts and rehabilitation or overhauling of water distribution infrastructure. Institutional sustainability on the other hand connotes a mechanism for regulating the water sector to ensure the delivery of reliable, safe and affordable water to the urban poor. It entails good customer service and means of ensuring transparency and accountability of water sector stakeholders. Social sustainability denotes community participation in project decision making. It also stands for availability of, and implementation of pro-poor water policies.

2.9 The Concept of Access to Water

Access is an important concept in public policy and social services research, yet it is often not defined or employed precisely. Some equate access to entry into or use of a system, whilst to others, it designates factors influencing entry or use (Penchansky and Thomas, 1981). The Macmillan English Dictionary for Advanced Learners (2007) offered two definitions of access. It defines access, first as, the right or opportunity to have or use something that will bring you benefits; and second, as the means by which you get to a place. WHO/UNICEF (2008) defined access to safe drinking water in terms of the proportion of the population using an improved drinking water source. An improved drinking water source is defined as one that by nature of its construction or through active intervention is protected from outside contamination, in particular from contamination with faecal matter (WHO/UNICEF, 2008). According to Penchansky and Thomas (1981) the problem is not only lack of precise definition for access or the multiple meaning given to the concept; access is also used interchangeably with such terms as accessibility and availability which are also not well defined.

Penchansky and Thomas (1981) in their paper on access to health services titled ‘the Concept of Access: Definitions and Relationship to Consumer Satisfaction’ defined access as a concept representing the degree of fit between the client and the system. The authors view access as a general concept which summarizes a set of more specific dimensions of fit between the patient and the health care system. The specific dimensions of access outlined by the authors in relation to access to health are availability, accessibility, accommodation,

affordability and acceptability. The taxonomic definition of access offered by Penchansky and Thomas is illustrated in Table 2.2.

Penchansky and Thomas (1981) explained that the five dimensions of access are not easily separated. In some situations, accessibility may be closely linked to availability. However various services areas with equivalent availability may have different accessibility. Availability undeniably influences accommodation and acceptability. The five dimension thus represent a closely related phenomena that explains why they have been seen a part of a single concept, to wit, access. Penchansky and Thomas (1981) further indicated that when clients have problem with access to a system or specifically with any of the dimensions of access it manifest in three measurable ways. These are utilization of services particularly entry use will be lower; clients will be less satisfied with the system and/or the service they receive; and providers practice patterns may be affected such as when inadequate supply resources cause physicians to curtail preventive service.

Table 2.2: Definition of Access to Health Services

Concept	Definition
Availability	The relationship of the volume and type of existing services (and resources) to the clients' volume and types of needs. It refers to the adequacy of the supply of physicians, dentists and other providers; of facilities such as clinics and hospitals; and of specialized programs and services such as mental health and emergency care.
Accessibility	The relationship between the location of supply and the location of clients, taking account of client transportation resources and travel time, distance and cost.
Accommodation	The relationship between the manner in which the supply resources are organized to accept clients and the clients' ability to accommodate to these factors and their perception of their appropriateness.
Affordability	The relationship of prices of services and providers' insurance or deposit requirements to the clients' income, ability to pay and existing health insurance. The clients' perception of worth relative to total cost is a concern here, as is clients' knowledge of prices, total cost and possible credit arrangements.
Acceptability	The relationship of clients' attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers, as well as to provider attitudes about acceptable personal characteristics of clients. In the literature the term appears to be used most often to refer to specific consumer reaction to such provider attributes as age, sex, ethnicity, type of facility, neighborhood of facility, or religious affiliation of facility or provider. In turn, providers have attitudes about the preferred attributes of clients or their financing mechanisms. Providers either may be unwilling to serve certain types of clients (e.g. welfare patients) or, through accommodation, make themselves more or less available.

Source: Penchansky and Thomas (1981:128-129).

Although, Penchansky and Thomas (1981) framework of access was fashioned for health services, its applicability is not limited to health services. The framework was adapted by Adjakloe (2011) in a study of access to water for domestic use in Ghana. In the study, she looked at access to water from five main dimensions namely, affordability, mode, availability, acceptability, and accessibility. Adjakloe's definition of the five dimensions of access to water is given in Table 2.3.

Table 2.3: Definition of Access to Water

Concept	Definition
Accessibility	Accessibility measures the distance between domestic water source and residence.
Acceptability	Acceptability looks at the type of domestic water source accessed.
Availability	Availability looks at the quantity of water that can be accessed from a chosen source.
Mode	Mode considers the methods used in transporting domestic water from the source to the home.
Affordability	Affordability measures the monetary cost of water as well as the time spent in accessing domestic water

Source: Adjakloe (2011:2-3)

It is clear from the foregoing discussion that the central issue in the different definition of access to water is around availability, quantity, cost, distance, mode of accessing water from a facility, time taken to access a water facility and types of water facilities accessed. In this study, however, access to water is defined to encompass four interrelated variables, namely availability, acceptability, affordability and acceptability. Availability looks at the reliability of water supply and incidence of water deprivation. It refers to the adequacy of water from a given source. Accessibility measures the distance between dwelling units and water points, waiting time at water points, and mode of transporting water from a chosen source to the dwelling unit. Affordability deals with the monetary cost of water, whilst acceptability focuses on the quality of water which is informed by the source of water accessed.

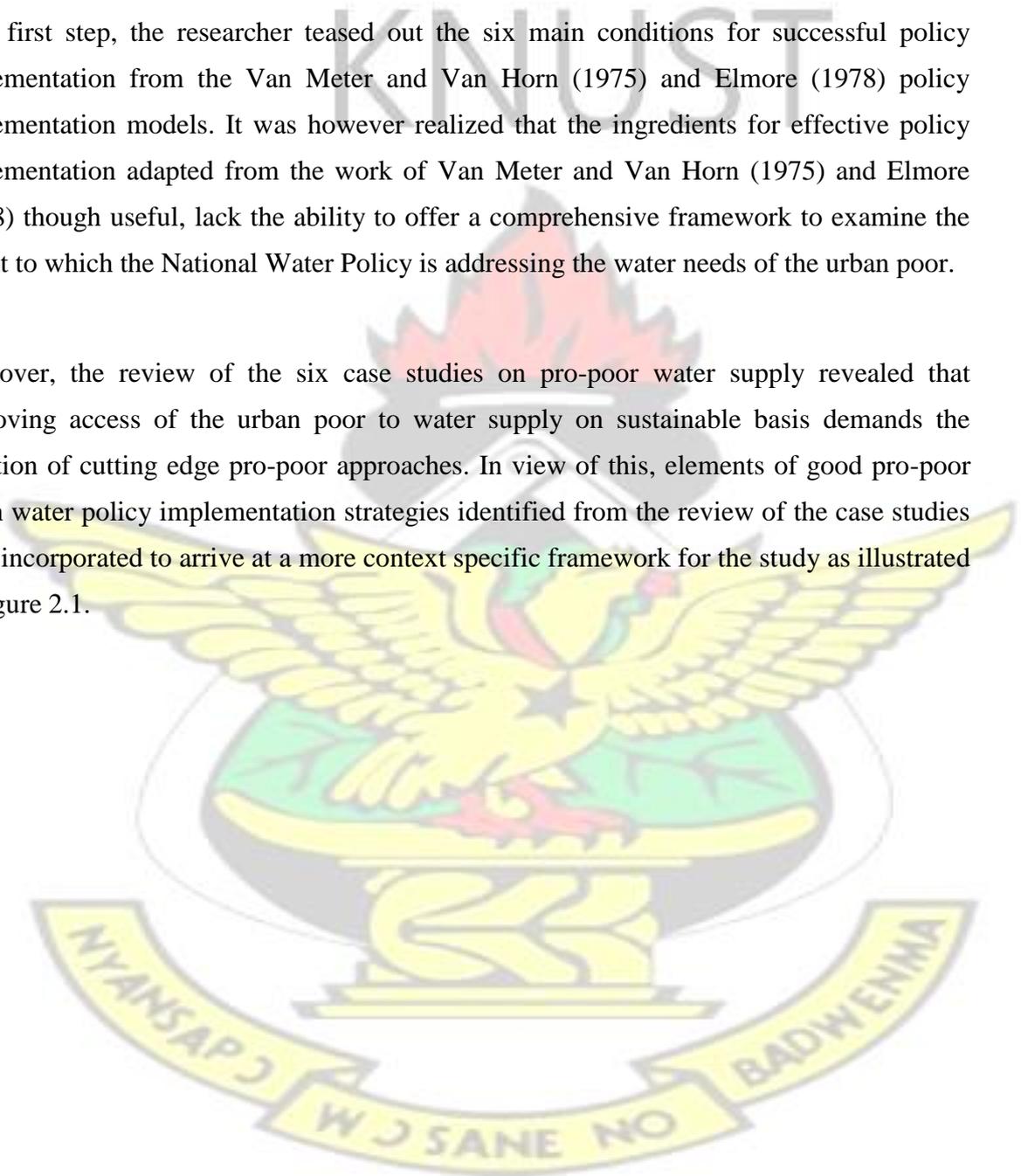
2.10 Conceptual Framework

In an attempt to develop a more specific framework to guide the analysis of this research, various perspectives on policy implementation, pro-poor urban water delivery and the concept of access were employed as reference points. Notable among them are the elements

of good pro-poor policy implementation strategies derived from the review of six case studies on pro-poor urban water supply; policy implementation models of Van Meter and Van Horn (1975) and Elmore (1978); as well as the work of Penchansky and Thomas (1981) and Adjakloe (2011) on the concept of access.

As a first step, the researcher teased out the six main conditions for successful policy implementation from the Van Meter and Van Horn (1975) and Elmore (1978) policy implementation models. It was however realized that the ingredients for effective policy implementation adapted from the work of Van Meter and Van Horn (1975) and Elmore (1978) though useful, lack the ability to offer a comprehensive framework to examine the extent to which the National Water Policy is addressing the water needs of the urban poor.

Moreover, the review of the six case studies on pro-poor water supply revealed that improving access of the urban poor to water supply on sustainable basis demands the adoption of cutting edge pro-poor approaches. In view of this, elements of good pro-poor urban water policy implementation strategies identified from the review of the case studies were incorporated to arrive at a more context specific framework for the study as illustrated in Figure 2.1.



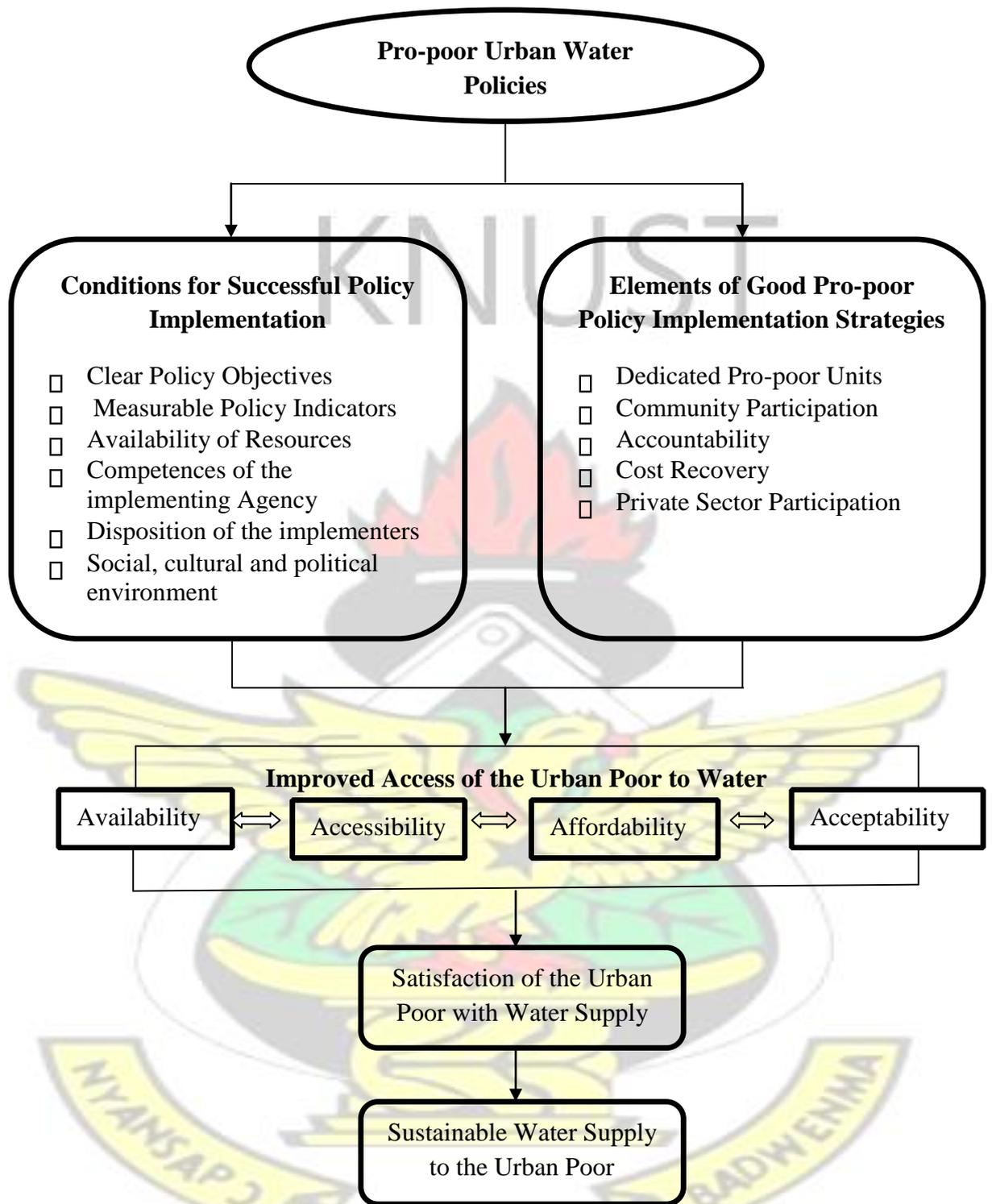


Fig. 2.1: Conceptual Framework for the Study

Source: Adapted and modified from Van Meter and Van Horn (1975); Elmore (1978); Penchansky and Thomas (1981); Adjakloe (2011).

The framework posits that the achievement of sustainable water supply to the urban poor is dependent on the formulation of pro-poor water policies. However, the formulation and

implementation of the policies alone are not enough to ensure improved access of the urban poor to water supply. This is because successful policy implementation hinges on six key conditions, namely:

- i. Clearly specified task and objectives;
- ii. Measureable policy indicators and standards for measuring performance;
- iii. Availability of resources for the implementation of the policy;
- iv. Competences of the implementing agency in pro-poor service provision;
- v. Disposition of the implementers whether positive, neutral or negative towards the policy or aspects of it; and
- vi. Social, cultural and political environment.

Furthermore, the effectiveness of a pro-poor water policy in realizing its outcomes from the review of the six case studies of best practices of pro-poor water delivery is contingent on five key variables. These are as follows:

- i. The presence of dedicated pro-poor units with clear cut mandate to render service to the poor through accurate targeting and tailor-made solutions;
- ii. Active participation of communities in the design and implementation of water projects;
- iii. Institutionalization of social accountability mechanisms, iv. Charging of realistic tariffs aimed at cost recovery; and
- v. Private sector participation to improve water supply to the urban poor.

The framework postulates that when a pro-poor urban water policy is successfully implemented it will result in improved access of the urban poor to water supply. This will manifest in improved availability (reliability of water supply and reduced incidence of water deprivation); enhanced accessibility (reduced distance between dwelling units and water points, reduction in waiting time at water points, and lessened drudgery in the mode of transporting water from a chosen source to the dwelling unit; increased affordability (cost of water); and higher acceptability (the quality of water). When access of the urban poor to water supply is enhanced, the urban poor will be satisfied with water supply. Successful implementation of pro-poor urban water policy will ultimately lead to sustainable water supply to the urban poor.

2.11 Conclusion

This chapter has reviewed literature on pro-poor urban water supply in developing countries, public policy implementation and access to water, among others, with the objective of developing a context specific conceptual framework for the study. It presented case studies of six pro-poor water supply strategies that have been touted as successful in an environment similar to that of Ghana. The chapter also defined some key concepts used in the study. It is evident from the foregoing discussions that water supply to the urban poor in developing countries in general and Ghana in particular is a challenge. A cursory look at the case studies on water supply to the urban poor reveals that pro-poor water supply works well when the intervention is limited in geographical scope. It also demands strong governmental support, careful targeting and good governance mechanisms. In view of this, the study integrated the conditions for successful policy implementation and the elements of good pro-poor policy implementation strategies derived from the literature to fashion out a conceptual framework for the study.



CHAPTER THREE: RESEARCH DESIGN AND METHODS

3.1 Introduction

Chapter three is devoted to detailed discussions of the methodology and procedure that were used to answer the research questions of the study. It outlines the various activities that were undertaken during data collection, analysis and interpretation. It attempts to explain the rationale for the research design and the methods that were employed for the study. It starts by discussing the research design that has been adopted for the study and attempts to explain and justify the mixed methods concurrent triangulation design as a preferred research approach. This is followed by the study population, sample, methods of data collection, data analysis and interpretation strategies. The final section of this chapter discusses ethical considerations that were observed during the data collection phase and afterwards.

3.2 Research Design

The study aimed at examining how the National Water Policy is addressing the water needs of the urban poor. To realize this objective, the study used the mixed method research design. According to Creswell (2005), mixed methods approach is a procedure for collecting, analyzing, and mixing or integrating both quantitative and qualitative data at some stage of the research process within a single study. In mixed methods research approach, the investigator builds knowledge on pragmatic grounds that are consequence-oriented, problem-centred and pluralistic. The investigator uses strategies of inquiry that involve simultaneous or sequential data collection to investigate the research problem (Creswell, 2009; Tashakkori & Teddlie, 1998). The investigator collects both qualitative and quantitative information under the mixed methods approach to throw more light on the research problem.

The rationale for using the mixed method was that neither the quantitative nor the qualitative methods were deemed sufficient by themselves to capture the complex issues of how the National Water Policy was addressing the needs of the urban poor for sustainable water supply. The use of both quantitative and qualitative approaches provided a better understanding of the research problem than either approach alone as the two methods complemented each other and facilitated cross-validation and triangulation (Masadeh, 2012; Ivankova and Sticks, 2007; Tashakkori and Teddlie, 1998).

3.2.1 Mixed Methods Concurrent Triangulation Design

A mixed methods concurrent triangulation design was used in this study. The concurrent triangulation design uses both qualitative (QUAL) and quantitative (QUAN) approaches (See Figure 3.1).

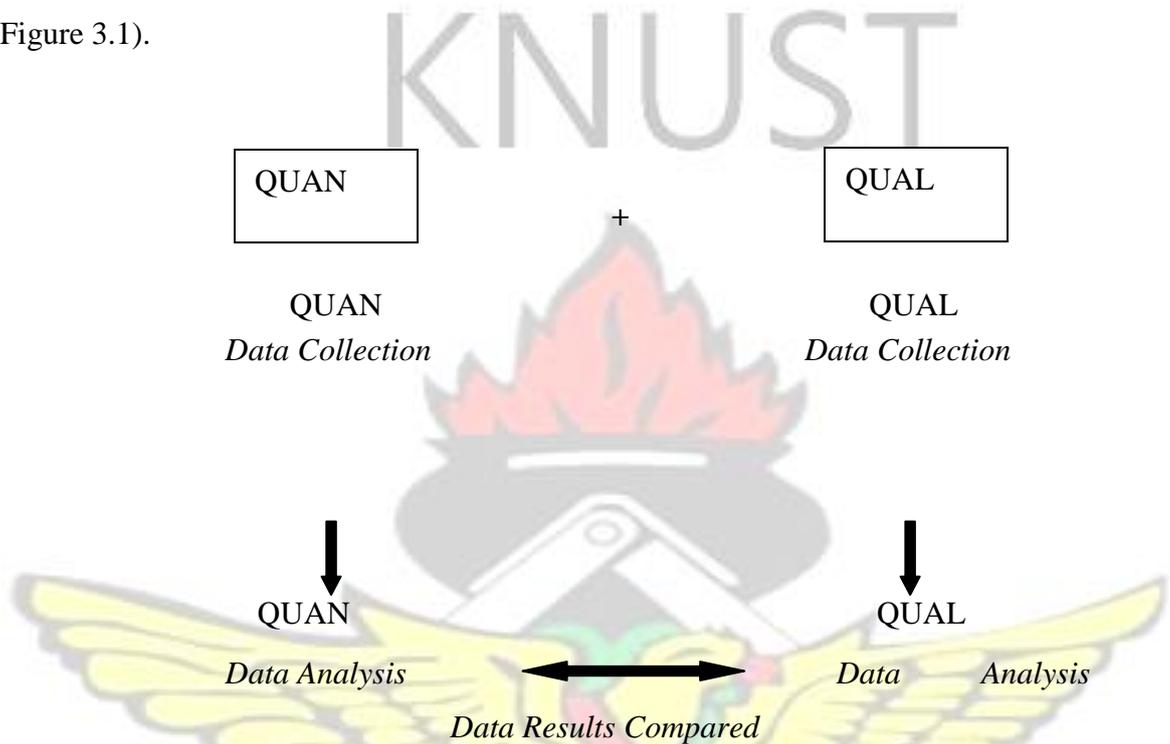


Figure 3.1: Concurrent Triangulation Mixed Methods Design

Source: Creswell (2009:210)

The concurrently triangulation design generally uses separate quantitative and qualitative methods in the same study as a means to offset the weaknesses within one method with the strengths of the other method. In view of this, the quantitative data and the qualitative data are collected concurrently, happening during one phase of the research study (Creswell, 2009). In this design, the two methods are ideally given equal weight. This design usually mixes or integrates the results of the quantitative and qualitative methods during the interpretation phase. This integration may either identify convergence of the findings as a way to strengthen the knowledge claim of the study or may explain any lack of convergence that may arise (Creswell et al, 2008).

The concurrent triangulation approach was employed because of its inherent advantages.

First, it is a well-known design and can result in well-validated and substantiated findings. Second, the concurrent data collection results in a shorter data collection time period as compared with that of the sequential approaches (Creswell, 2009). Moreover, the use of both qualitative and quantitative approaches enhanced the depth and breadth of knowledge by drawing upon the strengths of both research methods (Creswell, 2009).

According to Creswell et al. (2008), other variations of the concurrent triangulation design also exist. They indicated that it would be possible for a researcher to mix or integrate the quantitative and qualitative methods earlier in the research process such as during the analysis phase. They further pointed out that in mixed methods design, integration can occur at multiple stages in a single study. It can occur within the research questions, data collection, data analysis, or within interpretation. In their view, the decision on the stage or stages to mix or integrate depends on the objective of the research, the ease with which mixing or integration can occur, the understanding of the stages of the researcher and the intent of a particular study. They therefore postulated that a mixed methods researcher needs to design a study with a clear understanding of the stage or stages at which the quantitative and qualitative data will be mixed or integrated and the form the integration will take.

For the purpose of this study, a slight variation of the concurrent triangulation design as espoused by Creswell et al. (2008) was adapted. The quantitative and the qualitative data were collected in the same data collection phase and thus shortened the data collection period. However, more weight was assigned to the qualitative research approach. Integration occurred at multiple stages in this study. Majority of the integration began at the data collection stage and extended into the data analysis and interpretation stages. The questionnaire used for the quantitative data collection included both open-ended and close-ended questions. The open-ended questions which gathered qualitative data were categorized into themes and quantified by counting the number of times each type of response occurred. Moreover, some common themes were explored and interpreted through the use of both qualitative and quantitative techniques. Notable among them were the nature of water supply to the urban poor, perception on water vendors, implementation challenges of the water policy, and private sector participation in urban water supply. Ultimately, this variation of the concurrent triangulation mixed methods design enhanced knowledge on how the National Water Policy is responding to the water needs of the urban poor beyond what could be acquired through either a sole quantitative or qualitative or the unmodified concurrent triangulation mixed methods design.

3.2.2 Case Study Approach

The study was conducted using the case study approach. The case study approach is ‘an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident’ (Yin, 2009:18). According to Yin (1994:9), a research should consider the case study approach when ‘a "how" or "why" question is being asked about a contemporary set of events over which the investigator has little or no control’.

A case study approach was used because the case was how the implementation of the urban water policy was addressing the water needs of the urban poor, but the case could not have been considered better without context, the urban poor communities. It would also have been impossible to have a true picture of how the National Water Policy was addressing the water needs of the urban poor without considering the real-life environment within which the implementation of the policy occurred and the actors involved. Using the case study approach, the researcher sought to gather right and detailed information on the nature of water supply to the urban poor, how the urban water policy is implemented, and how access of the urban poor to water supply could be improved. The use of the case study approach provided an excellent opportunity to gain tremendous insight into water supply to the urban poor. It enabled the collection and presentation of data from multiple sources such as observation, survey, interview, focus group discussion, and documents review which helped to enhance the credibility of the study.

Multiple case study design was used for the study. In view of this, the study covered three cases. In this approach, a researcher collects data from multiple sources during a single study. This enables a researcher to explore the differences and similarities within and between cases. The approach was therefore selected to enhance the depth and robustness of the study as evidence from more cases is often deemed more compelling (Yin, 1994).

Case Study Selection

The Greater Accra Region was selected for the Study because it is the region with the highest proportion of urban population in Ghana. According to the 2010 Population and Housing Census of Ghana (Ghana Statistical Service, 2012) 90.5% of the population in the Greater Accra Region

live in urban areas. It is also one of the two regions in Ghana that recorded increase in poverty between 1998/1999 and 2005/2006. The incidence of poverty in the Greater Accra Region in 1998/1999 was about five percent, having declined from about 26 percent in 1991/92. This however increased significantly to about 12% in 2005/2006 (Ghana Statistical Service, 2007).

In selecting the case study areas, poor urban communities that have varying characteristics such as those with high concentration of low income dwellers, high population density, and communities where people mostly live in compound houses with high room occupancy rate were identified. Other factors considered include access to urban services like water, solid waste disposal and sanitation facilities.

Current data on poverty at the district level were not readily available. In view of this, the study areas were selected through a review of the 2010-2013 Medium Term Development Plans (MTDPs) of the ten Metropolitan, Municipal and District Assemblies (MMDAs) in the Greater Accra Region. Here, the 2010-2013 MTDPs of all the ten MMDAs were reviewed. At the end of the exercise, it was realized that only four out of the ten MMDAs specifically identified poor urban communities in their MTDPs. The initial case study areas were therefore limited to the four MMDAs that specifically identified poor or low income urban communities in their MTDPs. The four MMDAs and their respective poor urban communities as outlined in their MTDPs are presented in Table 3.1.

Table 3.1: Initial Shortlisted MMDAs and Communities

No.	Name Of MMDA	Communities
1	Accra Metropolitan Assembly	Nima, Avenor, Ayidiki, Sabon Zongo, Chorkor, La Old Town, Ussher Town, James Town, Osu Anehor, Mamponse, Gbegbeyise, La Bawaleshie, Akweteman, Mamobi, Old Fadama, Liberia Camp, and Abuja.
2	Ledzokuku-Krowor Municipal Assembly	Nungua and Teshie
3	Adentan Municipal Assembly	Adenta Approtech, Adjiringanor, and Adenta Village.
4	Ashiaman Municipal Assembly	Ashiaman

Source: Adapted from the 2010-2013 MTDPs of MMDAs

To facilitate in-depth examination of the phenomenon under investigation, the study areas were limited to two MMDAs, namely Accra Metropolitan Assembly (AMA) and Adentan Municipal Assembly (AdMA).

The AMA was selected because it had more cases of poor urban communities as per the review of the MTDPs of the MMDAs. Moreover, AMA being a Metropolitan Assembly and its capital, Accra, being a city and the political and commercial capital of Ghana is the most urbanized MMDA not only in the Greater Accra Region but in Ghana as a whole. The AdMA was also selected because it exhibits both urban and peri-urban characteristics. It is the least urbanized Municipal Assembly not only among the four selected Municipal Assemblies but in the Greater Accra Region as a whole as per the results of the 2010 Population and Housing Census Ghana Statistical Service (2013a). The Assembly is also known for its well documented issues with water (Norström et al., 2009).

When it came to the selection of the case study communities, one important criterion that was used was the extent of water availability or coverage in the area at the cradle of the implementation of the National Water Policy in 2008. The case study areas were therefore selected through the use of the AVRL water rationing schedule map for the Accra-Tema Metropolitan Area in 2008, the year in which the National Water Policy was launched. The AVRL Water Rationing Schedule is a Geographic Information System (GIS) map that shows water coverage and availability in communities. According to AVRL (2008), some communities had no piped network and as a result did not receive water supply from the GWCL at all. Others had piped networks but were also not getting any water supply. Another group had piped network but only received water supply once in every other week. It further revealed that some communities received water supply between one and six days in a week. It was also indicated that the rest of the communities received water supply every day.

The researcher therefore sought to identify areas without piped water coverage from the Ghana Water Company Limited (GWCL) as well as those that had piped network but had no water supply. Other areas considered were those that are deemed to be under the coverage of GWCL but had erratic water supply. Erratic water supply in this context means having water flow at most once in every two weeks. The researcher also identified areas with piped water coverage from the GWCL but had intermittent flow defined as having between one to four days water supply in a week.

The AVRIL Water Rationing Schedule was therefore used to classify the poor urban communities in AMA and AdMA. At the end of the classification, the case study communities were narrowed to seven as presented in Table 3.2.

To facilitate comprehensive analysis of the phenomenon under investigation, the researcher selected three communities out of the seven to form the basis of the case study research. This comprised of a community from each of the three categories. The La Old Town was selected from category one because it was the only community in that category. Unlike category one, categories two and three had two and four communities respectively and as a result the researcher used simple random sampling techniques to select Adenta Village from category two and Akweteman from category three. At the end of the selection process, three communities with piped water coverage, namely La Old Town, Adenta Village and Akweteman were selected and used for the study.

Table 3.2: Water Availability in Case Study Communities

Category	Criteria	Water Availability	Case Study Communities
1	No Network coverage	No Network Coverage	-
	Network coverage but No Water Supply	No Water Supply	La Old Town
2	Erratic Water Supply	Once in every Two Weeks	Adenta Approtech, Adenta Village
3	Intermittent Water Supply	One Day in a Week	-
		Two Days in a Week	Osu Anehor, James Town, Ussher Town, and Akweteman
		Three Days in a Week	-
		Four Days in a Week	-

Source: Adapted from AVRIL (2008)

Brief Profile of Case Study Communities

This section gives a brief profile of the three case study communities. It starts with La Old Town, then Adenta Village and Akweteman.

La Old Town is a densely populated community in the La Sub Metropolitan area of the Accra Metropolitan Assembly. It is an indigenous Ga community with a population of about 85,077 and 24,483 households according to extracts of the 2010 Population and Housing Census of Ghana. The community has a high proportion of female headed household heads. The housing type in the community is predominantly compound houses. Most of the residents are natives of the community and as a result they live in family houses. Petty trading and food vending is the mainstay of the community. La Old Town is an unplanned community with poor access to basic services such as water and sanitation facilities. In fact, most of the houses in the community do not have toilet facilities.

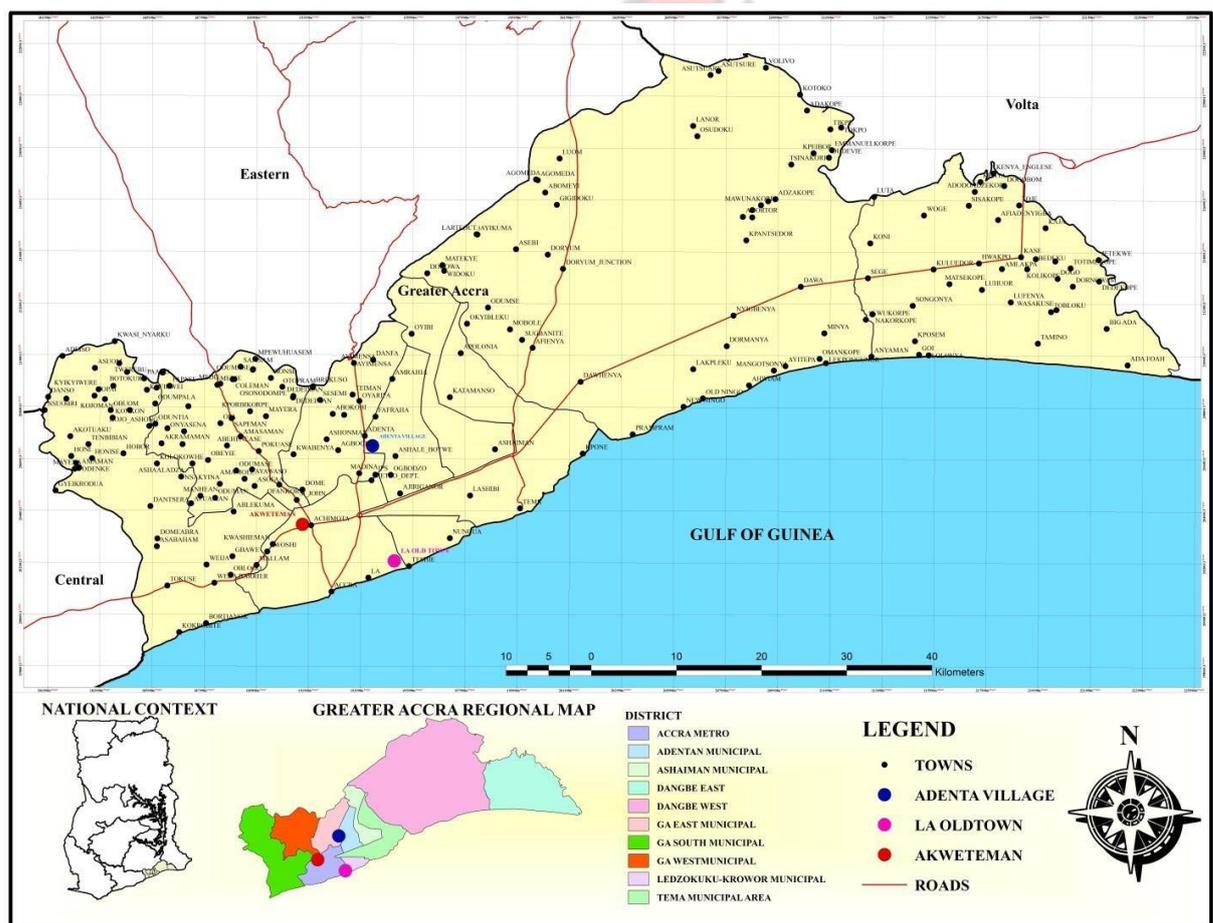


Figure 3.2: Map of Accra Showing the Study Area

Adenta village is an unplanned heterogeneous community in the Manmomo Electoral Area of the Adentan Municipal Assembly. It used to be an indigenous Ga community, however as a result of urbanization it is currently inhabited by Ewes, Gas, and Akans. Most of the dwelling units are compound houses. A small segment of the population lives in temporary

structures. The main economic activities in the community are food vending, trading and artisanry. Adenta Old Town lack access to basic services such as water supply, access roads, drainage, and toilet facilities.

Akweteman is a densely populated community with a population of about 20,777. It is located in the Akweteman Electoral Area in the Accra Metropolitan Assembly. It is a heterogeneous community made up of people from various ethnic backgrounds. Majority of the people in the community live in compound houses. Although the major roads in the community are tarred, the suburbs are unplanned. Most of the people in the community are self-employed and are mainly engaged in petty trading and food vending. The community has poor access to sanitation facilities.

3.3 Quantitative Approach

The quantitative data was collected through survey, observation and review of secondary data. The main aim of the quantitative data collection was to gather numerical data on the nature of water supply to the urban poor and how the water policy was responding to the challenges faced by the urban poor with respect to water supply.

3.3.1 Targeted Population

The study population consisted of two categories of respondents namely households and water vendors in the case study communities.

3.3.2 Sample Size

A total sample size of 247 with a confidence level of 90% for each of the communities was used for the study. A total sample size of 247 with a confidence level of 90% for each of the communities was used for the study. The sample size of the households at 90% confidence level was 261 households. It was however observed during the data screening that some of the questionnaires were incomplete whilst other had inconsistent responses. These questionnaires were therefore dropped to bring the sample size of the households to 247. The sample size of 247 was considered convenient because the study employed the

concurrent triangulation mixed method research approach which accords more weight to the qualitative approach. The sample size was also informed by the number of houses in the communities, and the available resources for the study. It was calculated by using the formula:

$$n = \frac{N}{1 + N (\Delta)^2}$$

Where n = sample size
 N = population
 Δ = Margin of error

In all, 247 households, one per house, were used for the study. This was made up of 99 from La Old Town, 94 from Akweteman, and 54 from Adenta village as depicted in Table 3.3. One household was selected per house because it was deemed that the water situation in a house was likely to be the same for all the households in that particular house.

Table 3.3: Selected Communities and the Sample Size

Quantitative Approach						
Communities	Population	No. of Houses	No. of Households	Average Household Size	Planned Sample Size	Actual Sample Size
La Old Town	85,077	7,616	24,483	3.5	100	99
Akweteman	20,777	1,660	5,712	3.6	98	94
Adenta Village	566	117	168	3.4	63	54
Total	106,420	9,393	30,363	3.5	261	247

Source: Ghana Statistical Service, (2010). Extract of 2010 Population and Housing Census

With regard to the water vendors, a total sample size of 78 made up of 53 fixed point water vendors and 25 mobile water vendors was used for the study. The number of fixed point water vendors surveyed in La Old Town, Adenta Village and Akweteman were 22, 12 and 19 respectively. The Mobile water vendors (20) were mainly surveyed in Adenta village. Only three of the mobile water vendors were surveyed in La Old Town and two in Akweteman. The concept of saturation informed the sample size of the water vendors. The

concept states that the number of people to be interviewed is not specified at the beginning of the research but the interviewer continues to collect data until a point that no new information is emerging (Sanchez, 2006 cited in Ncube, 2011). Moreover, a register of water vendors in the case study communities was not available.

3.3.3 Sampling Procedure

Stratified sampling, systematic sampling and simple random sampling techniques were used to sample and select respondents to collect the quantitative data. The case study communities were first stratified based on the sub-areas. For instance, Adenta Village comprised of Gonnor and Dzornaa. Akweteman consisted of Auntie Korkor, Akweteman, Zongo, and Gangali whilst La Old Town included Abafum, Abese, Nmati, Gbawe, Leshie, Dzarsee, Klanaa, and Kowe. These divisions were therefore taken into consideration to ensure that the respondents were selected from each of the sub- areas of the community.

After stratifying the communities, systematic sampling techniques was used to select houses where respondents were to be interviewed. Where there were more than one household in a house, as was mostly the case, accidental sampling techniques was used to select a household head that was willing to be interviewed. It must be indicated that although most parts of the case study communities were unplanned there were observable linear arrangements in the layout of houses and this allowed for the systematic random sampling of houses.

Aside the household heads, water vendors were interviewed. The vendors were broadly classified into two, namely fixed point water vendors and mobile water vendors based on the mode of conducting their businesses. Snowball and accidental sampling techniques were used to select the fixed point water vendors for interview. When a fixed point vendor was identified either by accident during the household survey or through the snowball techniques, the owner of the business or his/her representative, normally the vendor, was interviewed after he/she has consented.

With regards to the mobile water vendors, it was planned to use accidental sampling techniques to reach and interview them. However, it became apparent in the course of the field work that they were not ready to be interviewed during their working hours. In view of this, the telephone numbers of those that were accidentally met and were willing to do

telephone interview were collected and later interviewed via telephone. This was even challenging as the field research team had to devise ingenious ways of courting the attention of the drivers, getting their mobile phone numbers, and later interviewing them.

3.3.4 Data Collection

The study used cross-sectional survey to collect data from both the household heads and the water vendors. A survey questionnaire was used for the data collection. The questionnaire was composed of multiple close-ended questions containing items of different format. This included multiple choice questions that asked for one or more variables, dichotomous questions that demand yes or no answers and self-assessment questions that were measured on a 5-point Likert Scale. The questionnaire also had openended questions that purposively sought the respondents' experiences and views on water supply to the urban poor. The questionnaire captured information on socio-economic characteristics of household such as household size, sex of the head of household, occupation of household head, household income which was proxied on mean monthly expenditure of the household. It also covered access to water which was done by adapting Penchansky and Thomas (1981) framework of access namely, availability, accessibility, acceptability and affordability of water. Other areas covered by the questionnaire were knowledge on the National Water Policy, trend analysis of water supply, stakeholders' participation, and sustainable water supply issues.

Five research assistants with experience in conducting socio-economic surveys were hired to assist in the administration of the questionnaires under the author's supervision. The research assistants underwent two days training in data collection. The training was facilitated by the researcher. It focused on administration of the questionnaire. Each of the questions was discussed to ensure that the research assistants had a clear meaning of the questions. The training also covered how to select an interviewee, how to pose questions, how to check if the responses given match with the questions, among others. The supervisor undertook on-spot checking of accuracy of the completed questionnaires before accepting them.

3.3.5 Pilot Survey

The questionnaire was pilot tested at La Bawaleshie, a community with similar characteristic with the case study communities in the Accra Metropolitan Assembly. Each enumerator interviewed at least two household heads and one water vendor. The pilot testing was used to establish the content validity of the research instruments and improve on the questions, format, and scale as prescribed by Creswell (2009). It was observed after the pilot survey that the questions on the research instruments, especially that of the household survey, were many as an enumerator used an average of 80 minutes to administer one household questionnaire. It also came to light that some of the questions were unclear whilst others were repeated. It was also revealed that some of the household heads were not comfortable with the questions on income, whilst the water vendors were not happy with questions on registration of their businesses. These issues were resolved either by rephrasing and rewording some of the questions and deleting the duplicated questions. It was also decided to use monthly expenditure as a proxy of monthly income. With regard to the questions on the registration of businesses of water vendors, a decision was reached to ask that line of questions at the last segment of the interview. At the end of the exercise, the average time spent on administering one household questionnaire was reduced to about an hour, and that of water vendors to about 30 minutes. Additionally, the questionnaires were peer reviewed by colleague PhD candidates to find out if the items in the questionnaires could address the research questions and whether the questions were SPSS compatible.

3.3.6 Data Analysis

The data analysis began with screening of the data. Descriptive statistics of all variables were generated as part of the data screening exercise. This enabled the researcher to gather information on missing data, normality, and outliers among others. Frequency analysis of the descriptive statistics was done to identify valid percentage for responses to all the questions in the survey. After screening, the quantitative data was analyzed with the help of Statistical Package for the Social Sciences (SPSS) software, version 16.0 and Microsoft Excel 2010. Both descriptive and inferential statistics were used in the analysis of the data. The descriptive statistical analysis included mean, standard deviations, and ranges for the variables. Inferential statistics were also used to relate variables or compare variables through cross-case analysis.

3.3.7 Establishing Reliability and Validity

In quantitative research, establishment of reliability and validity of research instrument are key for decreasing errors that might arise from measurement problems in the research study (Jimmy-Gama, 2009). Reliability denotes the accuracy and precision of a measurement procedure (Thorndike, 1997 cited in Jimmy-Gama, 2009). The reliability of the survey instrument was obtained through the pilot testing of the research instrument. Validity refers to the degree to which a study precisely reflects and assesses the specific concepts or constructs that the researcher is attempting to measure (Thorndike, 1997 cited in Jimmy-Gama, 2009). Validity is established to check whether one can draw meaningful and useful inferences from scores on the research instrument (Creswell, 2009). The three traditional forms of validity, namely, content validity, predictive or concurrent validity, and construct validity were established (Creswell, 2009).

To ensure content validity, the phraseology of the survey questionnaire were peer reviewed by fellow PhD candidates, and examined by the academic supervisor. This helped the researcher to assess whether the survey questionnaires were relevant to the variables it sought to measure. The survey questionnaires for this study were compared with existing instruments measuring the same phenomena, water supply to the urban poor, to ensure predictive or concurrent validity. Likert-scale type survey items were subjected to factor analysis both after the pilot survey and the major study to confirm construct validity. The results of this study were correlated with the results of other studies measuring related construct.

3.4 Qualitative Approach

The qualitative approach was used to collect the qualitative data. The aim of the qualitative phase was to explore the state of water supply to the urban poor and how the National Water Policy was really addressing the needs of the urban poor.

3.4.1 Targeted Population

In order to obtain the most relevant information on how the National Water Policy is addressing the water supply needs of the urban poor, the qualitative data collection focused on policy makers; policy implementers; and other stakeholders in urban water delivery. The policy makers interviewed were staff of the Ministry of Water Resources Works and Housing

(MWRWH) and the Public Utility Regulatory Commission (PURC). For policy implementation, the staffs of Ghana Water Company Limited (GWCL), Ghana Urban Water Limited (GUWL), Accra Metropolitan Assembly (AMA), and Adentan Municipal Assembly were interviewed. The other stakeholders that were interviewed are the Ghana Coalition of NGOs in Water and Sanitation (CONIWAS); CHF International, an NGO that focuses on pro-poor urban water supply; opinion leaders and women representatives of the case study communities. In all, two policy makers, four policy implementers, an apex body of NGOs in water and sanitation, a pro-poor NGO in urban water sector, as well as seven opinion leaders and seven women representatives in each of the case study communities were covered.

The study used purposive sampling techniques to select participant for the key informant interviews. The purposive sampling was selected because it enabled the researcher to select respondents who had in-depth understanding of the phenomena under investigation. However to avoid bias associated with purposive sampling techniques, referral system by the head of the organization/institution/agency concerned was used to select actual interviewees. Moreover, the use of key informant interview makes the purposive sampling more suitable for the study. Marshal (1996 cited in Asaad, 2011) indicated that when using a purposive sampling technique, the researcher seeks to vigorously select information-rich cases which represent the productive sample to answer the research questions.

3.4.2. Qualitative Data Collection

Tools used for the qualitative data collection included key informant interviews, focus group discussions, observation and review of secondary data.

Key Informant Interviews

The key informant interview proceeded with the help of interview guide. The key informants consisted of experts from the Ministry of Water Resources Works and Housing, Public Utility Regulatory Commission, Ghana Water Company Limited, Ghana Urban Water Limited, CONIWAS, CHF International, and the Metropolitan and Municipal Assemblies.

As a first step, an introductory visit was undertaken to the selected organization to brief them on the purpose of the study and seek their consent to participate in the study. The organization

then assigned an expert to undertake the interview. Thereafter, the expert was contacted to agree on a convenient date, time and venue for the interview.

On the first day of the interview, the interviewees were briefed on the purpose of the study after exchange of pleasantries. The interviewees were assured of the confidentiality of their person and the information they would provide. The consent of the interviewees were sought to audio record the interviews. All but one of the experts consented to the audio recording of the interviews. Notes were also taken during the interviews as a back-up.

Secondary data were also solicited from the interviewees after the interview.

The interviews were conducted in a conversational and face-to-face style. The duration of the interviews varied considerably from one interviewee to the other. A typical interview session lasted between 30 and 90 minutes. Where necessary, follow-up interviews were conducted to seek clarification on earlier statements or fill in gaps. In some instances, the interviewees also directed the researcher to other experts in the organization to seek further clarification of issues. All the interviews took place at the office of the interviewee or within the office premises.

Focus Groups

Focus group discussions were also held in the three case study communities. The focus group method was chosen because it provides opportunity for participants to express their views in detail, hear the opinion of others, and to collectively analyse problems as observed by Lachapelle and Mastel (2008). Moreover, focus groups make explicit use of group interactions to produce data and insight that would be less accessible without the interactions found in the group (Morgan, 1988 cited in Flick, 2006). As Krueger and Casey (2000) posited, a group has the capacity to become more than the sum of its parts and to show a synergy that individuals alone do not possess.

Two focus group discussions were held in each of the case study communities making a total of six focus group discussions. In each case study community, one focus group discussion was held with opinion leaders and another with women. The number of participants for each focus group was seven. The opinion leaders group for each case study community comprised the Assemblyman, Unit Committee Chairman, Unit Committee member, traditional leader, retired public servant, a prominent business woman, and a leader of an organized group or

Association in the case study community. The women group on the other hand, consisted of representative of full time members of the case study communities drawn from the various suburbs in the communities. Krueger and Casey (2000) posit that the ideal size of a focus group for non-commercial topics is six to eight participants. Seven participants were therefore considered enough to gather the experiences, perceptions, challenges, and expectations on water supply to the urban poor in a group discussion.

The focus group participants were recruited in consultation with the Assembly members of the case study communities. Prior to the selection of focus group participant, meetings were held with Assembly members of each case study community. At this meeting, the purpose of the study was explained to the Assembly members and introductory letters from the Department of Planning were made available to them. The support of each Assembly member was also sought during the meeting and they were subsequently asked to inform their communities about the study. The researcher also explained the criteria for selecting the focus group participants and asked the Assembly members to help in the selection of the participants. The Assembly members were also requested to identify venue for the discussion. The selection criteria were also sent to the Assembly members via text message.

Follow-up meetings were held with the Assembly members to vet the selected list of participants and affirm their selection to participate in the study. The meetings were also used to confirm the venue for the discussion and agree on the date and time for the discussion. The venues for the focus group discussion were carefully chosen to ensure the comfort and convenience of the participants. Litoselliti (2003) indicated that participants in a focus group discussion need to be comfortable and feel at ease to freely share their experiences. The focus group discussion for the opinion leader in La Old Town took place at Okunmese family house, a popular meeting place in the community, whilst that of the women group was held at Klanaa. At Akweteman, it was held in one of the classrooms of St. Anthony of Padua Junior High School. The focus group discussion at Adenta village took place under a canopy of trees at Dzorna.

On the day of each focus group discussion session, the researcher went to the venue about an hour before the discussion time to set up the place. Prior to the commencement of each session, the Assembly member welcomed the research team and briefed the participants on the mission of the research team. Thereafter, the researcher also introduced the research team

and informed the participants about the purpose of the study. The participants were made aware that their participation was voluntary and that the information that they provided would be treated with the highest level of confidentiality. The researcher then solicited the kind cooperation, response and time of the participants. After the consent of the participants has been sought, the ground rules for the discussion were set. Permission was also requested from the participants to audiotape the discussion.

The focus group discussions were moderated by the researcher. A research assistant was also hired to take notes during the discussion. In two of the sessions, an interpreter was used to translate English to Ga and vice versa. In order to keep the discussion on track a discussion guide that lists the main issues to be covered was used. Notable topics covered under the key issues were nature of water supply to the community, analysis of critical water supply issues in the case study communities, historical overview of water supply in the case study communities and private sector participation in urban water supply.

The analysis of the critical water supply challenges in the communities was done through pairwise ranking. The focus group participants discussed and used pairwise ranking to rank seven critical water supply issues that were identified in the literature. The variables ranked were cost of water, time spent at the water point, reliability of water supply and quality of water. The rest were distance to the water source, community participation in water supply issues and handling of complaints. Seven different colours were used to represent the seven challenges.



Plate 3.1: Focus Group Discussion with Opinion Leaders in Adenta Village

Source: Author on 25/08/2013



Plate 3.2: Focus Group Discussion with Women Group in La Old Town

Source: Author on 11/08/2013

The participants compared and ranked two challenges at a time. They indicated which of the two variable being compared was a major issues and why using their own criteria and thereafter scoring. The challenge with the highest score was then represented by its symbolic colour in a matrix. This was done until all the variables have been paired and ranked. At the end of the exercise the variable with the highest score was ranked first and the one with the lowest score was ranked seventh.

The focus group participants also did a qualitative trend analysis of the changing water supply situation in their communities. The participants used the seven critical variables that were used for the pair wise ranking to undertake this exercise.

During the discussion, every participant had the opportunity to speak and to respond as participants were given ample time to share their views. The moderator engendered participation among the participants and did not allow one person to dominate the discussion. Follow-up questions were posed to give the participants the chance to clarify issues and provide further details to their ideas.

The focus group discussion session lasted between an hour and half to two hours. It was planned to provide the participants with snacks but after few consultations the snacks were converted to cash.

Observation and Review of Secondary Data

Additional information on drinking water sources of the urban poor, quality of water, as well as sources of water of water vendors was gathered through observation. The study also used secondary data to throw more light on the phenomena under investigation such as water coverage, access to water, pro-poor water supply and challenges of urban water supply.

3.4.3 Data Management

As part of data management, the recorded qualitative data gathered were transcribed after carefully listening to the recordings. Each transcript was edited by the researcher by comparing the transcript data with the original audio tape. The audio recordings of the two discussions that were held in Ga were further given to somebody well versed in Ga language

to transcribe into English to establish the validity of the interpretations done by the interpreter. After editing and transcription of data, each transcript was coded to differentiate it from others.

3.4.4 Data Analysis

The qualitative data obtained through the key informant interviews, focus group discussions, and responses to the open-ended questions by the survey participants were analyzed according to themes. The data were subsequently interpreted. Some of the important narratives were used as quotes to support arguments advanced in the discussion sections.

3.4.5 Establishing Credibility

To ensure validity of findings, four primary strategies were employed in the qualitative data collection, analysis, and interpretation. These are:

- i. Triangulation- converging a number of sources of data or perspectives from participants;
- ii. Member checking- taking the final report or particular themes back to participants to confirm the accuracy or otherwise of the report or themes;
- iii. Presenting information that are at variance to the themes; and iv. Spending more time in the field to develop an in-depth understanding of the phenomenon under study (Creswell, 2009).

3.5 Ethical Considerations

Informed consent of all the participants in the study was sought before the interview. A statement on informed consent prefixed the research instrument for the household survey and water vendors. In addition, an introductory letter from the Department of Planning of the Kwame Nkrumah University of Science and Technology was presented to the institutions/organizations/agencies that were interviewed to seek the necessary permission to participate in the study. The case study communities were also informed of the study through their Assembly members. The interviewees were made aware that their participation in the study was completely voluntary and that they were at liberty to opt out the study. In fact, one water vendor opted out of the study at the tail end of the interview when the issue

of registration of business was introduced. The purpose of the study was also explained to all the participants. The participants were also assured of their anonymity and confidentiality of information provided. This was strictly adhered to during the data collection, analysis, and the discussion of findings.

3.6 Conclusion

This chapter has presented detailed discussion of the research methodology and procedure employed in the research. It has justified the selection of the concurrent triangulation mixed method design as the most appropriate approach to answer the research questions for the study. The design did not only allow the researcher to explore how the National Water Policy is responding to the water challenges of the urban poor but also helped to confirm, cross-validate, or corroborate qualitative and quantitative findings. It became apparent that by blending inductive and deductive methodologies, better and more comprehensive results could be achieved. This is reflected in the analysis and discussions that are presented in the results chapters.



CHAPTER FOUR: SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

4.1 Introduction

This chapter discusses the social, economic, demographic, and housing characteristics of the respondents. The essence is to give background information on the people in the case study communities as a basis for analysing and discussing water supply to the urban poor. It has been divided into two parts. The first part focuses on the households with the household head as the point of reference, whilst the second part centres on small scale water providers, also known as water vendors.

4.2 Household Characteristics

In the context of the 2010 Ghana Population and Housing Census which was adopted for this study, a household is defined as a person or group of persons who live together in the same house or compound and share the same house-keeping arrangements (Ghana Statistical Service, 2012: x). The most important determinant of a household is that the members share cooking and eating arrangements. The head of the household refers to a male or female member of a household recognised as such by the other household members. Generally, a household head has social and economic responsibility for the household (Ghana Statistical Service, 2012: x).

This section covers an analysis of the household heads. It starts with their sex, age groups, marital status, and educational level. This is followed by the housing characteristics including dwelling units, household size, and tenure and holding arrangements. The section continues with an analysis of the linkages between occupational status and household income, and ends with implications of the characteristics of the respondents for the supply and consumption of potable water.

4.2.1 Sex and Age Structure of Household Heads

The study revealed that female headed households outnumbered male headed households. The data shows that 140 (56.7%) of the household heads were females as against 107 (43.3%)

males with a sex ratio of 76.4 males per 100 females. Figure 4.1 indicates that females constituted 53.7% and 54.3% of household heads in Adenta Village and Akweteman respectively. The situation was more pronounced in La Old Town where about 61% of the household heads were females.

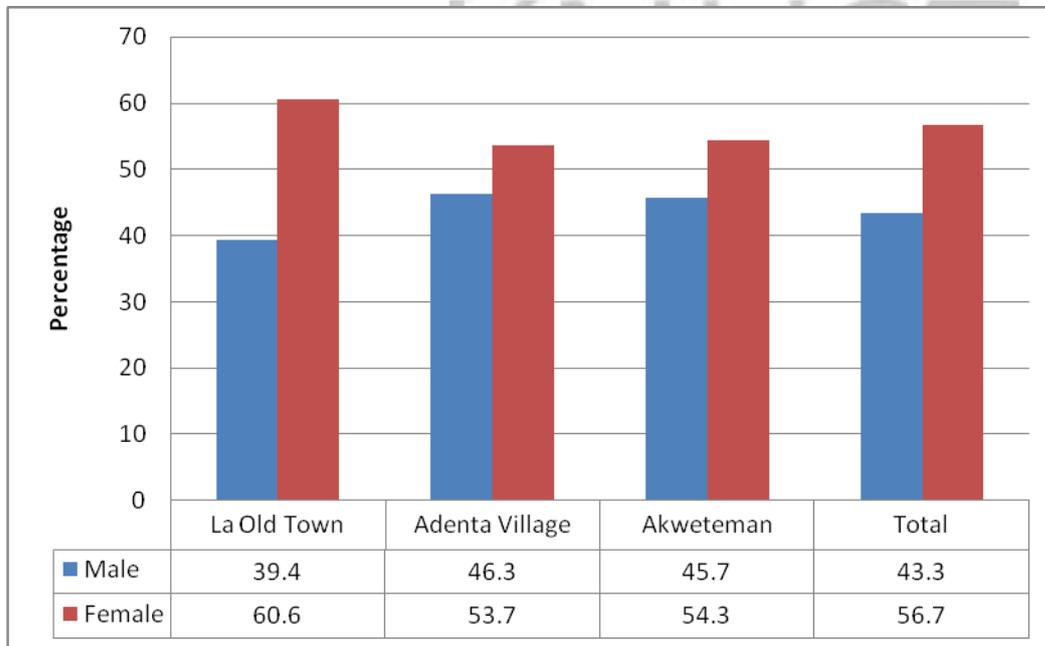


Figure 4.1: Sex Distribution of Household Heads

Source: Field Survey, 2013

This finding contrasts sharply with the general conclusion in the literature, especially the results of the 2010 Population and Housing Census of Ghana which indicates that majority of household heads were males. According to the 2010 Population and Housing Census, 65.3% of household heads in Ghana are males as against 34.7% females (Ghana Statistical Service, 2012). With regards to the Greater Accra Region, the census revealed that only 35.5% of the household heads were females (Ghana Statistical Service, 2013a). This may be attributed to the high percentage of widows in the case study communities, especially in La Old Town. The case study communities are old settlements and since in Ghana the life expectancy of males are generally lower than females (WHO, 2010); most of the households had the aged wife of the deceased husband serving as household heads.

Aside widowhood, other female household heads were single mothers who were either divorced, separated or not living with their husband which is discussed under section 4.2.2. It may also be as a result of the residential pattern of the Gas where men within a lineage

would usually live in one house and their wives and un-married female relatives also living in a nearby separate house (Kilson 1974; Fayorsey 1995; and Maxwell et al. 2000). Kilson (1974) observed that Ga men and women traditionally live in separate houses, even married couples do not cohabit, and that children are raised in the mother's house, and male children are sent to live with their fathers around the age of 10. Whilst Fayorsey (1995:92) remarked that —the characteristic principle underlying Ga residential patterns is that Ga men do not live with their wives. The high proportion of female headed households may also be a sign of the changing trend in urban living which has resulted in couples and single adults staying away from conjugal relationship for a long time just to make a living (Ghana Resource Centre, 2008 cited in Nyameto, 2010). It is also a manifestation that the case study communities are poor communities as female headed households have been associated with poverty and vulnerability (GSS, 2005; Maxwell et al., 2000).

The high incidence of female headed households observed affirms studies by GagaBrondon and Njogu (1994) cited in Ardayfio-Schandorf (2012) who found that the average Ghanaian woman spends half of her reproductive life without the benefit of a coresidential partner; and that the proportion of female headed households have even risen sharply due to non-co-residence of spouse, pre-marital child bearing, and marital disruptions. Ardayfio-Schandorf (2012:3) also observed that migration as part of the modernization and economic process is raising the number of *de jure* female headed households in Ghana who are mostly widows, divorced, abandoned wives and single parents.

The age distribution presented in Table 4.1 showed that none of the respondents was younger than 15 years; 87.5% were aged 15-64 years which is considered as the economically active population; and 12.5% were 65 years and older. The age distribution of the respondents differs from the results of the 2010 population and housing census. The census reported that only 8.5% of the household heads in the Greater Accra Region are aged 65 years or more. This may be due to the skewed nature of the distribution of household heads in the 65 year or more bracket as per the results of the survey. The study revealed that whilst Adenta Village and Akweteman recorded 9.2% and 8.5% respectively of the household heads in the 65 years of more age group, La Old Town had 18.2% of the household heads in that age group.

Table 4.1: Age Distribution of Household Heads in Percentages

Age Group	Community			
	La Old Town	Adenta Village	Akweteman	Total
15-24	0	1.9	2.1	1.2
25-34	9.1	27.8	22.3	18.2
35-44	25.3	31.5	28.7	28
45-54	25.2	24.1	25.6	25.1
55-64	22.2	5.5	12.8	15
65+	18.2	9.2	8.5	12.5
Total	100	100	100	100

Source: Field Survey, 2013

The household heads in La Old Town were relatively older than those of Akweteman and those in Adenta Village. Only 9.1% of the household heads in La Old Town were younger than 35 years as against 24.4% in Akweteman and 29.7% in Adenta Village. The household heads who were 55 years or older at La Old Town accounted for 40.4% of the total respondents in that community. The household heads in Adenta Village were relatively younger. Majority (85.3%) of them were aged 54 years or below. This could be attributed to its peri-urban nature which serves as the default location of low income dwellers and new migrants. It could also mean that Adenta Village may be establishing itself as a destination for new migrants and when the economic status of the migrants improve they leave to settle elsewhere or when they retire from active work they go back to their hometowns, hence the low proportion (8.5%) of respondents in the 65 years or older group in that community.

4.2.2 Marital Status

There were more married respondents than never married in the study area. About 61% of the respondents in the case study communities were married, 13.4% had never married, and 25.6% were either separated, divorced or widowed as highlighted in Figure 4.2. The proportion of people who were married was more than the national and the Greater Accra region figures of 42.9% and 39.1% respectively. However, the proportion of respondents who had never married was lower than that of the national average of 42% and the 46.3% recorded in the Greater Accra Region (Ghana Statistical Service, 2012; Ghana Statistical Service, 2013a). Since marital status has implication for household size and demand for housing units, the high proportion of married respondents could be the reason for the high household size and households per house which has been discussed under housing type.

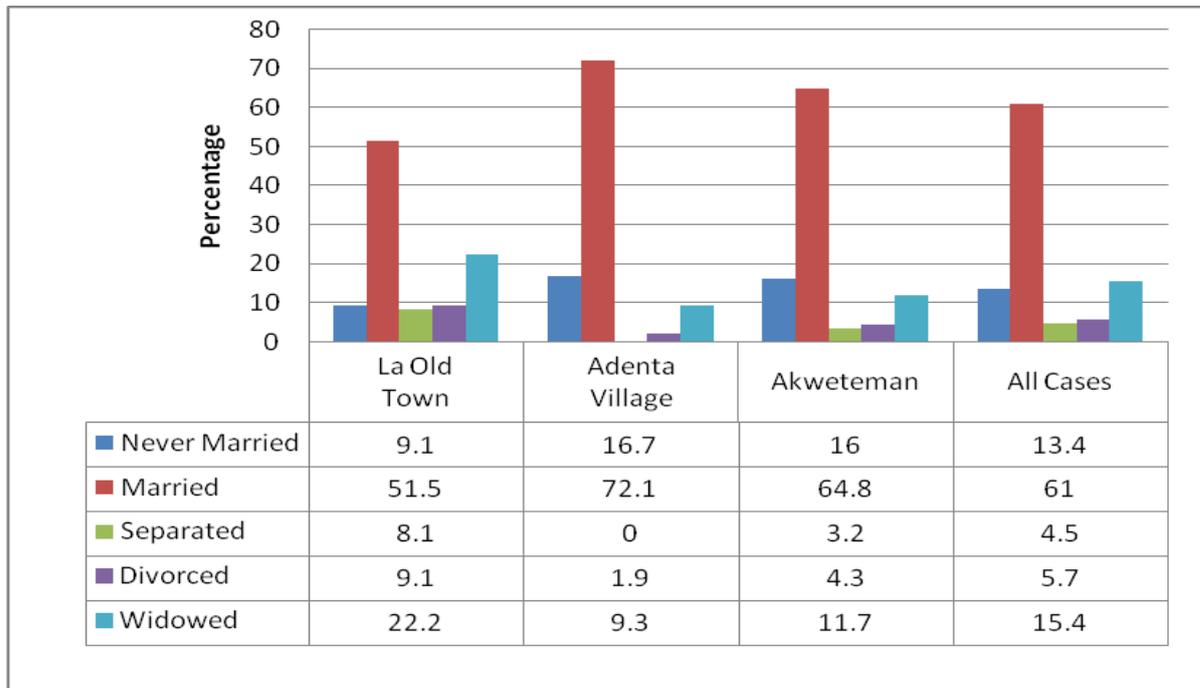


Figure 4.2: Marital Status of Respondents

Source: Field Survey, 2013

Notable variations of the marital status of the respondents in the case study communities were observed. On the one hand, La Old Town had the lowest proportion of respondents who have never been married (9.1%), the highest proportion of people who were either separated, divorced, or widowed (39.4%), and ultimately the lowest proportion of married respondents (51.5%). On the other hand, Adenta village recorded the lowest proportion (11.2%) of the respondents who were separated, divorced or widowed, and also had the highest proportion (72.1%) of married respondents and those who have never been married (16.7%). The data further shows that 22.2% of the respondents in La Old Town were widows. The high proportion of widows especially in La Old Town calls for further investigations since the figure is significantly higher than the 3.7% recorded in Greater Accra Region during the 2010 census (Ghana Statistical Service, 2013a).

In terms of gender disaggregation, the study revealed that 70% of the male respondents were married compared with 54.2% females. It also showed that 22.9% of the female respondents were widowed.

There were significant variations in marital status of the respondents. Sixty-nine percent of the female respondents in Adenta Village were married as against 43.3% in La Old Town. The proportion of female married respondents in Akweteman was 58.9%. Whilst only 6.7%

of the female respondents in La Old Town have never married, 50% of the female respondents in that community were either separated, divorced, or widowed as illustrated in Figure 4.3.

The proportion of married male respondents in the case study communities was 64.1%, 72.1%, and 75% in La Old Town, Akweteman, and Adenta Village respectively. About 23% of the respondents in La Old Town were separated (7.7%), divorced (7.7%), or widowed (7.7%). However, only 8.4% of the respondents in Adenta and 14.1% in Akweteman were separated, divorced, or widowed.

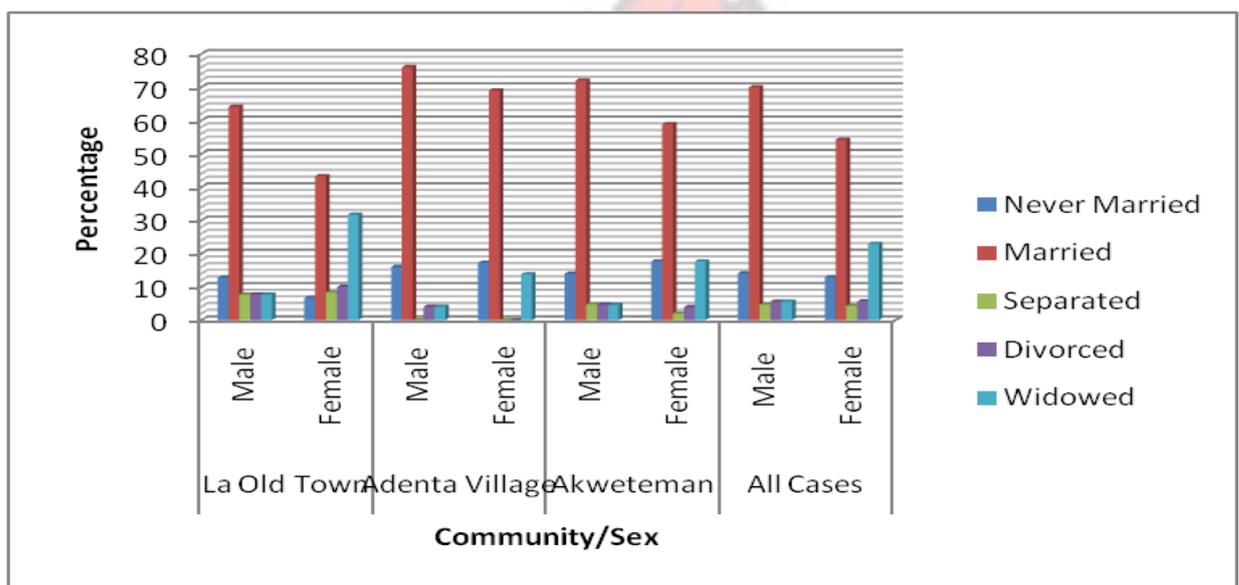


Figure 4.3: Marital Status of Respondents by Sex and Community Source: Field Survey, 2013

4.2.3 Educational Level of Respondents

Figure 4.4 shows that 14.2% of the respondents have never been to school. This approximately tallies with the 2010 Population and Housing Census figure (14.3%) of urban population who have never attended school. The majority of the respondents (76.9%) have attained educational levels ranging from Primary (9.3%) through Middle School/Junior Secondary School (54.2%) to Senior Secondary/Secondary School (11.4%). About 8.9% of the respondents have had post-secondary (5.7%) and tertiary (3.2%) education. Among the case study communities, there were variations in the levels of educational attainment. About 17% of the respondents in Akweteman had never been to school as against 11% in Adenta

Village. With regards to tertiary level education, the proportion of the respondents who have had tertiary level education in Adenta Village was 9.3% whilst La Old Town and Akweteman recorded 1% and 2.1% of the respondents with tertiary level education respectively.

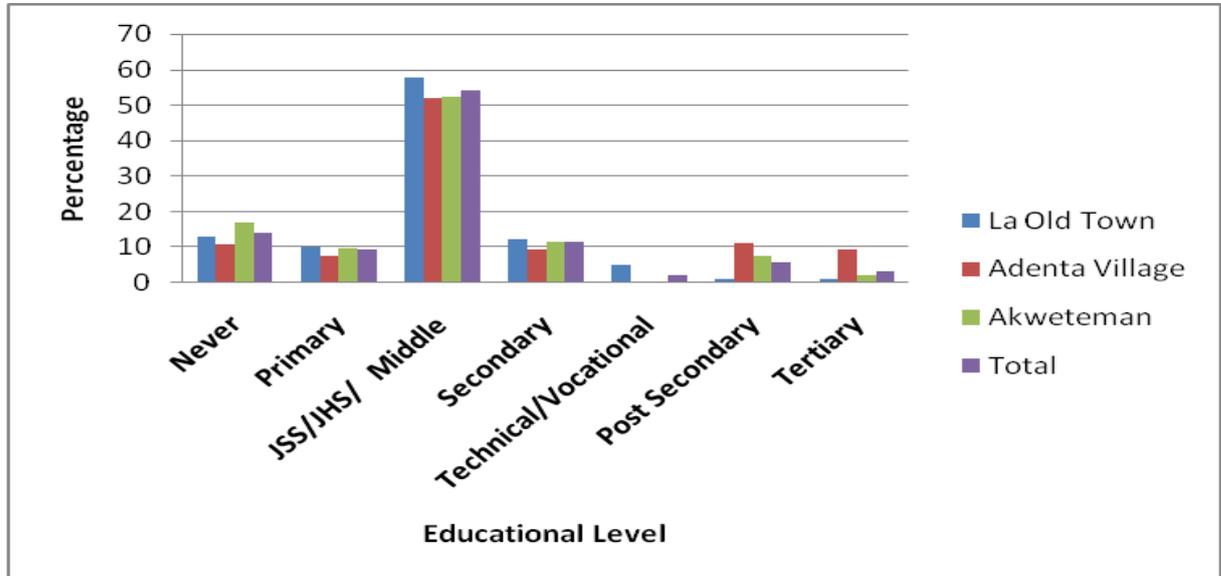


Figure 4.4: Educational Level of Respondents

Source: Field Survey, 2013

A further analysis of the data revealed that there were gender disparities with regards to level of educational attainment in the case study communities. Generally, the male respondents were more educated than their female counterparts. In Akweteman, it was observed that whilst 31.4% of the female respondents had no formal education, all the male respondents have had some level of education. Only 9.8% of the female respondent in Akweteman had been educated beyond the basic level (JSS/Middle School) compared to 34.9% of the male respondents. The situation in La Old Town was not much different.

The gender disparity in educational attainment was more pronounced in Adenta Village where only 6.6% of the female respondents had progressed beyond the basic level (JHS/Middle School) as against 58.4% of the male respondent. This implies that females are more likely not to ever attend school or drop out at the primary and JHS levels. This has implication for job opportunities for women, employment status and income earning opportunities.

4.2.4 Housing Type

According to the Ghana Statistical Service (2013b), 55.6% of dwelling units in the Greater Accra Region are compound houses, and in the urban areas of Ghana the figure is 58.7% (Ghana Statistical Service. 2013b). The study revealed higher number of compound houses over and above that of Greater Accra and that of urban centres in Ghana. Housing types were predominantly compound houses (86.2%). Adenta Village recorded the lowest number of compound houses (79.6%), whilst La Old Town had the highest (93.9). The data revealed that a small number of respondents (2.4%) lived in temporary/makeshift structures, mostly kiosks and tents, which could be described as sub-standard accommodation. The number of people who lived in temporary/makeshift structures was higher than the national average of 2% but was lower than the Greater Accra value of 6.2% (Ghana Statistical Service, 2012).

A single parent in La Old Town who lives in a temporary/makeshift structure was reluctant to indicate that she lives there with her two children. She posited that although it was degrading to live in that structure with her children, they were living there due to their inability to afford any accommodation better than the present one. This may be an indication that most of the people in the case study areas are poor as compound houses and makeshift structures are mainly occupied by low income earners.

Although the housing type in the case study communities were almost exclusively compound houses, there were evidence of people living in single family units or selfcontained houses which is mainly inhabited by middle income and high income earners.

About 17% of the respondents in Adenta Village and 14.8% in Akweteman lived in selfcontained houses as indicated in Figure 4.5.

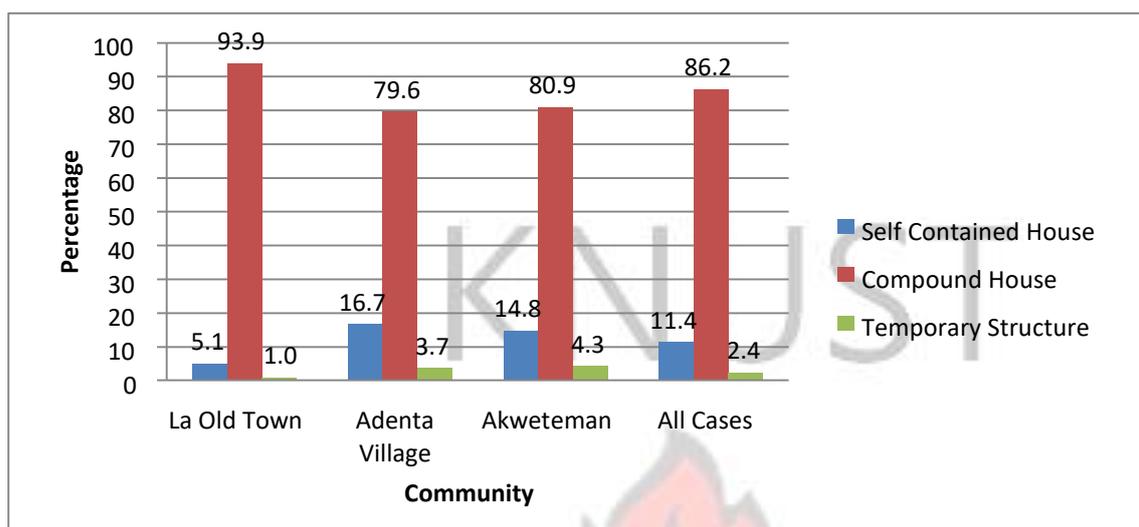


Figure 4.5: Type of Dwelling Units of Households

Source: Field Survey, 2013

With regard to availability of toilet facilities, majority (89.5%) of the households did not have toilet facilities in their house. La Old Town recorded the highest number of houses without in-house toilet facilities (93.9%) and Adenta Village the lowest (83.3%). These households reportedly used public or private toilets and paid GHp30 or GHp50 per use for facilities that provide old newspapers and toilet rolls respectively.

Table 4.2 shows that the average number of persons per household was 4.5 which is higher than that of Greater Accra Region (3.8) as per the results of the 2010 Population and Housing Census (Ghana Statistical Service, 2013a). La Old Town recorded the highest average household size of 4.75 whilst Akweteman had the lowest average household size of 4.2. The minimum number of people living in a household was one; however some of the households had a membership of 10 or more people with La Old Town and Adenta Village having the highest household size of 15 and Akweteman the lowest, with 10.

Table 4.2: Household Characteristics

Household Characteristics	Case Study Communities			
	La Old Town	Adenta Village	Akweteman	All Cases
Average Household Size	4.75	4.73	4.2	4.5

Average Number of Households in a House	6.2	5	4.8	6.2
Maximum Household Size	15	15	10	15
Maximum Households in a House	20	15	18	20

Source: Field Survey, 2013

The study revealed that about 6.2 households lived in one compound house as was the case at La Old Town. With regards to Akweteman, 4.8 households occupied one house. It must be indicated however that there were houses that were accommodating between 15 and 20 households.

4.2.5 Tenancy Status

Generally, only a small number of the respondents (less than 19%) lived in their own houses. Thirty six percent of the respondents resided in rented homes and the remaining 47.4% were relatives of the landlord and as such were living in family houses. However, when the data is disaggregated it paints a slightly different picture with respect to status as a tenant and relative of the landlord.

Figure 4.6 shows that only 20.2% of the surveyed households in La Old Town were living in rented premises. The remaining 79.8% were either living in a family house (65.7%) or in their own house (14.1%). This contrasts sharply with that of Adenta Village where 57.4% of the sampled households were living in rented premises. The high proportion of households living in family houses in La Old Town agrees with the results of a study by Ardayfio-Schandorf (2012) which revealed that majority of the households in Nungua, another indigenous Ga community, lived in family houses.

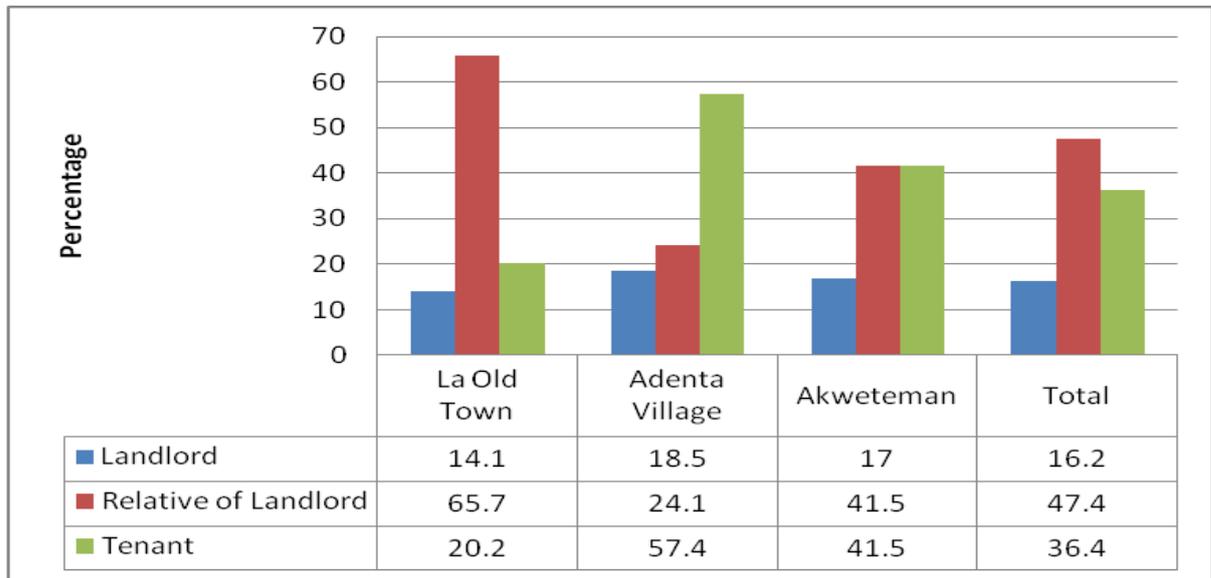


Figure 4.6: Tenancy Status of Respondents

Source: Field Survey, 2013

The low proportion of tenants in La Old Town suggests that the community is still a homogeneous indigenous Ga community where family ties are very strong, hence the dominance of family housing in that community. The high percentage of households living in rented premises in Adenta Village indicates that the peri-urban indigenous Ga community is fast becoming a heterogeneous community due to rapid urbanization. This lends credence to a study by Yeboah (2003) which revealed that peri-urban areas are the default home to new migrants and low income earners due to high rent in centrally located urban areas.

4.2.6 Employment and Occupation

There was very little redundancy among the economically active population. Results of the survey showed that 82.2% of the sampled household heads were employed and another 6.1% were unemployed. The unemployment rate among the sampled population was slightly lower than the national urban rate of 7.4% as per the results of the 2010 Population and Housing Census (Ghana Statistical Service, 2012). Unemployment rates varied among La Old Town, Adenta Village, and Akweteman as they recorded 8.1%, 5.6%, and 4.3% respectively. The data showed that the unemployment rate for Adenta village and Akweteman were lower than the national urban average of 2010, whilst that for La Old Town was higher than the national urban unemployment rate of 7.4%. The survey also showed that the incidence of urban unemployment was predominantly a female phenomenon as about 86.7% of the unemployed

respondents were female as against 13.3% males. About 11.7% of the respondents were not economically active due to old age. Approximately 18.2% of the old people lived in La Old Town, 7.4% at Adenta Village and another 7.4% at Akweteman.

The lower unemployment rate recorded among the respondents can be attributed to the high informal activities in the urban economy. About 88% of the economically active population were employed in the informal sector. The livelihood options included petty trading (39.9%), artisanry (20.7%), food vending (10.8%), driving (7.9%), and menial labour (3.4%), among others as shown in Table 4.3.

There were gender disparities in respect of livelihood activities as male and female income generating activities differed markedly. The livelihood strategies of the majority (82.6%) of the males involved salary and wage labour, whereas that of 89.2% of the females centred on self-employment. More than 80% of the females engaged in petty trading or the preparation and selling of food as income earning strategy, whilst the males' activities were more heavily concentrated in artisanry, driving, and other professions.

Whilst only 4.1% and 8.4% of the respondents in La Old Town and Akweteman respectively were engaged in the educational, health, and other professional work, more than a quarter of the respondents in Adenta Village were employed in that sector. This may be attributed to the relatively high proportion of respondents with tertiary education in Adenta.

The results of the study support the findings of the 2010 Population and Housing Census of Ghana which recognize the informal sector as the largest employer of the active labour force. According to the Census, the informal sector provides employment to 88.2% of the economically active population of Ghana (Ghana Statistical Service 2013b). This study also lends credence to the established view that the informal sector plays a very important role in the urban economy of Ghana (Beauchemin and Bocquier, 2003 cited in Nyametso, 2010). The sector integrates most of the migrants into the urban Accra system by providing ready jobs for the less educated, unskilled and desperate migrants who are willing to eke out a living (Beauchemin and Bocquier, 2003 cited in Nyametso, 2010). It also corroborate the study by Maxwell at al. (2000) which established that the main source of livelihood for

almost 60% of men in Accra involved wage labour, whereas about 80% of women's primary income earning strategies centred on self-employment.

Table 4.3: Livelihood Options by Sex of Respondents

Occupation	Frequency/ Percentage	Sex		Total
		Male	Female	
Petty Trading	Number	12	69	81
	Percent	13	62.2	39.9
Artisan/Technical	Number	35	7	42
	Percent	38	6.3	20.7
Food Vending	Number	2	20	22
	Percent	2.2	18	10.8
Education and Health Related	Number	17	3	20
	Percent	18.5	2.7	9.9
Driving	Number	16	0	16
	Percent	17.4	0	7.9
Cleaning	Number	5	2	7
	Percent	5.4	1.8	3.4
Tailors/Dressmaking	Number	1	5	6
	Percent	1.1	4.5	3
Hair Dressing	Number	0	5	5
	Percent	0	4.5	2.5
Clerical	Number	3	0	3
	Percent	3.3	0	1.5
Fishing	Number	1	0	1
	Percent	1.1	0	0.5
Total Respondents	Number	92	111	203
	Percent	45.3	54.7	100

Source: Field Survey, 2013

4.2.7 Household Income

As already indicated, it was observed during the pilot survey that the respondents were reluctant to divulge information on their income and earnings. Monthly household income was therefore proxied on expenditure. The monthly household income of the respondents was categorised into six. The modal monthly household income varied across the case study communities. In La Old Town, the modal monthly household income was in the range of

GHC1000.00 or more with 25.3% share of the respondents. The modal monthly household income in Adenta was in the range of GHC400.00-GHC599.00 and GHC1000.00 or more with each category accounting for 25.9% of the respondents. In

Akweteman, the household income level with the highest frequency was GHC600.00-GHC799.00 with a share of 34% of the respondents.

The data also shows that 32.7% of the respondents in the case study communities earn less than GHC600.00 a month. The remaining 67.3% earn more than GHC600.00 a month with as many as 24.7% earning GHC1000.00 and above as depicted in Table 4.4.

Table 4.4: Income Level of Households

Level of Income	Community			
	La Old Town	Adenta Village	Akweteman	All Cases
<GHC200	7.1	0	1.1	3.2
GHC200-GHC399	15.2	9.3	4.3	9.7
GHC400-GHC599	13.1	25.9	23.4	19.8
GHC600.00-GHC799	23.2	24.1	34.0	27.5
GHC800-GHC999	16.1	14.8	13.8	15.1
GHC1000+	25.3	25.9	23.4	24.7

Source: Field Survey, 2013

Average income per person per day was derived from the monthly household income and the results is presented in Figure 4.7.



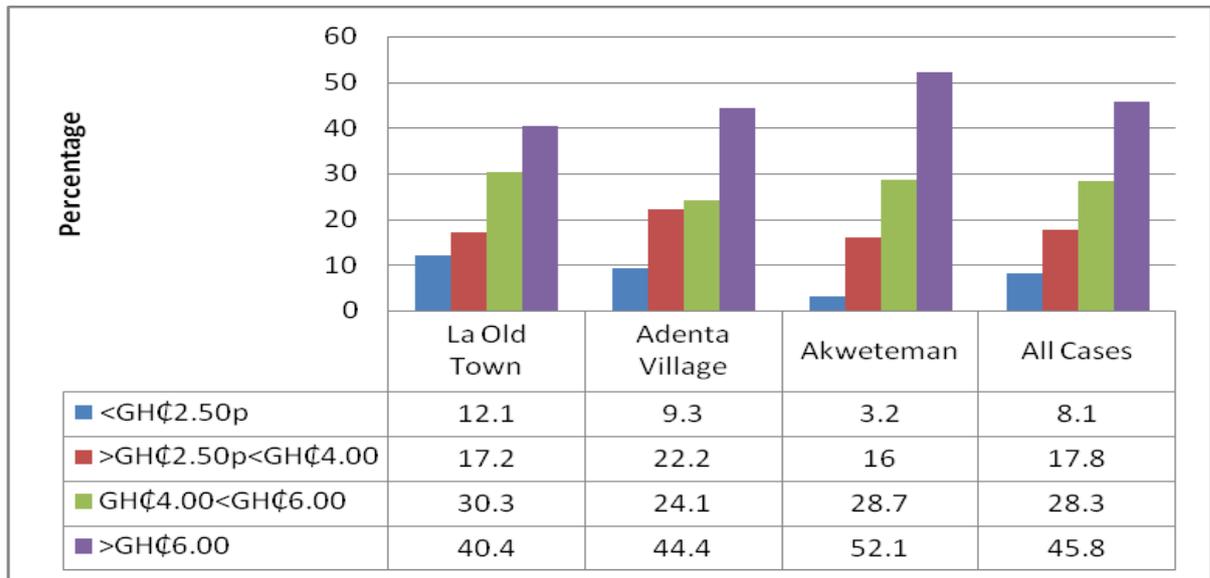


Figure 4.7: Income Per Person Per Day

Source: Field Survey, 2013

The data shows that only 8.1% of the respondents lived on less than GH¢2.50 (this is equivalent to US\$1.25) in a day. Another 25.9% lived on less than GH¢4.00 (equivalent of US\$2.00) in a day. A little over 28% of the respondents were living on between GH¢4.00 and GH¢6.00 a day, whilst a significant number (45.8%) lived on more than GH¢6.00 a day. Using the international poverty line of US\$1.25 a day as an indicator, or even US\$2.00 a day, the data did not depict the case study communities as poor.

It must however be indicated that poverty as a multidimensional phenomenon is not just lack of income, but it is looked at from varied perspectives including lack of access to such necessities as food, shelter, education, health services, potable water, sanitation facilities, employment opportunities, and even opportunities for community participation (Townsend, 2006; Lok-Dessallien, 1999; Maxwell, 1999).

4.3 Social and Economic Characteristics of Water Vendors

This section discusses the demographic characteristics of the water vendors. It has been organised into three main themes namely sex and age structure, educational level, and ownership of business.

4.3.1 Sex and Age Structure

The sex and age structure of the water vendors survey shows that 40 out of the 78 (51.3%) of them were females. There were however variations in the type of water vending business engaged in by males and females. The study revealed that whilst the fixed point water vending entity was dominated by women, the mobile water vending was the preserve of men.

None of the 25 mobile water vendors was a female; however 40 out of the 53 fixed point vendors, representing 75.5%, were females. This may be attributed to the differential skills and expertise demanded by the two types of businesses.

Table 4.5: Sex and Age Structure of Water Vendors

Age Group	Sex								
	Fixed Point Vendors			Mobile Vendors			All Water Vendors		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
21-25	8	3	4	8	0	8	8	3	5
26-30	31	8	13	44	0	44	39	8	23
31-35	8	15	13	24	0	24	18	15	17
36-40	15	5	8	20	0	20	18	5	12
41-45	0	20	15	4	0	4	3	20	12
46-50	8	5	6	0	0	0	3	5	4
51-55	0	5	4	0	0	0	0	5	3
56-60	15	23	21	0	0	0	5	23	14
61-65	15	10	11	0	0	0	5	10	8
66-70	0	5	4	0	0	0	0	5	3
70+	0	3	2	0	0	0	0	3	1
Total Respondents	13	40	53	25	0	25	38	40	78

Source: Field Survey, 2013

With regard to the age distribution of the vendors, it was observed that the mobile water vendors were younger than their fixed point counterparts. The data shows that 44% of the mobile vendors were in the 26-30 years age bracket. Majority (96%) of the mobile vendors were actually 40 years or younger. Whilst none of the mobile vendors was older than 45 years, almost half (48%) of the fixed point vendors were older than 45 years as illustrated in Table 4.5. The dominance of relatively young people in the mobile water vending business may be due to the nature of the business which requires the operator to drive a truck or ride a cart, often over long distances, to buy and sell water.

The results of age and sex distribution of the water vendors is in conformity with studies undertaken by the UNDP (2011) in Kenya which established that usually fixed point water vendors are women and a typical mobile water vendor is a man in his mid-thirties.

4.3.2 Educational Level of Vendors

The water vendors were generally literate. About 91% of them have had some level of education. At least 60% of them had completed basic education (JHS/JSS and Middle School). Another 20.6% had completed secondary school. One of the fixed point vendors had even completed tertiary level education as depicted in Table 4.6.

Table 4.6: Level of Education of Water Vendors

Educational Level	Fixed Point		Mobile		All Vendors	
	Number	Percent	Number	Percent	Number	Percent
No formal Education	7	13.2	0	0	7	9
JHS/JSS	13	24.5	14	56	27	34.6
Middle School	16	30.1	4	16	20	25.5
SSS/Secondary	11	20.8	5	20	16	20.6
Voc./Technical Sch.	2	3.8	0	0	2	2.6
Post Secondary	3	5.7	2	8	5	6.4
Tertiary	1	1.9	0	0	1	1.3
Total	53	100	25	100	78	100

Source: Field Survey, 2013

4.3.3 Ownership of Business

The study showed that a typical fixed point water vendor operates as a family business which was usually manned by the owner (25 vending units), or a relative of the owner (16 vending units). Only 12 of the fixed point water vendors were employees (caretakers).

Aside the borehole water vending entities which were established by the Metropolitan/Municipal Assemblies (5.7%), the remaining fixed point water business entities were started by the current owner (64.1%) or other relatives of the current owner (30.2%) including parents, grandparents and siblings.

There were however little family involvement in the establishment and operation of the mobile water vending entities. Only eight out of the 25 businesses were established by a

family member, mostly siblings. Majority (52%) of the mobile water vendors were using their own trucks. There were however some variations in the type of operator and the use of own truck. About 67% of the water carts were owned by the drivers, whilst 42.9% and 44.4% of the tanker and water trucks respectively were owned by the drivers.

4.4 Conclusion

The communities largely exhibited characteristics of poor urban settlements. This was evident by the un-planned nature of the settlements, high population density, dwelling units which were mostly compound houses, large household sizes, and high proportion of female headed households. The communities also had high informal sector activities with petty trading, artisanry, and food vending as the major livelihood options. The activities of water vendors were also rife which gives an indication of water poverty. However, when income is used as an indicator the communities could not be classified as poor as most of the residents lived on more than US\$1.25 a day. Since poverty is a multidimensional phenomenon but not just as lack of income, it can be concluded that generally the communities have features of poor urban settlements.



CHAPTER FIVE: WATER SUPPLY TO THE URBAN POOR

5.1 Introduction

This chapter elaborates on how the urban poor in Accra access potable water. It has been organised under two main themes, namely nature of water supply to the urban poor and access of the urban poor to water.

5.2 Nature of Water Supply to the Urban Poor

This section discusses piped water coverage, sources of water, factors considered when collecting water and critical water supply issues in the case study communities.

5.2.1 Piped Water Coverage

All the three case study communities are within the GWCL piped water coverage. However only 22.3% of the households surveyed were connected to the GWCL piped network with Akweteman having the highest coverage of 29.8% and Adenta Village the lowest (9.3%) as shown in Figure 5.1.

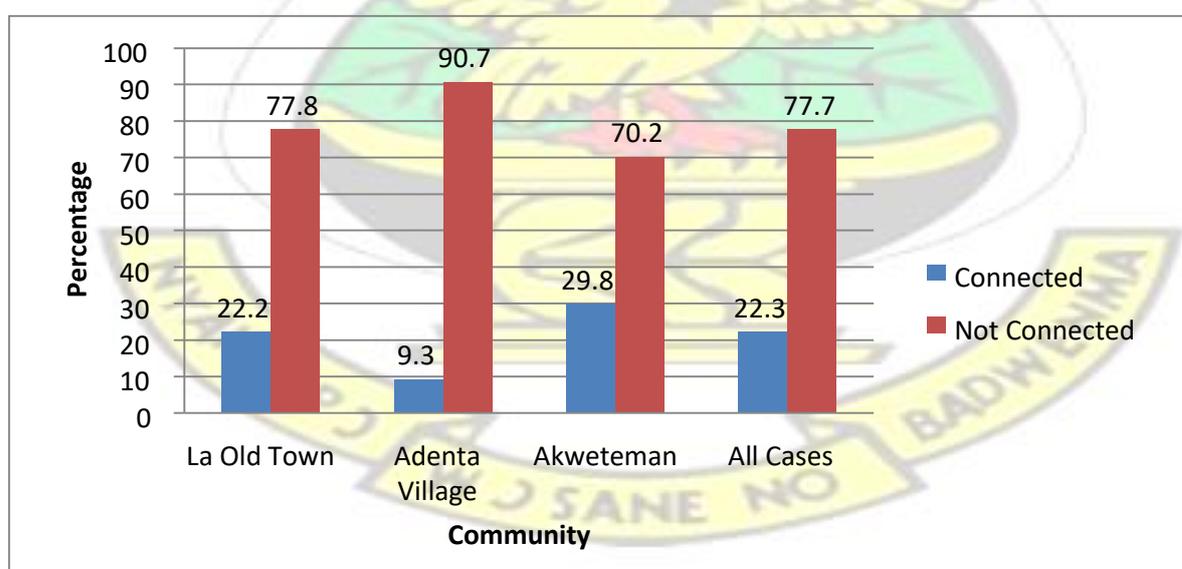


Figure 5.1: Household Connection to GWCL Network

Source: Field Survey, 2013

This implies that the GWCL water coverage in Akweteman is better than that of La Old Town, and La Old Town is also better than that of Adenta Village. The respondents whose households were not connected to the piped network (77.7%) gave two major reasons why they were not connected. These were expensive connection fees (41.1%) and water does not flow from the pipe (35.4%) as highlighted in Figure 5.2.

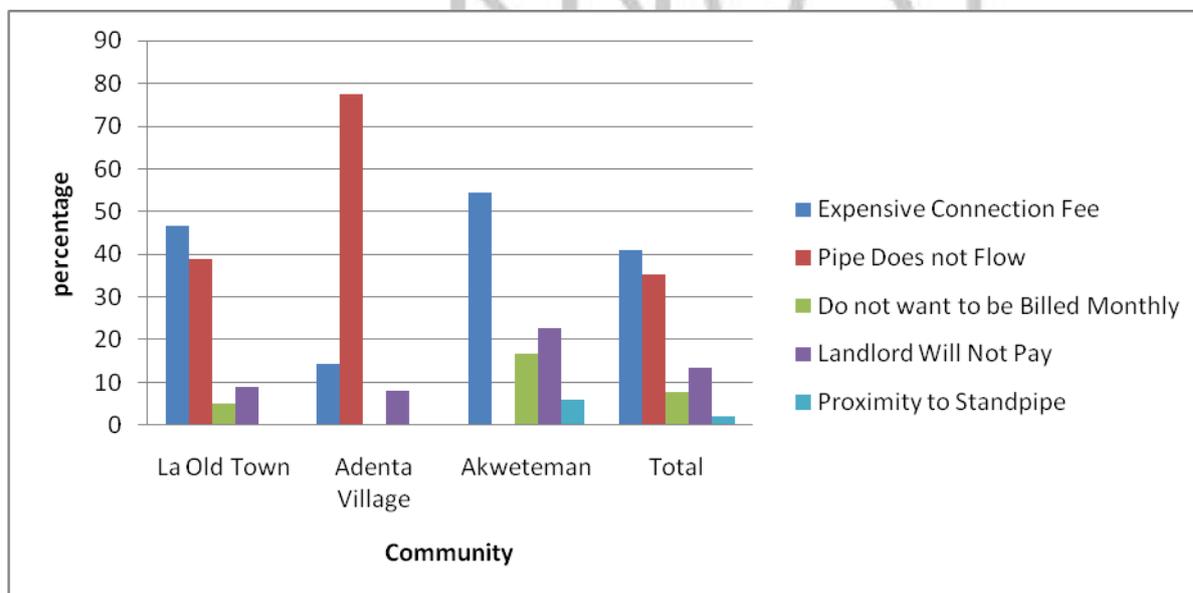


Figure 5.2: Reasons for Not Having GWCL Connection

Source: Field Survey, 2013

In La Old Town, 46.7% of the respondents without piped connection assigned high connection fee as the reason for non-connection. Another 39% were of the view that it was not necessary to get connected to the network since water does not flow through the pipe. Majority of the respondents (77.5%) who were not connected in Adenta Village also share the view that it was not necessary to get connected since the water is not running through the pipe. Whilst in Akweteman majority (54.5%) of the households who were not connected to the network assigned expensive connection fee as the reason. At the time of the survey, an official of the GWCL indicated that the connection fee was between GH¢300.00 and GH¢400.00 depending on the location of the house. Other minor reasons assigned by the respondents were landlord will not pay the connection fee (13.5%), we do not want to be billed monthly (7.8%), and proximity to standpipe (2.1%).

There were vast differences in the supply of piped water delivered by the GWCL piped network. Though 9.3% of the households in Adenta village reported that they were connected to the network, water had not flowed through the pipes for some years now. Focus group participants in Adenta Village described the water supply situation in the community as very poor. They indicated that water supply to the community was a big problem because water did not flow through the pipes although the community had piped connection. They further pointed out that it is only those who had money who were able to connect piped water from somewhere outside the community and they get supply once in every two weeks. This was corroborated during the household survey as 77.5% of the households who were not connected to the GWCL network in the community indicated that getting connected to the network was not worthwhile since piped water does not flow in the community.

The frequency of flow of water through the pipes was a major concern to the people of La Old Town. About 36% of the respondents who reported having GWCL connection in their households stated that water flowed about once every week. Another 41% said that water has not flowed through the pipes for more than a month prior to the study, whilst 22.7% indicated that although they have piped connection in their household water hardly flows through the pipes as shown in Figure 5.3.

The erratic flow of piped water does not affect only households with piped connection but also poses serious challenge for those without piped connection as espoused by the respondents of the focus groups. The focus group participants in La Old Town were not happy with the flow of water to the community. Mr. A, a retired public servant, reported that the community had serious problems with water supply and that sometimes for about three weeks or one month water does not flow through the pipes and people have to rely on water vendors for water of doubtful quality at a higher price. Madam A, an elderly woman in the community, also indicated that water was very scarce in the community. She reported that because piped water does not flow the people in the community were compelled to buy a 25 litre container of water at Gp70 instead of the normal price of Gp30. In view of this, whenever people hear that pipe borne water is flowing somewhere they rush to that place to buy it at the normal price of Gp30.

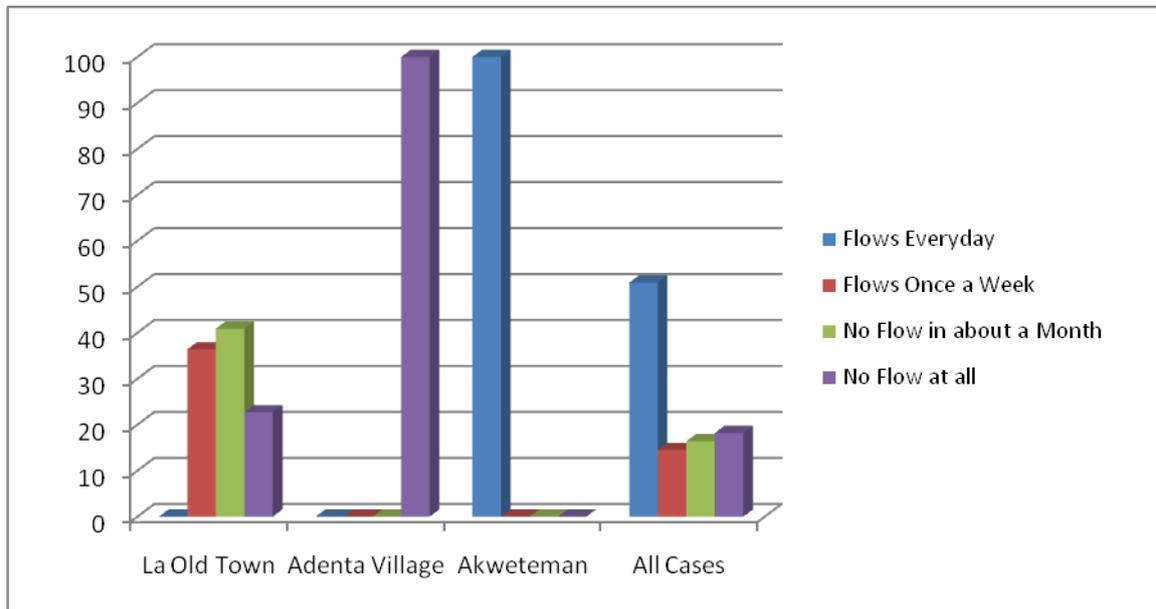


Figure 5.3: Frequency of Flow of Water

Source: Field Survey, 2013

An official of Ghana Urban Water limited (GUWL) corroborated the story that water was scarce in some low income or poor urban communities in Accra. The official indicated that the supply of water was lower than demand and as a result GUWL was not able to meet the water needs of the people. Moreover, in some of the low income areas it was difficult to even lay the distribution lines into the communities due to high population density and unplanned nature of the settlements.

The situation in Akweteman was however different. Water supply by GWCL to the community was very reliable due to rehabilitation of the piped-water distribution network in the community. Water flows through the pipes everyday as indicated by all the respondents who reported having piped connection in their households. The reliable flow of piped water to the community has improved water supply to not only those with piped connection but also those who are not connected to the network as there are a number of standpipes that service the community. Respondents at the focus groups did not hide their satisfaction with water supply to the community. Mr. A, a focus group participant, disclosed that the people in the community were fortunate to have reliable supply of potable water. He proposed that if it could be possible to transport some of the water to other communities it would be very good as some communities were really in need of water.

5.2.2 Main Source of Drinking Water

Results of the 247 household surveys showed that 63.6% of the residents depended on sachet water as their main source of drinking water as shown in Table 5.1. Another 34.4% relied on piped water as their main drinking water source. This differs from the result of the 2010 Population and Housing Census which indicated that 64.4% and 28% of residents in Greater Accra Region used piped-borne water and sachet water respectively as their main source of drinking water (Ghana Statistical Service, 2012). The findings of the study however affirm studies conducted by CHF International which revealed that majority of the poor residents in communities such as Nima 441 (62.5%) and Ayidiki (56.6%) use sachet water for drinking purposes (USAID/CHF International, n.d).

Table 5.1: Source of Drinking Water of Respondents

Source of Water	Name of Community			
	La Old Town	Adenta Village	Akweteman	All Cases
Sachet Water	55.6	98.1	52.1	63.6
Piped Water	40.4	0	47.9	34.4
Borehole	4.0	0	0	1.6
Protected Well	0	1.9	0	0.4
Total	100	100	100	100

Source: Field Survey, 2013

Significant variations in the use of sachet water as the main source of water for drinking was observed among the case study communities. In Adenta Village, majority of the respondents (98.1%) drink sachet water. Participants of the focus groups pointed out that most of the people rely on sachet water for drinking because piped water does not flow in the community and the water from the boreholes has high salinity level which makes it unsuitable for drinking. Moreover, the quality of water sold by water vendors could also not be guaranteed. About 56% of the respondents in La Old Town depend on sachet water as their main source of drinking water, whilst 40.4% drink piped water. A small segment (4%) of the population in La Old Town use borehole as their main source of drinking water. In Akweteman, 52.1% of the households use sachet water as their main source of water for drinking, whilst another 47.9% drink piped water.

It was observed that the people in Akweteman and La Old Town did not trust the quality of water that flows through their pipes. Focus group discussions with opinion leaders in Akweteman revealed that the pipe distribution lines were in gutters and as a result when there

was a leakage or pipe burst dirt and other faecal matter contaminate the piped water which makes it unsafe to drink, hence the reliance on sachet water. Observation of the distribution lines confirmed that the pipe lines were in gutters. Sticks have been used to raise the pipe lines above the gutters in some sections, whilst in other places it was observed that the lines were right in the gutters and inundated with solid and other waste deposited in the gutters (See Plate 5.1).



Plate 5.1: Distribution Lines in Gutters at Akweteman

Source: Author on 09/08/2013

5.2.3 Sources of Water for Other Domestic Uses

The results of the study showed that aside drinking water, the respondents did not really differentiate between the sources of water for other domestic uses such as washing, cooking and bathing. The data indicated that 69.8%, 72.1%, and 69.8% of the households used piped water for washing, cooking, and bathing respectively. In all, 70.4% of the households used piped water for other domestic purposes. Another 10.1% relied on water from reservoirs for other domestic purposes. Only 4.9% of the households depended on water from mobile vendors such as tanker trucks, water trucks, and water cart suppliers as depicted in Table 5.2.

Table 5.2: Sources of Water for Other Domestic Purposes

Source of Water	Washing	Cooking	Bathing	Other Domestic Purposes
Piped Water	69.8	72.1	69.8	70.4
Borehole	8.5	8.9	8.5	8.6
Reservoir	10.5	9.4	10.5	10.1
Protected Well	6.4	4.8	6.4	6
Water Tanker/Truck Suppliers /Cart	4.8	4.8	4.8	4.9
Total	100	100	100	100

Source: Field Survey, 2013

The disaggregated community data also confirmed that aside water for drinking purposes, once a household settles on a source of water for other domestic purposes it virtually used that source for all other domestic purposes such as washing, cooking, and bathing. The households in Akweteman for example predominantly used piped water for washing (94.7%), cooking (97.9%), and bathing (94.7%). Piped water was also the preferred source of water for washing (83.9%), cooking (86.9%), and bathing (93.9%) by the respondents in La Old Town. In Adenta Village, 31.5% of the households relied on water from reservoirs for cooking, washing and bathing. Aside reservoirs, the households in Adenta Village also depended heavily on water from boreholes for other domestic purposes. It was the choice of 31.5%, 29.6%, and 29.6% of the households for cooking, washing, and bathing respectively.

It must be indicated however that the reliance on piped water for other domestic purposes by majority of the respondents in La Old Town and Akweteman does not imply that the people have household connection. In fact, 70.2% and 78.8% of the households in Akweteman and La Old Town respectively rely on private standpipe for cooking purposes.



Plate 5.2: A Water Source at La Old Town

Source: Author on 18/07/2013

A comparison between the sources of water for drinking with those for other domestic purposes gives an indication that the residents in the case study communities are more concerned about their source of water for drinking with respect to the level of quality or purity than that for other domestic purposes.

5.2.4 Factors Considered When Collecting Water

The respondents rated factors they consider when collecting water for domestic use in terms of the attribute of access adapted for the study namely, cost of water (affordability), reliability of water supply (availability), quality of water (acceptability) and distance to the water source and time wasted at the water point (accessibility). A rating scale of 1-3 with 1 representing not critical, 2-quite critical, and 3-very critical was used. After rating the scores were ranked with the highest score representing the most critical and the lowest, not critical. Table 5.3 shows the scores and ranks for all the case study communities.

Table 5.3: Factors of Concern in Water Collection

Factor	La Old Town		Adenta Village		Akweteman		Total	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Cost of Water	241	2nd	129	1st	214	2nd	584	1st
Reliability of Supply	242	1st	107	3rd	198	3rd	547	3rd
Distance to Water Source	180	5th	103	4th	153	5th	436	5th
Time Spent at the Water Point	211	3rd	95	5th	164	4th	469	4th
Quality of Water	208	4th	118	2nd	224	1st	550	2nd

Source: Field Survey, 2013

Generally, the cost of water was the main factor considered when collecting water for domestic use. This was followed by the quality of water, and then the reliability of water supply. Issues concerning distance to the water source and time spent at the water point received the lowest ratings.

There were however variations as each community had differing level of access to water. La Old Town ranked reliability of water supply as the most important issue. This was because although the community was connected to the GWCL network, water was rationed to the community and the households with connection received water supply from GWCL once in a week. The cost of water was ranked second by the households in La Old Town. The cost of water in the community was dependent on the availability of water. When the water from GWCL network does not flow, the people were compelled to buy water of doubtful quality at a higher cost. The people in La Old Town were not affected so much by the distance to the water source due to the proliferation of water vendors.

Cost of water was a major factor considered by households in Adenta Village when collecting water. As already indicated water did not flow through the pipes in the community and as a result the people depended on vendored water. The quality of water was also given high consideration by the people in Adenta Village because some of their water sources had high salinity levels. Reliability of water supply, distance to the water source, and time wasted at the water point were respectively ranked as 3rd, 4th, and 5th factors considered by the households in Adenta Village when collecting water.

The quality of water was also ranked as the main factor considered by the people in Akweteman when collecting water with a score of 224. This was followed by the cost of water, and then the reliability of water supply. The people in Akweteman did not give much consideration to the distance to the water source and time spent at the water point when they are collecting water due to reliability of water supply from GWCL network and the presence of stand pipe water vendors in the community.

5.2.5 Critical Water Supply Issues

Seven key issues affecting water supply to poor urban communities were identified in the literature reviewed. The household heads were asked to rank the issues in order of importance with the most important issue attracting a score of 7 and the least important, 1.

The result of the direct ranking exercise is presented in Table 5.4.

The result shows that the cost of water was the most critical issue facing households in all the case study communities with regards to water supply. The people were of the view that the cost of water was high due to their dependence on water vendors, who are in business to make profit. As already indicated, more than 78% of the households depended on water vendors for their water needs. Households with GWCL network in Adenta Village did not receive water through the pipes, whilst in La Old Town water was supplied from the GWCL network once in a week. Poor quality of water and reliability of water supply were ranked 2nd and 3rd respectively among the households in Adenta Village and Akweteman, whilst the respondents in La Old Town gave more prominence to reliability of water supply than the quality of water as indicated.

Table 5.4: Direct Ranking of Critical Water Supply Issues

Variable	La Old Town		Adenta Village		Akweteman		Total	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Cost of Water	562	1 st	313	1 st	558	1 st	1433	1 st
Reliability of Supply	494	2 nd	234	3 rd	429	3 rd	1157	3 rd
Distance to Water Source	318	6 th	214	4 th	297	4 th	829	4 th
Time Wasted at the Water Point	355	4 th	167	6 th	287	5 th	809	5 th
Poor Quality of Water	425	3 rd	274	2 nd	554	2 nd	1253	2 nd

Low Community Participation	325	5 th	174	5 th	241	7 th	740	6 th
Poor Handling of Complaints	300	7 th	136	7 th	266	6 th	702	7 th

Source: Field Survey, 2013

Distance to the water source was ranked as the 4th major issue by the household in Adenta Village and Akweteman. The household in La Old Town however considered time wasted at the water point as the 4th most important issue. Other key issues which did not receive much priority were poor handling of complaints and low community participation in urban water supply.

These critical water supply issues in urban water supply were further discussed in focus groups with opinion leaders and women groups in each of the case study communities. After a thorough discussion of the issues, the participants used Pair Wise Ranking techniques to rank the issues in terms of degree of significance. The variable with the highest score was ranked 1st and the one with the lowest score was ranked 7th. Table 5.5 shows the results of the prioritization exercise in the case study communities.

Interestingly, the results of the pair wise ranking by the focus groups in the case study communities did not agree with the findings of the direct ranking by the households. In fact, there were significant differences in the results of the pair wise ranking and that of the household survey. Two of the variables, to wit, low community participation and poor handling of complaints, which received lower ratings at the household level were among the top three priority issues in all but one of the six focus groups.

Table 5.5: Pair Wise Ranking of Critical Water Supply Issues

Variable	La Old Town		Adenta Village		Akweteman	
	Opinion Leaders	Women Group	Opinion Leaders	Women Group	Opinion Leaders	Women Group
Cost of Water	5 th	6 th	6 th	6 th	5 th	3 rd
Time Spent at the Water Point	6 th	7 th	5 th	7 th	4 th	4 th
Reliability of Supply	4 th	4 th	1 st	5 th	7 th	5 th
Quality of Water	2 nd	2 nd	3 rd	3 rd	3 rd	7 th
Distance to Water Source	7 th	5 th	7 th	4 th	6 th	6 th
Low Community Participation	3 rd	3 rd	4 th	2 nd	1 st	2 nd

Participation						
Poor Handling of Complaints	1st	1st	2nd	1st	2nd	1st

Source: Field Survey, 2013

The focus group participants in all three communities expressed their frustration about water supply in their communities and indicated further that they felt left out in the crucial decision making process that affects their water supply. They attributed this to the supply driven approach of the GWCL. The participants expressed the view that their interests were not taken into consideration when decisions about water supply were made and that avenues for addressing complaints were weak. Opinion leaders and women groups in La Old Town ranked poor handling of complaints by the GWCL and other stakeholders as the most significant issue confronting the people in the community with respect to water supply.

The focus group discussants in La Old Town also ranked low community participation in water supply as the third priority issue. The participants revealed that the community had persistently complained about the erratic water supply to the officials of GWCL but their efforts had been to no avail. They further indicated that the GWCL did not see them as stakeholders and as a result did not involve them in discussions on water supply issues. They contended that information on the cause of their water supply situation and when it would be resolved was seldom given to them. The people in the community have therefore resigned to fate to address their water issues.

One of the opinion leaders summed up the frustration of the people with regards to poor handling of complaints when he stated that:

“We are fed up with the officials of GWCL that is why we have stopped petitioning them about our water supply challenges. Whether we get water or not we relax because if they had been sympathetic to our concerns our water supply challenges would have been dealt with by now. We cannot continue to hire taxi to their offices to lodge complaints which will not yield any dividend. Community participation and handling of complaints are therefore poor in this community”.

The women group in Adenta Village and Akweteman also ranked poor handling of complaints as the top most issue facing the people in their respective communities, whilst their counterparts in the opinion leaders group viewed it as the 2nd most significant issue.

Apart from the participants in the opinion leaders group in Adenta Village who ranked poor community participation 4th, all the other groups ranked it among the top three issues.

The views expressed by the focus group participants on handling of complaints by the GWCL are disturbing. It brings into question the competences of the company in pro-poor service delivery which is a necessary condition for successful policy implementation. The lack of community participation in pro-poor urban water supply is equally worrisome. This is because the review of the case studies of best practices of pro-poor water supply is replete with evidence of how active community participation has helped utilities to improved water supply in poor urban communities.

Quality of water also featured as a priority issue in the case study communities as per the results of the pair wise ranking. The participants in the two focus group discussions held in La Old Town ranked quality of water as the 2nd most significant issue. The results of the two focus group discussions held in Adenta Village and the one held among opinion leaders in Akweteman also indicated that quality of water was the 3rd most critical issue in the two communities. Apart from the results of the Akweteman women group which ranked quality of water as the least water supply issue in the community, the results of the pair wise ranking did not significantly deviate from that of the direct ranking by the households in respect of quality of water.

The cost of water which was ranked as the most critical issue by the households was assigned lower rating by all but one of the six focus groups. Only the women group in Akweteman ranked cost of water as the 3rd most significant issue. The discussants in the remaining five focus groups placed cost of water in the 5th or 6th positions. Table 5.6 displays results of the pair wise ranking of water issues by opinion leaders of Akweteman. Seven different colours were used to represent the seven issues. Community participation was represented by colour blue, handling of complaints by colour green, quality of water by colour red, and so on. The participants compared and ranked the issues pair by pair. They indicated which of the pair of the issues that they thought was a major issue in the community and why by using their own criteria and raising their hands for counting. The issue with the most count was then represented by its symbolic colour in a matrix.

Table 5.6: Pairwise Ranking of Key Water Supply Issues by Opinion Leaders in

Akweteman

Issue	Cost	Time	Reliability	Quality	Distance	Participation	Complaints	Score	Rank
Cost of Water		Time	Cost	Quality	Cost	Participation	Complaints	2	5 th
Time Wasted at the water Point			Time	Quality	Time	Participation	Complaints	3	4 th
Reliability of Supply				Quality	Distance	Participation	Complaints	0	7 th
Quality of Water					Quality	Participation	Complaints	4	3 rd
Distance to the Water Point						Participation	Complaints	1	6 th
Community Participation							Participation	6	1 st
Handling of Complaints								5	2 nd

Source: Author on 09/08/2013

At the end of the exercise, poor community participation had a score of six, handling of complaints scored five, and quality of water had four points and was respectively ranked 1st, 2nd, and 3rd priority challenges in Akweteman.

The results of the pair wise ranking also showed that the opinion leaders in Adenta Village classified reliability of water as the top most issue, whilst their women counterpart ranked it as the 5th most critical issue. The results also indicated that the two focus group discussants in La Old Town placed reliability of water supply at the 4th position, whilst the women group and opinion leaders in Akweteman placed it at the 5th and 7th positions respectively. Distance to water source and time wasted at the water point did not receive good rating in all the case study communities as per the results of the pair wise ranking.

The two variables were placed in the 4th position or below by all the focus groups.

The discrepancies in the results of the direct ranking at the household level and the pair wise ranking in the focus groups may be attributed to the different methodological approaches adopted. The focus group discussion afforded the participants the opportunity to discuss and appraise all the variables before the ranking. This helped them to appreciate the issues better than the individualist household approach. This is the hallmark of focus group discussions. Morgan (1998) as cited by Flick (2006) posited that the explicit use of group interaction

found in focus groups enables focus group discussions to produce data and insights that would be less accessible without the group interactions. Moreover, pair wise ranking has an advantage when it comes to ranking of complicated issues at the community level (Cavestro, 2003).

5.3 Access to Water

This section seeks to assess access of the urban poor to potable water based on the conceptual framework for the study. It looks at availability, accessibility, affordability, and acceptability of the water in the case study communities using international benchmarks as the basis.

5.3.1 Availability of Water

Availability looks at the reliability of water supply and incidence of water deprivation. According to the World Health Organization (WHO) recommendation, a minimum of 20 litres daily per capita consumption level of water for drinking, cooking, and other hygiene purposes is needed to sustain a livelihood (UNDP, 2011). The data showed that only 29.1% of the respondents fell below this water-poverty threshold as depicted in Table 5.7.

Table 5.7: Water Deprivation by Community

Per Capita Consumption	La Old Town	Adenta Village	Akweteman	All Cases
<20 Litres	38.4	24.1	22.3	29.1
20-24 Litres	7.1	24.1	20.3	15.8
25-30 Litres	29.3	24.1	12.8	21.9
31-40 Litres	19.2	14.8	27.7	21.5
41-50 Litres	4	11.1	10.6	8.1
>50 Litres	2	1.9	6.4	3.6

Source: Field Survey, 2013

Akweteman which had regular supply of water from the utility had the lowest incidence of water deprivation. Only 22.3% of the households in Akweteman reported a daily per capita consumption level of less than 20 litres. Adenta Village which is not serviced by the GWCL had the second lowest incidence of water deprivation (24.1%), whilst La Old Town recorded the highest (38.4%) incidence of water deprivation among the households.

Discussions with focus groups however revealed that the minimum per capita daily consumption of 20 litres was too small and as such did not adequately measure water deprivation. They argued that even a big ‘Kuffour gallon’ of water, with a capacity of 25 litres, was not enough for cooking, washing, bathing, and other hygienic purposes for a person per day. Madam F, a middle-aged unemployed single woman in La Old Town pointed out that water was very scarce and expensive, and that she could not afford two big ‘Kuffour gallons’ of water (50 litres) in a day which she considered to be the minimum level for drinking, cooking, bathing, and other hygienic purposes for a person per day. She indicated that ‘the cost of water is very high. Even if you use GHC1.00 to buy water you will get only one big ‘Kuffour gallon’. In view of this I bath in a pan in my room and after that I use the water in the pan to wash my cloths because I cannot afford two gallons of water’.

Madam F’s episode was not an isolated issue. Other research participants in La Old Town and Adenta also gave vivid accounts of how they had to economize the use of water due to cost and availability constrains. In the course of an interview in La Old Town, a woman came out of her room to pour out waste water and when the interviewee noticed that the interviewer was curious she explained that they did not have bathroom in the house and as a result they bath in pans in their rooms and thereafter throw the waste water away. She pointed out that ‘bathing in pans is a common practice, especially among women and children, due to scarcity of water, and that some people even use the waste water to do other things such as mopping the floor and other cleaning activities’. When she was asked why they did not use public bathroom which was just close by, she declared that the user fee of GHp40.00 per person per bath was prohibitive.

Judging from the accounts of the research participants vis-à-vis the WHO recommended minimum threshold of water consumption, it is evident that the minimum per capita daily consumption level of 20 litres does not aptly measure water deprivation in the case study communities. It can be seen from Table 5.7 that if the minimum water-poverty threshold is moved to not less than 25 litres per capita consumption per day, which the focus group participants even argued was not adequate, a different picture of water deprivation would have been painted. Table 5.7 shows that averagely 44.9% of the households reported a per capita daily consumption of less than 25 litres with Adenta Village recording the highest

incidence of water deprivation (48.2%) and Akweteman the lowest with 42.6%. The situation becomes grim when the threshold is even moved to not less than 30 litres.

5.3.2 Accessibility to Water

The determinants of accessibility to water are distance covered in search of water; waiting time at water points, and mode of transporting water from a chosen source to the dwelling unit. International norms set out by agencies such as the World Health Organization and UNICEF deem a water source of within one kilometre of a household as accessible (UNDP, 2006). Generally, the surveyed households had good access to water sources. The water source of about 95% of the households was within one kilometre of the household. About 83% of the households even walked for less than ½ a kilometre to fetch water. In Akweteman, the data showed that 95.5% of those who did not have household water source cover less than ½ km to fetch water, whilst the figure for La Old Town was 83.1% as illustrated in Figure 5.4. It was observed during the survey that the water points were evenly distributed within the communities and were less than ½ kilometre apart in most cases. This means that a typical household covered about ¼ of a kilometre to fetch water.

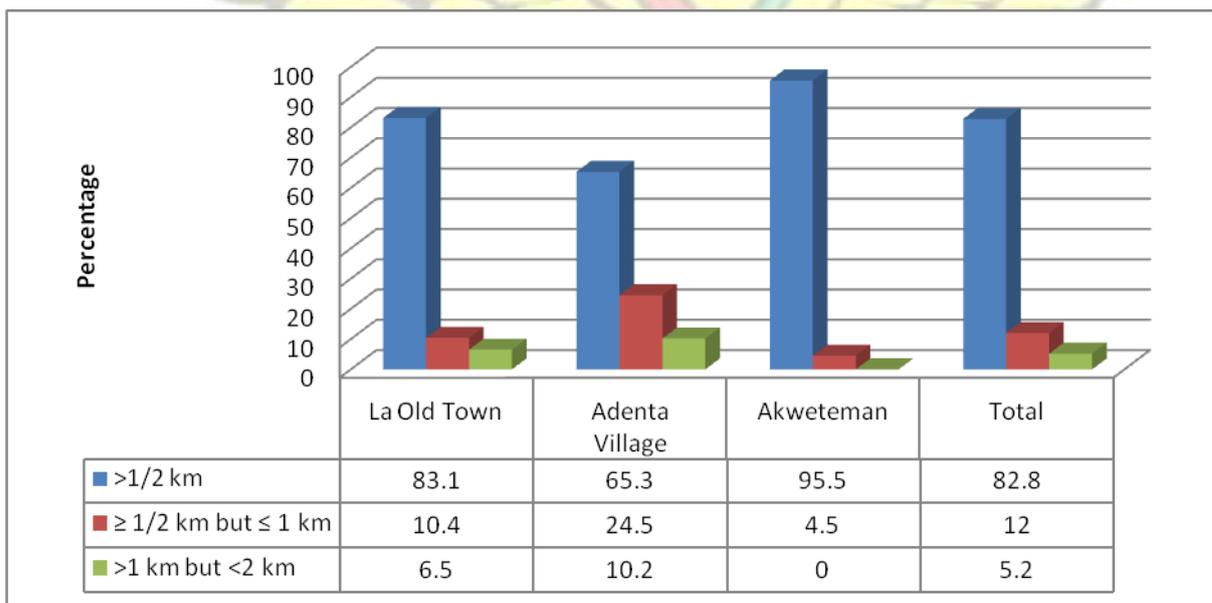


Figure 5.4: Distance Covered to Fetch Water by Community

Source: Field Survey, 2013

The short distance covered to access water indicates a good physical access to water. It also means that the economic man-hours are not spent in search for water signifying a modest level of time poverty (Hailu et al; 2011 as cited in Mwangi, n.d). However, in densely populated and poor urban settlements the time use criteria seems to be a more reasonable indicator for access than the accepted standard of 1 km from the water point (UNDP, 2011). This is because, in spite of the relatively short distance to the water point, demand for water in densely populated spaces may entail a longer waiting time to fill ones receptacle. According to UNDP (2011) what is more important to consider is the waiting time at the water point especially in places with high poverty incidence.

Averagely, household members make 32 trips a week to collect water. Households reported that in total their members make between 7 and 84 trips to the water source in a week. There were however significant variations in the number of trips across households. The average number of trips made by households to the water source in a week in La Old Town, Adenta Village, and Akweteman was 29, 31, and 35 respectively.

In all the case study communities, more than 71% of those who access water outside their homes spend less than 10 minutes on a round trip, excluding waiting time, to access water. The highest category of people in this bracket (90.9%) was in Akweteman. Some people spend between 20 to 30 minutes on a round trip of water with Adenta Village having the highest number of people (6.7%) in this bracket. Another 6.5% of the people in La Old Town spend up to an hour on a round trip to fetch water as shown in Table 5.8.

Table 5.8: Round Trip Time for Fetching Water by Community

Time Spent	La Old Town	Adenta Village	Akweteman	All Cases
< 10 minutes	72.7	71.1	90.9	78.7
≥10 minutes < 20 minutes	14.3	22.2	7.6	13.8
≥ 20 minutes < 30 minutes	6.5	6.7	1.5	4.8
≥ 30 minutes < 60 minutes	6.5	0	0	2.7
Total	100	100	100	100

Source: Field Survey, 2013

In all the case study communities, at least 33.8% of the respondents who access water from outside the house do not spend more than 5 minutes at the water point before they fill their

containers. Akweteman recorded the highest number of people (78.8%) who spend less than 5 minutes at the water point before they are served. This is followed by Adenta with 66.8% of the respondents. Between 15.2% and 27.3% of the respondents spend 5 to 10 minutes at the water point before they are served as indicated in Table 5.9.

Table 5.9: Waiting Time at the Water Point

Waiting Time	Name Of Community			
	La Old Town	Adenta Village	Akweteman	Total
> 5 minutes	33.8	66.8	78.8	57.5
≥ 5 minutes but ≤ 10 minutes	27.3	22.2	15.2	21.8
> 10 minutes but ≤ 20 minutes	11.7	4.4	4.5	7.4
> 20 minutes but ≤ 30 minutes	5.2	4.4	1.5	3.7
> 30 minutes but ≤ 1 hour	9	2.2	0	4.3
>1 hour	13	0	0	5.3
Total	100	100	100	100

Source: Field Survey, 2013

In La Old town 9% of the respondents who fetch water outside their house spend between 30 minutes to one hour at the water point, whilst another 13% spend more than an hour at the water point before they fill their receptacles.

The short timeframe for fetching water could be attributed to the visible presence of water vendors. However, if we factor in the time spent at the water point waiting in line and the numerous weekly trips made by households, then the total time spent per household on fetching water is about 8 hours in a week which is significantly high.

Across the case study communities, households use receptacles such as buckets, bowls, and containers to collect and transport water to the house. It was observed that the most common receptacle used for fetching water was the 20 and 25 litres yellow containers popularly referred to as ‘_Kuffour gallon’. It was a common site to see the ‘_Kuffour gallons’ packed in houses and in places where water was vended, especially in La Old Town. It was also observed that people normally carry the containers on their heads; others carry them by hand, whilst others use wheel barrows and locally made trolleys to carry water.

The study revealed that the task of fetching water was not equally shared among household members. Water fetching in the case study communities is mainly the responsibility of women and children. In 76.5% of the households, either women or children or both were responsible for fetching water. In 29.1% of the households, only women were responsible for collecting water.



Plate 5.3: Women Carrying ‘Kuffour Gallon’ of Water in La Old Town
Source: Author on 18/07/2013

It was also observed that in 16.6% of the households only children participated in the collection of water as illustrated in Figure 5.5. The involvement of children in the collection of water does not only place physical strain on them, but could result in lateness to school and absenteeism. Only 5.7% of the households shared the workload between women and men. In 8.5% of the households, only men were engaged in water fetching, and most often they did so when there were no women in the household.

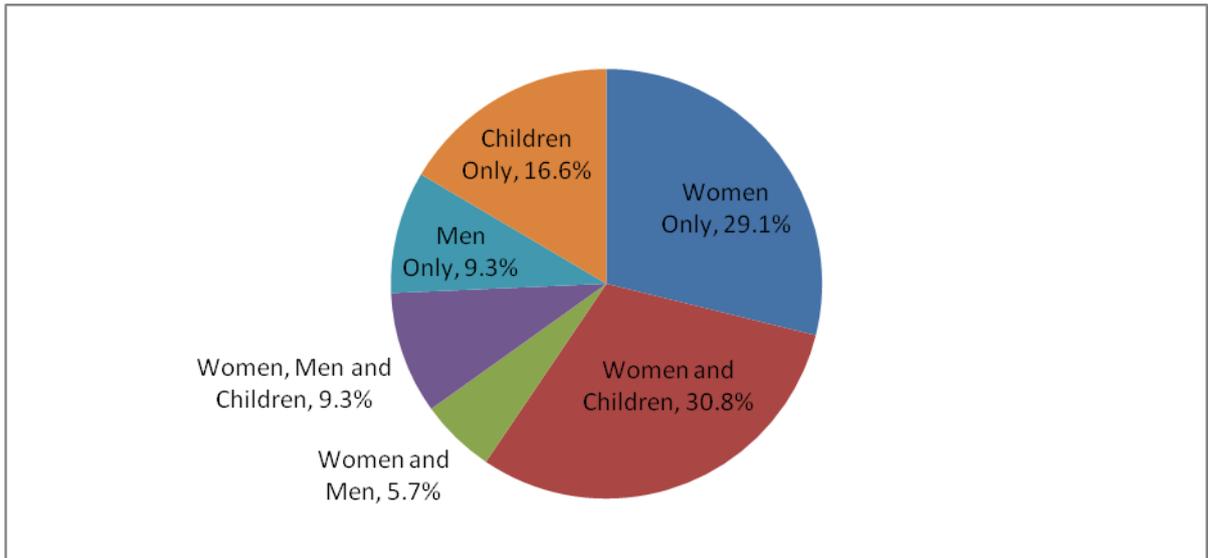


Figure 5.5: Aggregate Water Collection Responsibility

Source: Field Survey, 2013

There was not much difference in the intra-household division of labour with respect to water collection within the study communities as depicted in Figure 5.6.

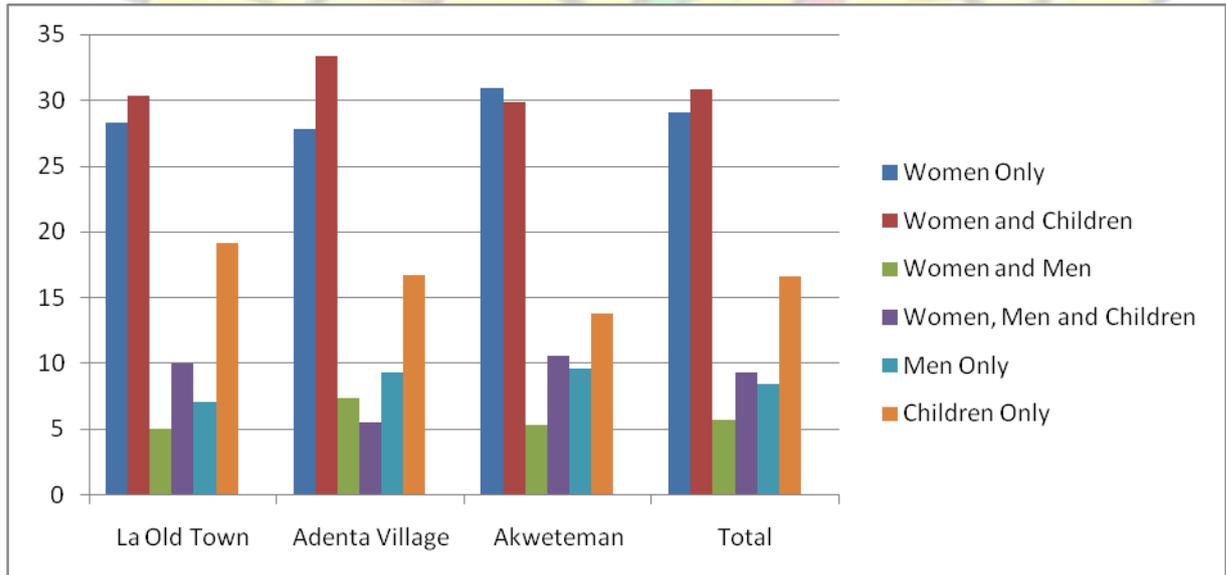


Figure 5.6: Disaggregated Water Collection Responsibility

Source: Field Survey, 2013

In 77.8% of the households in La Old Town and Akweteman, either women or children or both performed the task of water collection, whilst in Adenta Village the percentage of household in this category was 74.5%. Only women were responsible for water collection in 28.3%, 27.8%,

and 30.9% of the households in La Old Town, Adenta Village and Akweteman respectively. In 19.2% of the household in La Old Town, water collection was the responsibility of children, whilst in 13.8% of the households in Akweteman only children participated in water collection.

The gender disparity in the distribution of workload in fetching water suggests room for female empowerment through policies aimed at improving access to water. According to UNDP (2011), making water more accessible may trigger positive economic externalities through reduction in time poverty. This is because better access to water frees up time that can be used in education and more productive, perhaps even remunerative, activities.

5.3.3 Affordability of Water

The UNDP's affordability threshold was used to assess affordability of water. UNDP (2006) proposes that no household should spend more than 3% of household income on water. The household income and expenditure reported in the survey revealed that 70.9% of the surveyed households spent above the affordability threshold. On the average, households spent 7.83% of their income on water. This is quite close to the catastrophic spending threshold of 10% of household income (UNDP, 2011). In La Old Town and Adenta Village for example, 26.3% and 29.6% of the households respectively spent above the catastrophic threshold. According to UNDP (2011), the catastrophic threshold spending entails giving up other basic needs, selling productive assets, incurring debts, becoming impoverished or worsening the already poor situation. On the whole, 19% of the households reported that their expenditure on water was above the catastrophic threshold as highlighted in Table 5.10.

The data showed that a 20 litre container of water was normally sold in the case study communities at a price ranging from GHp10 to GHp50. The price was however dependent on the source of water and its availability. Ground water harnessed through boreholes and wells was mostly sold between GHp10 and GHp30 per 20 litre container. Piped water was usually traded between GHp10 and GHp30 per 20 litre container. Water from a reservoir was normally sold at GHp50 irrespective of the source. Interview with water vendors indicated that water from reservoirs was normally supplied by water tankers or water trucks at a higher cost hence they had to sell it at GHp50 to make a little profit. The average price of 20 litre container of water was GHp38.

Table 5.10: Households Expenditure on Water as a Share of Income

Percentage of Income	La Old Town	Adenta Village	Akweteman	All Cases
0-3%	20.2	20.4	43.6	29.1
3.1-6%	31.3	31.5	33	32
6.1-10%	22.2	18.5	18.1	19.9
10.1-13%	4.1	7.4	1	3.6
13.1-16%	7	5.5	2.2	4.9
16%+	15.2	16.7	2.1	10.5
Total	100	100	100	100
Mean	10.9	9.41	4.54	7.83

Source: Field Survey, 2013

There was however differences in the cost of water across the case study communities. In Akweteman where water flows through the pipe daily, the price of the 20 litre container of water at the time of the survey was between GHp10 and GHp30. About 89% of the households without water source in the house bought the 20 litre container of water at GHp20 or lower. In La Old Town where piped water flowed once in a week, the 20 litre container of water was selling between GHp20 and GHp30 when water flows through the pipe. However the respondents indicated that when piped water does not flow they bought the same 20 litre container of water at GHp50. Focus groups discussion participants in La Old Town indicated that within a day one could buy water from the same vendor at different prices, depending on the flow of pipe in the community. The situation in Adenta Village where households mostly relied on boreholes and reservoirs was quite different. A 20 litre container of water from a borehole in Adenta Village was sold at GHp10, whilst the same quantity of water sourced from reservoir was GHp50. The average price of a 20 litre container of water in La Old Town, Adenta Village and Akweteman was GHp43, GHp43, and GHp29 respectively. The findings of the study showed that the price of water was influenced by the presence or absence of GWCL network, the source of water and its availability. This agrees with the findings of a study by Van Rooijen et al. (2008) in Accra which showed that the market prices of water were contingent on the availability of water infrastructure.

About 45% of the households reported that water was unaffordable with La Old Town recording the highest percentage of 59.6 and Akweteman the lowest with 29.8%. As already indicated, the mean price of water supplied by water vendors vary between GHp8.75 and GHp42.17 per 20 litre container. The PURC approved public standpipe rate was GHp1.68,

however it was sold by private standpipe vendors at an average price of GHp17.12 per 20 litre container. Although this price contains a poverty premium of 9.19 it was far cheaper than water provided by reservoir vendors which was sold at an average price of GHp42.17 per 20 litre container.

Securing access to water in the event of household income distress is a key aspect of water security and maintenance of individual basic needs (UNDP, 2011). In the event of negative income shock the households economized the use of water as a coping strategy. This was disclosed by the focus group discussants. Aside prudent use of water, 21.9% of the households indicated that in times of financial difficulties they obtained water on credit. Indeed, 69.8% of the fixed point water vendors surveyed reported that they offer credit to their client in times of income distress to allow them to continue to consume water. The credit was disbursed in the form of delayed payments at no interest rate.

5.3.4 Acceptability of Water Source

Indicators of safety and quality of drinking water are used to assess acceptability of water. According to the World Health Organization and UNICEF (2013), drinking water supply can be broken down into three categories based on how protected the water source is from outside contamination, especially faecal matter, to determine its acceptability. These are improved source (piped household water connection located inside the dwelling, plot or yard of the user); other improved sources (public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs or rain water collection); and unimproved water sources (unprotected dug well, unprotected spring, cart with small tank/drum, bottled water, surface water such as river, dam, lake, pond, stream, canal and irrigation channels).

According to the WHO/UNICEF JMP bottled water is considered as a source of improved drinking water only when another improved source is also used for cooking and personal hygiene. This means that though the respondent has access to other improved sources of drinking water, he/she has decided, as a matter of choice, to drink packaged water. Where people are compelled to drink packaged water, they are not counted among users of improved water sources (WSMP, 2009:5). In view of this sachet water as a source of household drinking water has been divided into two. The first category is households who drink sachet water and have another improved source of water for cooking and personal

hygiene which is considered as access to improved water source. The second is households who are ‘_compelled’ to drink sachet water because they do not have access to improved water source for drinking, cooking and personal hygiene which is not considered as improved source of water.

Table 5.11 indicates that generally the households use drinking water from acceptable sources. About 85% of the households use improved drinking water, but the bulk of the water, 77.3%, comes from other improved sources such as standpipes, boreholes, protected well, and sachet water. The drinking water sources of the remaining 15% were classified as unimproved. The households whose drinking water sources were classified as unimproved used sachet water for drinking but relied on water from unimproved sources such as unprotected well for cooking and personal hygiene which according to WHO and UNICEF categorization is not considered as improved source.

Table 5.11: Classification of Drinking Water Sources in Percentages

Source of Water	La Old Town	Adenta Village	Akweteman	All Cases	Classification of Source
Piped into dwelling, plot or yard	6.1	0	13.9	7.7	Improved
Standpipe	34.3	0	34	26.7	Other Improved
Borehole	4.0	0	0	1.6	Other Improved
Protected Well	0	1.8	0	0.4	Other Improved
Sachet water with another improved source for cooking and personal hygiene	44.5	50	52.1	48.6	Other Improved
Sachet water without another improved source for cooking and personal hygiene	11.1	48.2	0	15	Unimproved
Total	100	100	100	100	

Source: Field Survey, 2013

There was however variations in the extent of usage of improved drinking water sources. The sources of drinking water of all the households in Akweteman were either classified as improved (13.9%) or other improved (86.1%). In Adenta Village, however, 51.8% of the households had access to other improved drinking water sources, with the remaining 48.2%

depending on unimproved drinking water sources. These figures indicate that the quality of drinking water in the study communities was generally acceptable.

The researcher is however of the view that there is the need to take a second look at the classification of sachet/bottled water as unimproved source of water. Such a classification makes the statistics on access to improved source of water unrealistic especially in the developing world where its practical realities are limited and thus mars the calculation of access to water.

When the households' perception of water quality (taste, odour, colour, and cleanliness) was assessed on a scale of one (very poor quality) to five (very acceptable), 69.8% of the households classified drinking water quality as either acceptable or very acceptable. Adenta Village recorded the lowest level (63.9%) of acceptable drinking water quality, whilst Akweteman had the highest with 74.5% as illustrated in Figure 5.7.

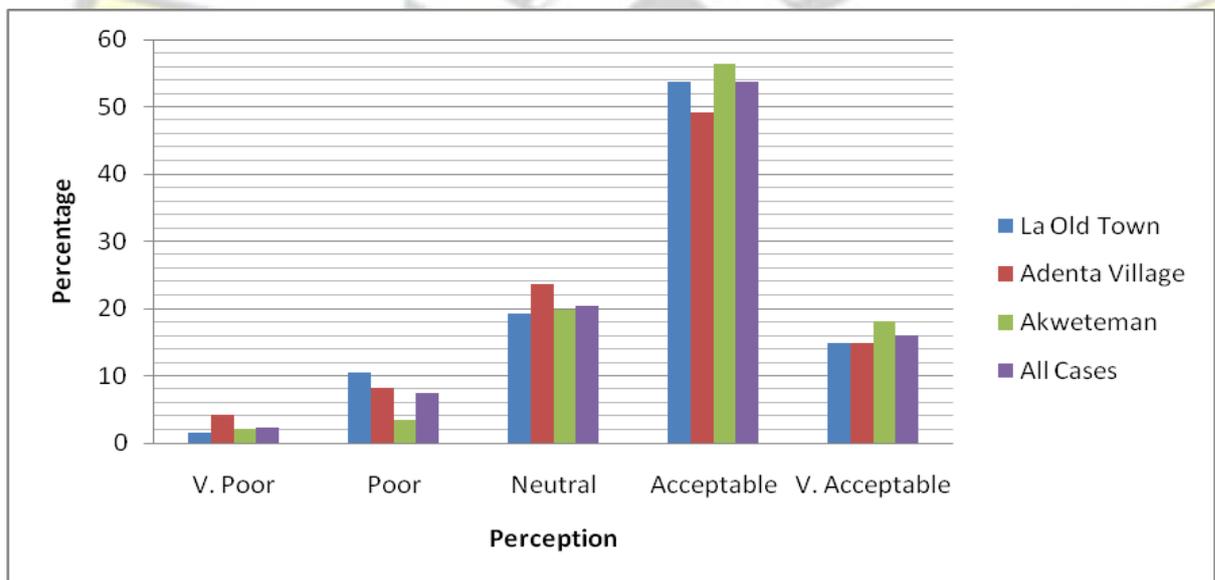


Figure 5.7: Households Perception of Drinking Water Quality

Source: Field Survey, 2013

Despite the generally positive perception of water quality among the surveyed households, participants in five out of the six focus groups ranked quality of water as either the second or third most critical water supply issue confronting their respective communities.

5.4 Conclusion

The results of the study show that access of the urban poor to water services is a challenge. Although all the communities were connected to the GWCL network only 22.3% of the households were connected to the network. Moreover, connection to the network was not a guarantee of water supply from GWCL network. Only the residents of Akweteman enjoyed regular water supply. Water had not flown through the pipes in Adenta Village for years, whilst the people of La Old Town experienced erratic water supply. In view of this, majority of the households depended on neighbourhood resellers and other types of water vendors for water at a higher cost. However, when access of the communities to water was assessed based on international benchmarks, the results showed that generally access of the communities to water was good. With the exception of affordability, all the indicators of access, namely availability of water, accessibility to water and acceptability of water sources were generally good.



CHAPTER SIX: WATER VENDING IN POOR URBAN COMMUNITIES

6.1 Introduction

This chapter examines the type of water vendors, how they operate, and how effective they are in meeting the needs of the urban poor. It also deals with the challenges confronting water vendors and what can be done to increase the effectiveness of water vendors in urban water delivery. The chapter also focuses on whether getting water vendors in particular and private water providers in general to provide better services can promote sustainable water supply to the urban poor. It has been organised under nine main themes namely type of water vendors, price determination by vendor, water prices and poverty premium, reasons for entering into the water vending business, and perception on water vendors. The rest are satisfaction with services of water vendors, status of water vendors, challenges, and the way forward.

6.2 Type of Water Vendors

There are two main types of water vendors namely, fixed point water vendors and mobile water vendors. The fixed point water vendors as the name implies vend water from a fixed location to consumers, mostly households. They include those who sell water from public standpipes, those who sell water from private stand pipes who are also known as neighbourhood retailers, reservoir operators, well or dug out water vendors and borehole water vendors. The mobile water vendors, on the other hand, sell water mostly in bulk to end users and secondary suppliers such as fixed point water vendors. They include tanker operators, water truck operators, motorized cart water vendors, pushcart water vendors and water carriers.

Fixed point water vendors studied were mainly those who sell water from private stand pipes or neighbourhood retailers, reservoir water vendors, and borehole water vendors. The mobile vendors covered under the study were tanker suppliers, water truck suppliers and motorized cart water vendors also known as *'tutututu'*. A brief description of the water vendors studied is presented in the ensuing section.

The private stand pipe water vendors also known as neighbourhood retailers were private individuals, mostly landlords, who relied on water from GWCL pipe network. They sell piped water from their houses or from a separate connection in a strategic location outside their houses.

Reservoir water vendors (See Plate 6.1) , also referred to in the literature as water kiosk, in the study areas were also mainly private entrepreneurs who depended on water from GWCL network or from tanker/truck suppliers or both for water supply. The reservoir vendors had raised platforms and installed poly tanks ranging from Rambo 250 (2,500 litres) to Rambo 1000 (10,000 litres) depending on the resources of the vendor. The poly tanks were fitted with taps which served as the vending point. They could usually serve two or more customers at a time from two or more taps.



Plate 6.1: A Water Reservoir at La Old Town

Source: Author on 18/07/2013

A borehole is an underground source of water. The facilities surveyed are publicly owned. They are funded by the government through the Metropolitan and Municipal Assemblies to improve access to potable water. The boreholes water vendors operate as community businesses. A typical public borehole is managed by a Water and Sanitation (WATSAN) committee, a community based organization responsible for water and sanitation issues at the community level.

Tanker trucks operators supply water in bulk to end users who can afford storage tanks. They also supply water to tertiary suppliers such as fixed point water vendors who have storage

tanks, especially the reservoir operators. Tanker truck operators source their water mainly from private mechanized boreholes or directly from the GWCL connection



Plate 6.2: A Water Truck Captured at Adenta

Source: Author on 20/07/2013

Water trucks are cargo trucks, predominantly Kia trucks, which have been fitted with poly tanks, mostly two or three Rambo 250 poly tanks for water storage, transport and supply as shown in Plate 6.2. They supply water in bulk to end users who have storage facilities mainly poly tanks. The water trucks also supply water to tertiary suppliers such as fixed point water vendors, especially the reservoir operators.

Motorized water carts popularly referred to as ‘tutututu’ are improvised power tillers fitted with metal tanks with a storage capacity of about 1,350 litres for water as depicted in Plate 6.3. The motorized water carts deliver water in bulk to households. These operators depend on mechanized boreholes as their main source of water.



Plate 6.3: A Motorized Water Cart, ‘Tutututu’ Captured at Adenta

Source: Author on 20/07/2013

The study covered 78 water vendors made up of 53 fixed point water vendors constituting 67% and 25 mobile water vendors representing 33%. The data show that reservoir water vendors form the largest percentage (56%) of water vendors in La Old Town. This was followed by private standpipe water vendors (32%) and Tanker suppliers (12%). As indicated already, there were no private standpipe water vendors in Adenta Village. The data indicate that the activities of mobile water vendors were rife in Adenta Village. Twenty out of the 25 mobile water vendors (80%) sampled were operating in Adenta and its environs. These were mainly water truck and motorized water cart (tutututu) vendors. The activities of water truck and motorized water cart vendors were observed only in Adenta village. The water vendors in Akweteman were predominantly (91%) selling piped water via standpipes. It must be indicated that although two tanker truck water vendors were sampled in Akweteman none of the respondents in the household survey in Akweteman indicated patronizing the activities of mobile water vendors. The tanker truck drivers interviewed in Akweteman indicated that they provided services to whoever needed their services irrespective of the location of the customers. They however indicated their main operational area as Achimota, Taifa, Tantra Hill and surrounding communities.

The types of vendors studied are illustrated in Table 6.1.

Table 6.1: Types of Water Vendors in Case Study Communities

Type of Water Vendor	La Old Town		Adenta Village		Akweteman		Total	
	Sample	Share (%)	Sample	Share (%)	Sample	Share (%)	Sample	Share (%)
Standpipe	8	32			19	91	27	35
Reservoir	14	56	9	28			23	30
Borehole Water			3	10			3	4
Tanker Truck	3	12	2	6	2	9	7	9
Water Truck			9	28			9	11
Motorized Water Cart			9	28			9	11
Total	25	100	32	100	21	100	78	100

Source: Field Survey, 2013

6.2.1 Fixed Point Water Vendors

As already indicated, the fixed point water vendors sampled in the case study communities were private standpipe water vendors also referred to as neighbourhood resellers, reservoir water vendors, and borehole water vendors.

The study revealed that none of the stand pipe vending businesses surveyed was publicly owned. They were rather neighbourhood resellers. The business is mainly engaged in by landlords who normally apply for the standpipes from GWCL for domestic use but end up using them for commercial purposes. Only one of the standpipe vendors surveyed indicated that she was paying commercial rate because she applied to sell water. When an official of GWCL was confronted with the findings of the study he indicated that the neighbourhood resellers were operating on the fringes of legality. The official indicated that the GWCL recognises only public standpipe vendors who have signed a memorandum of understanding with the GWCL and operate on commission basis. He mentioned that when it is detected that a domestic consumer has commercialized the piped water, that consumer would cease to be a domestic consumer and is treated as a commercial consumer. This finding may be deemed worrying given that the GWCL's position to undertake periodic maintenance is contingent on revenue generated from the sale of water.

Moreover, officials of the utility undertake periodic visits to the water vending sites to read the meters and distribute bills. One is therefore at a loss as to how this has not been detected

and rectified. The possibility of a deliberate attempt by some officials of the utility to milk the system can therefore not be ruled out.

Twelve out of the 26 standpipe water vendors sampled had water storage facilities, mostly poly tanks and barrels which they used to store water for resale due to unreliable flow of water from GWCL network, especially in La Old Town. Four of the standpipe water vendors interviewed indicated that when water from the GWCL network does not flow they buy water from tankers to meet the needs of their customers. The data however showed that all the four standpipe water vendors who used tanker supplies as an alternate source were in La Old Town.

The study revealed that 18 standpipe water vendors who were mostly in Akweteman were content with their source of water supply and as a result would not opt for another source when given the opportunity. The remaining eight of the standpipe water vendors mostly in La Old Town however expressed reservation with their current source of water supply and indicated their preference for another source when given the opportunity. The standpipe vendors in La Old Town who were not content with their water source attributed their position to unreliable water supply from GWCL. Moreover, water from their alternative source, tanker suppliers, was also expensive. In view of this they called on the government and the private sector to drill more mechanized boreholes to argument the water supply situation in their community. They were however quick to add that the water from the mechanized boreholes should be treated to reduce the high salinity levels associated with ground water in the area.

The study showed that the reservoir water vendors operated only in La Old Town and Adenta Village. Generally, the reservoir water vendors had better infrastructure and could usually serve more than one person at a time, thus reducing waiting time at the water point. According to UNDP (2011), a typical water kiosk operator has a cabin or small office; it was however observed in the study that only few of the reservoir water vending points in the case study communities had cabins or small offices. The operators were mainly seen operating from their verandas or under canopies.

Fourteen of the reservoir water vendors interviewed were not content with their current source of water supply and indicated that prefer another source of water. Two main reasons

assigned by the reservoir water vendors who wanted another source of supply were unreliable water supply from their current source and high cost of water from tanker/truck suppliers. They also revealed that the quality of water from their current source was bad and as a result their customers did not like it. Eleven of the reservoir water vendors who were not content with their current source of water supply chose piped water as their preferred source of water supply. The remaining three also indicated their preference for mechanized borehole. The key reasons assigned by those who preferred piped water were that it was the preferred choice of their clients due to its good quality and comparative low price. Those who chose mechanized borehole as their preferred source of water supply attributed their decision to the reliability of water supply from that source.

They also contended that water from mechanized borehole was less expensive.

Although the boreholes were located in urban areas they were operated and managed by WATSAN committees at the community level along the lines of Community Water and Sanitation Agency (CWSA) model for rural water. The WATSAN committee hires a manager to operate and maintain the facility. It also sets the price charged per container of water fetched from the borehole. Part of the proceeds from the sale of water from the borehole is expected to be used to pay the manager and maintain the facility to ensure its sustainability. None of the boreholes was mechanized. Two out of the three borehole water vendors interviewed were not comfortable with manually operated borehole as a source of water supply. They stated that their customers always complained of difficulty in pumping the water from the boreholes. They also indicated that water from the boreholes was salty and as a result people did not normally patronise them. They therefore called on the WATSAN committees to mechanize the boreholes and contact appropriate agencies to treat the high salinity levels of the boreholes to improve patronage and income. They however indicated their preference for piped water because of its good quality and the ease with which it is operated. Further investigations revealed that it would be difficult for the WATSAN to mechanize the boreholes due to poor financial management. The WATSAN committees are supposed to open bank accounts and deposit the proceeds from the sale of water from the boreholes in the accounts but this has not been done. Monies are rather lodged with individual members of the committees and there are no proper and strict monitoring and accountability measures in place.

A typical fixed water vendor starts work by 6.00am. The data shows that some (13.2%) of the water vendors even start work as early as 4.00am. They work throughout the day and

close in the night mostly (73.6%) after 8.00pm. Some of the vendors operated deep into the night as reported by 20.8% of the vendors who indicated that they close between 10.00pm and 11.00pm.

All the fixed point water vendors in the three case study communities reported that they worked at least six days in a week except in La Old Town where six of the water vendors indicated that they worked between two and five days in a week. The six water vendors who worked less than 6 days in a week were standpipe water vendors who relied on water supply from GWCL network which was deemed to be erratic.

The immediate environment of the vending points located in houses was better than those outside especially those located close to drains. This raises issues of contamination of water from such sources.

6.2.2 Mobile Water Vendors

The study revealed that the mobile water vendors rely on four main sources of water supply. These are GWCL piped connection, private mechanized boreholes, dams and wells.

Four out of the seven tanker truck operators surveyed sourced their water directly from GWCL connection, whilst the remaining three depended on private mechanized borehole as their main source of water supply. However, two of the tanker truck respondents indicated that in times of water scarcity, especially during the dry season, they fetched water from dams or washing bays to serve their customers. Further probing revealed that fetching of water from dams and washing bays was not an isolated practice. The two respondents revealed that some of their colleagues also sourced water from such places in times of scarcity. Two out of the four tanker truck providers who sourced their water from GWCL Network expressed their desire for the construction of more mechanized boreholes to improve water supply. Interestingly, two out of the three tanker truck providers who depended on mechanized borehole averred that they were not content with their current source of water and called for the expansion of the pipe network to ease pressure on the existing network. They stated that the water from the boreholes had high salinity level and

as a result their customers did not like it. They also argued that the high salinity level of water from boreholes caused corrosion of their tanks.

All the nine water truck providers interviewed operated in Adenta and its environs. They mainly source their water from mechanized boreholes and GWCL connection. Seven out of the nine water truck operators sampled indicated that mechanized boreholes were their main source of water supply, whilst the remaining two sourced their water from GWCL connection. The water truck operators mentioned that during the dry season the boreholes dry out and they had to queue at the few boreholes that yielded small amounts of water and at the limited GWCL hydrants to fetch water. They pointed out that those who did not have the time to wait at the long queues made do with well water.

Six out of the seven water truck providers who sourced their water from boreholes were not content with their current source of water supply and declared their preference for water from GWCL connection. They argued that quality water from GWCL connection unlike borehole was good which makes it the preferred choice of customers. Ironically, all the two water truck operators who relied on GWCL connection declared their preference for mechanized borehole citing reliability of supply as their main reason.

The motorized water cart vendors operated mainly in Adenta and its surrounding communities. None of them was sighted in La Old Town and Akweteman. They mainly source their water from private mechanized boreholes as confirmed by eight out of the nine operators interviewed. The study however revealed that in times of water scarcity some of the motorized water carts fetch water from other sources such as wells, dams and washing bays. The water cart operators were not content with their current source of water. They contended that aside the unreliability of supply during the dry season, the distance to their water source was also far. Moreover, their customers had issues with the quality of water sourced from boreholes. As a result most (seven) of them indicated their preference for piped water, with the rest advocating for the drilling of more boreholes to augment the supply of water.

The mobile water vendors, especially the tanker truck and water truck providers, had written their contact telephone numbers on their trucks. They service their clients in response to mobile phone calls, covering all Accra provided the client would be able to meet the cost of service provision.



Plate 6.4: Interview with Mobile Water Vendors (two people in the middle) at Adenta

Source: Author on 20/07/2013

On the whole, majority (16 out of 25) of the mobile water vendors start work by between 5:00am and 6:00am. The data however show that eight out of the nine water truck and five out of the seven tanker operators start work by 5.00am. Three of the water truck operators reported that they commence work as early as 3.00am. The mobile water vendors work throughout the day and generally close by 9.00pm as indicated by 22 of them. All the motorized cart water operators however disclosed that they close by 7.00pm due to poor visibility as their carts are not fitted with lights.

All the 25 fixed mobile water vendors worked between six to seven days in a week, except one government owned tanker operator who worked five days in a week, from 8:00am to 5:00pm.

6.3 Price Determination by Vendors

Generally, water vendors set prices on the basis of cost of service provision and price charged by competitors. The cost of service provision of fixed point vendors is made up of operational and water cost, whilst that of mobile vendors consist of operational cost, bulk water cost, and transport (distance) cost.

Among the water vendors surveyed for this study, almost all the mobile water vendors (tanker truck 100%; water truck 100%; and motorized water cart 88.9%) determined their prices based on the cost of service provision. Majority of the reservoir vendors (87%) and the stand pipe vendors (57.7%) also declared that they set prices on the basis of cost of service provision. About 42% and 13% of the stand pipe vendors and the reservoir vendors respectively indicated that their pricing decision was based on prices charged by competitors. Aside the cost of service provision and the price charged by competitors, some of the water vendors also indicated that they factored in affordability, that is, what they think the customer could pay in their price determination. All the three (100%) borehole water vendors and 11.1% of the water cart vendors stated that they fixed prices based on what they thought the customer could pay as depicted in Table 6.2.

Table 6.2: Factors Considered in Pricing by Vendors in Percentages

How Price is Determined	Stand Pipe Vendor	Reservoir Vendor	Borehole Vendor	Tanker Truck	Water Truck	Water cart
Cost of Service Provision	57.7	87		100	100	88.9
Price Charged by Competitors	42.3	13				
What you think the Customer can pay			100			11.1
Total	100	100	100	100	100	100

Source: Field Survey, 2013

The price determination approach of the water vendors surveyed could be taken to suggest a high degree of competition with price being set mainly on the basis of cost of service provision and price charged by competitors. However, with the mobile water vendors, having associations and organizing regular meetings price collusion cannot be ruled out. Discussion

with some of the water cart vendors in Adenta revealed that they hold meetings on every Thursday to think about their welfare and business.

6.4 Water Prices and Poverty Premium

The use of volume for measurement is not a common practice among water vendors and their clientele. Certain standard containers/receptacles are used to represent agreed volume. The price of water is therefore based on the type of container/receptacle used for collecting water. The 20 litre gallon popularly known as ‘Kuffour gallon’ is the most standard measure.

Reservoir vendors, tanker trucks, and motorized water cart operators charged the highest average unit price for water at GHp42.17, GHp24.00, and GHp22.00 per 20 litre container respectively. Borehole vendors on the other hand, charged the lowest average price of GHp8.75 for 20 litre jerry can of water. They also presented the lowest degree of price differentiation among the water vendors with a minimum price of GHp5.00 and a maximum price of GHp10.00. The data showed that generally mobile water vendors had the lowest degree of price differentiation with minimum and maximum unit price of GHp16.00 and GHp29.00 respectively. With the exception of the borehole water vendors, the fixed point water vendors had the highest level of price variance. The minimum and the maximum selling price of 20 litre container of water from stand pipe water vendors were GHp10.00 and GHp50.00 respectively. The same quantity of water was dispensed by reservoir vendors at a price ranging from GHp20.00 to GHp60.00 (see Table 6.3).

The large price variance associated with water from stand pipe and reservoir vendors may be partly attributed to the unregulated nature of the water vending business. Although the PURC was aware of the existence of water vendors, the vendors were neither formally recognised nor registered. In its Social Policy and Strategy to Water Regulation, the PURC argued that ‘secondary suppliers are in business because there is a big gap between supply and demand, and GWCL’s distribution network does not cover all communities. Even where there is reticulation a number of factors, including the high cost of connecting to the utility’s mains and preferred payment options, have contributed to the proliferation of the secondary water business. A substantial portion (up to 85%) of the cost of tankered water is made up of transportation, over which the PURC has no regulatory control. The PURC believes that the rates charged for the provision of water supply services in secondary markets, e.g. vendors

and tanker services, are subject to free market forces and do not warrant regulatory intervention' (PURC, 2005b:15-16).

It is however important to indicate that the PURC had developed guidelines for members of the tanker associations to regulate the quality of water. The price variation may also be the result of the source of the water supply of the vendors and the degree of its availability. The minimum price of GHp10.00 charged by stand pipe water vendors for example was recorded only in Akweteman where water flowed through the pipes every day. The maximum price of GHp50.00 was witnessed only in La Old Town, a community with erratic water supply from GWCL network.

It is worth noting that the price of water is sensitive to the availability and the continuity of the flow of water. That is, the price of water charged by the vendors fluctuates based on the principle of demand and supply. In La Old Town, when reservoir vendor sourced water from GWCL network it was sold at a minimum price of GHp20.00 per 20 litre container. However when the same vendor sourced the water from a tanker truck supplier the same quantity was sold between GHp50 to GHp60.00. The vendors explained that water from mobile water vendors was expensive compared to that from GWCL network due to high cost of transporting the water hence they had to sell it at a higher price to make a little profit.

A comparison of prices charged by water vendors and the PURC rate for premises without connection (public stand pipes) was done to determine the poverty premium on water which is the ratio of the price paid by the poor relative to the non-poor for a specific product' (Mendoza, 2011). This was calculated by using the formula proposed by Mendoza (2011) as already defined under section 2.7. As of the time of the survey, the official PURC rate for water at the public stand pipes per 1000 litres of water was GHp84.29 which translates into GHp1.68 for 20 litres (PURC, 2012). The study revealed for instance that the mean price charged by reservoir water vendors for 20 litres of water was GHp42.17. This translates into a poverty premium of 24.10 as illustrated in Table 6.3.

Table 6.3: Prices of 20 Litres Container of Water across Vendors

Type of Vendor	Mean Price GHp	Standard Deviation	Min. Price GHp	Max. Price GHp	Poverty Premium (min)	Poverty Premium (mean)	Poverty Premium (max)
Stand Pipe	16.85	10.57	10.00	50.00	4.95	9.03	28.76
Reservoir	42.17	10.85	20.00	60.00	10.90	24.10	34.71

Borehole	8.33	2.88	5.00	10.00	1.98	3.96	4.95
Tanker Truck	24.00	3.50	18.00	29.00	9.71	13.29	16.26
Water Truck	19.00	2.00	16.00	20.00	8.52	10.31	10.90
Water Cart	22.00	2.10	18.00	25.00	9.71	12.10	13.88
Average fixed point price	27.36	16.77	11.67	40.00	5.95	15.29	22.81
Average mobile price	21.00	3.30	17.33	24.67	9.32	11.50	13.68
PURC public stand pipe rate	1.68	0.00	1.68	1.68	0.00	0.00	0.00

Source: Field Survey, 2013

This means that poor households who obtain water from reservoir vendors are paying 24.10 times the price charged by GWCL for water at public stand pipes. The results of the study also show that some households who depend on reservoir vendors are paying as much as 34.71 times the price charged by the GWCL. This is the maximum poverty premium shown in the last column of Table 6.3. The data also indicate that households that depend on stand pipe vendors pay a minimum poverty premium of 4.95 and a maximum of 28.76 with a mean poverty premium of 9.03. The findings corroborate the results of a study by Sarpong and Abrampah (2006) which revealed that consumers served by water vendors pay up to 14 times the unit cost of water supplied to other consumers in the same social tariff group.

A graphic presentation of the findings of poverty premium depicted in Figure 6.1 indicates that the highest poverty premium is related to water provided by reservoir vendors, followed by tanker trucks and motorized water cart vendors.

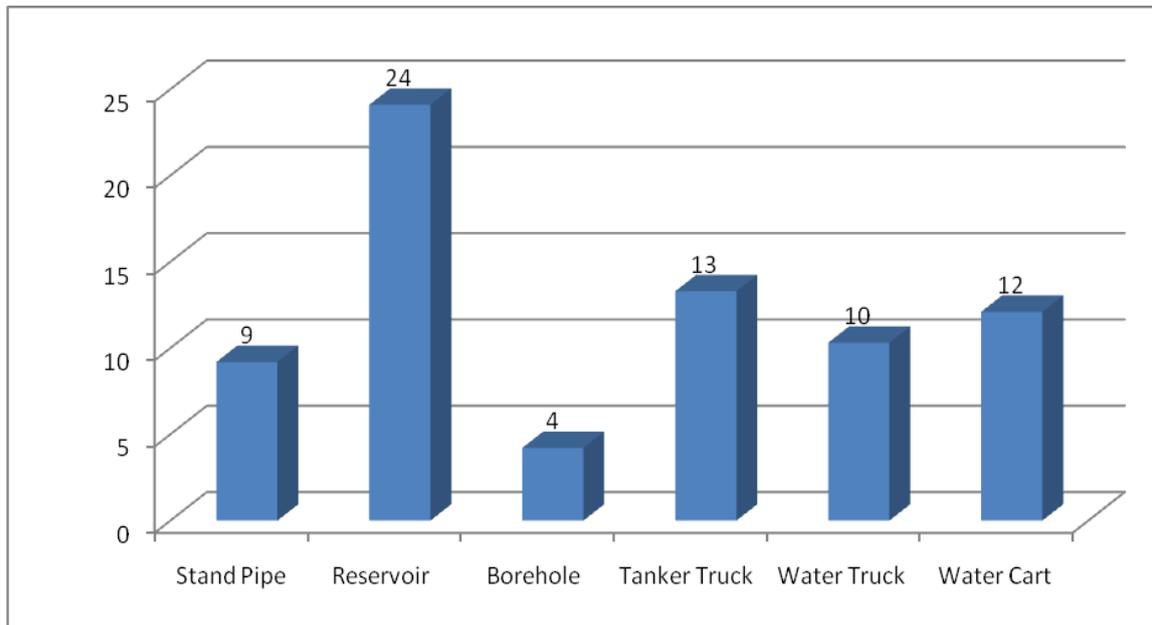


Figure 6.1: Average Poverty Premium on Water across Vendors

Source: Field Survey, 2013

It is interesting to note that poverty premium among borehole vendors (3.96) was the lowest although the results of the household survey revealed that borehole was not the preferred source of water for domestic purposes due to its high salinity level. In fact, less than 9% of the households surveyed sourced water from borehole. Stand pipe which was the preferred source of water for domestic purposes by households in areas where water flowed through the pipes (Akweteman and La Old Town) had the second lowest poverty premium.

6.5 Reasons for Entering Business

The water vendors gave four main factors that motivated them to enter the water vending business. These were joblessness, community need, profitability of the business and inheritance. Community need was the leading reason (43.6%) given by reservoir vendors for starting the water business. In fact, all the fixed point water vendors mentioned community need as the main reason for entering the water vending business. In contrast, more than 57% of the mobile water vendors reported joblessness as the main reason for entering the business. This is illustrated in Table 6.4.

Table 6.4: Reasons for Entering the Water Vending Business in Percentages

Reasons	Stand Pipe Vendor	Reservoir Vendor	Borehole Vendor	Tanker Truck	Water Truck	Water Cart
Joblessness/Needed Income	34.6	30.4	25	57.1	66.7	66.7
Community Need/Neighbour Needed	38.5	43.6	75	14.3		
Profitable Business	23.1	21.7		28.6	33.3	33.3
Inherited Business	3.8	4.3				
Total	100	100	100	100	100	100

Source: Field Survey, 2013

6.6 Perception of Households about Water Vendors

The general perception about water vendors among 243 households studied was that vendors provide useful service to the community. About 89% of the multiple responses to a question on perception on water vendors recognised the important role played by water vendors. They posited that the presence of the vendors had greatly improved accessibility to water. Moreover, the vendors offered them line of credit in times of difficulty. The respondents were however quick to add that the quality of water sold by the vendors was poor (36.8% of responses) and that their prices were also high (34.7% of responses). About 11% of the responses also perceived water vendors as having poor human relations as presented in Table 6.5. They indicated that some of the vendors insult them especially when one mistakenly spills water at the vending point when fetching the water. Moreover, some of the vendors do not help them to carry their containers of water.

Table 6.5: Households Perception about Water Vendors

Perception	No. of Responses	%
Provision of useful service	215	88.5
Poor quality of water	89	36.6
High cost of water	84	34.5
Poor customer relations	27	11.1
Total Respondents	243	

Source: Field Survey, 2013

6.7 Satisfaction with the Services of Water Vendors

The generally positive perception of households on water vendors was translated into satisfaction with their services by the household studied. More than half (54%) of the households indicated that they were satisfied with the services of water vendors. Another 9% were very satisfied with their services. Only about 9% of the respondents were either dissatisfied or very dissatisfied with the services of water vendors. In Akweteman, 65% of the households were satisfied with the services of the water vendors, whilst another 14% were even very satisfied with their services. This is not surprising as water vendors in Akweteman are predominantly (86%) stand pipe vendors who have a relatively lower price and also adjudged by the vendors as the preferred choice of their customers.

About 55% and 52% of the households in Adenta Village and La Old Town respectively were either satisfied or very satisfied with the services of water vendors. A significant percentage of the households in La Old Town (36%) and Adenta Village (37%) were neither satisfied nor dissatisfied with the services of the water vendors as depicted in Figure 6.2.

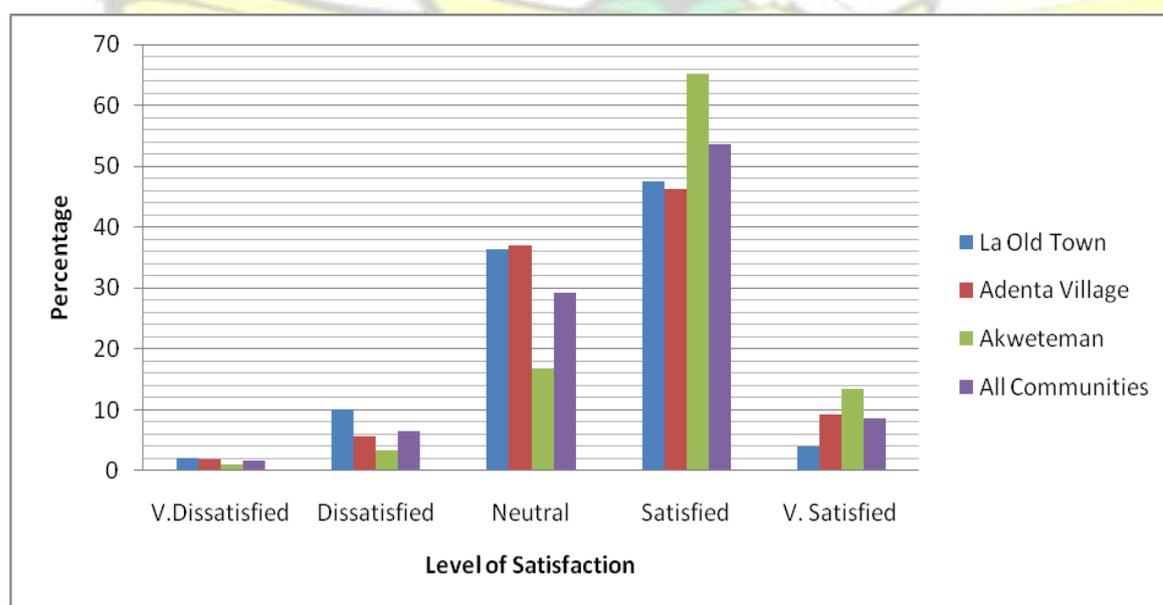


Figure 6.2: Households Level of Satisfaction

Source: Field Survey, 2013

This probably explains the relatively lower rate of satisfaction with the services of water vendors among households in these communities compared to those in Akweteman. It may also be the result

of the predominance of reservoir vendors in the communities which according to the results of the survey dispense water of doubtful quality and also has higher poverty premium.

6.8 Status of Water Vendors

Water vendors in the study communities operated as informal businesses. The data showed that majority of the vendors had not registered their businesses as shown in Figure 6.3.

When the vendors were asked why they had not registered their business, they offered two main reasons. About 63% of the multiple responses cited ignorance as the reason for not registering their businesses, whilst another 39.5% of the responses alluded to the small nature of business of the vendors as the cause.

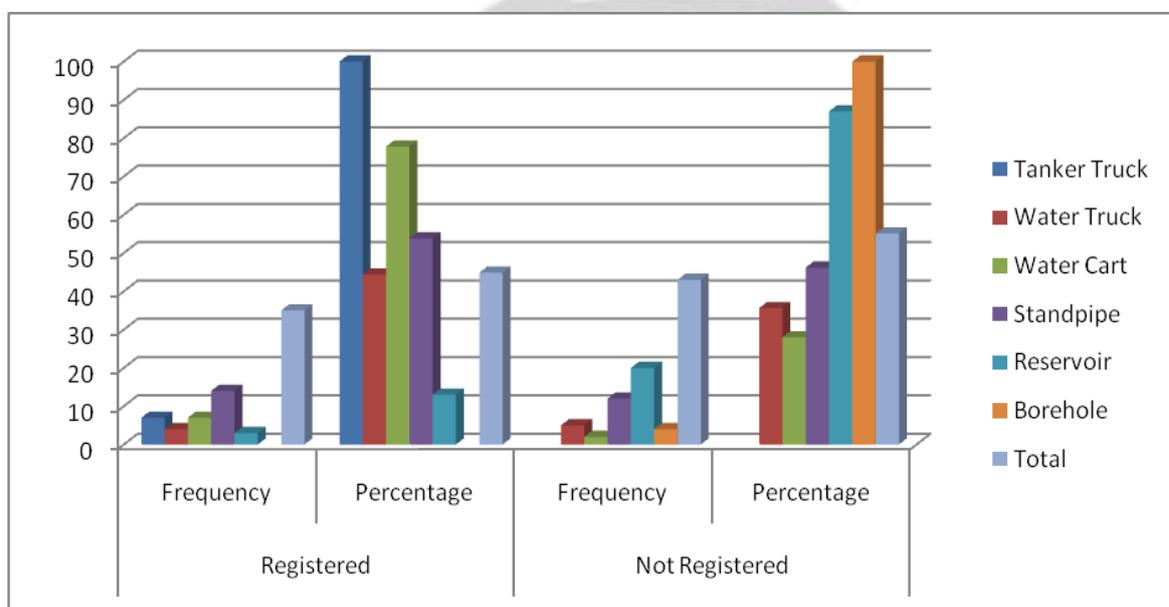


Figure 6.3: Registration of Business

Source: Field Survey, 2013

The data further showed that 54.3% and 45.7% of the vendors who professed to have registered their businesses did so with the GWCL and Metropolitan/Municipal Assembly respectively. None of the vendors mentioned the Registrar General Department as the place of registration of their business.

All the vendors who normally sourced their water from GWCL network, mainly the standpipe and some reservoir operators equated having legal connection from GWCL network and payment of water bills to GWCL to registration of business with the entity. All the water truck and water cart operators and 57.1% of the tanker suppliers who had registered their businesses mentioned the Metropolitan/Municipal Assemblies as the licensing authority.

However, discussion with officials of the Metropolitan/Municipal Assemblies in the study communities revealed that the water vendors had not been officially registered by the Metropolitan/Municipal Assemblies. The officials indicated that although they collect business operating licensing fees from some of the mobile water vendors that did not constitute registration of business. An official of GWCL also disclosed in an interview that although the company does not register water vendors they recognize them especially tanker operators. He stated that ‘_tankers are operated by Associations and we recognize them. We have recognized tanker filling points where we sell water to them at PURC price. They are actually filling a gap so we recognize them. GWCL even has few tankers’.

6.9 Challenges of Water Vendors

Water vendors play a pivotal role in urban water supply especially in areas that are not served by the GWCL. Their services are actually valued by the communities in which they operate as per the results of the household survey. Their contribution to urban water supply was also recognized by officials of GWCL and GUWL. In an interview with an official of the Ghana Urban Water Limited, the entity that was formed to take over as operator and manager of urban water distribution systems after the exit of AVRL but has recently been merged with GWCL, the official acknowledged the contribution of alternative service providers in urban water supply. She indicated that water vendors are ‘_helping us to provide services. If we were able to meet the demand of the people there wouldn’t be any role for them to play, but as it stands now I think they are also helping us to meet the demand’.

The study identified three myriad of challenges confronting water vendors. These are inadequate water supply, high cost of water, and perceived harassment of mobile water vendors by personnel of the Ghana Police Service.

The supply chain of the water vendors is highly constrained. At least 50% of the water vendors acknowledged inadequate water supply as a major challenge. There was however differences in experience by the vendors in relation to water supply constraints. The standpipe water vendors and the mobile water vendors intimated that the water from GWCL network was not reliable. The mobile water vendors explained that the GWCL had closed down most of their hydrants and as a result they had to wait in queues at the few loading point for a long time before they are served. A situation they claimed compels many of them to fetch water from alternative sources such as mechanized boreholes and wells. These vendors further stressed that the water supply situation even worsens during the dry season as the yield from their alternative sources reduces leading to scarcity of water. The reservoir operators also had issues with the reliability of water supply from the mobile water vendors which is their main source of water supply. The water vendors claimed that the reliability of water supply impacts negatively on their sales as they were not able to meet the demand of their customers.

Aside the general water supply constraints, the water vendors mentioned some challenges which were peculiar to their operations. The fixed point vendors, mainly the standpipe vendor who sometimes relied on the services of mobile vendors (35% of responses) and the reservoir operators (35% of responses) mentioned high cost of water from the mobile water vendors as a challenge confronting their businesses. They indicated that the cost structure of the mobile water vendors has higher element of transport cost, operational cost, and the operator's profit which translates into higher bulk water prices and invariably higher vendor retail prices charged to the end users. Other challenges mentioned by the fixed point vendors were refusal of clients to pay for water bought on credit, refusal of family members to pay for water fetched and poor quality of water.

On their part, the mobile water vendors are constrained by perceived harassment by the personnel of the Ghana Police Service as indicated by about 60% of the responses to a question on constraints. This comprised of water truck operators (89%), motorized water cart operators (67%), and tanker truck water suppliers (14%). The mobile water vendors revealed the personnel of the Ghana Policy Service normally accost them and request for their vehicle/truck/cart registration documents and roadworthiness certificates and this usually ends up with parting of money to the police personnel involved. Another challenge stated by the mobile water vendors was long distance to water source (12%).

Additional challenges reported by the motorized water cart operators alone were lack of spare parts to repair their carts (12%) and cumbersome registration of their carts (12%).

Perhaps this explains why they felt harassed by the police.

6.10 The Way Forward

In order to address the challenges enumerated above, the respondents called on the GWCL in particular and the government in general to take steps to improve the water supply situation. They advocated for the immediate creation of more water hydrants by the GWCL to augment the number of loading points and ease the long queues at the existing loading point. They also asked for the rehabilitation of existing pipe lines and the expansion of the water supply systems in general. This they believed would improve water supply, reduce the distance to the water source, and ultimately the cost of water to the end user.

The vendors were also of the view that due to increase in population, the demand for water had increased beyond the capacity of government to solely fund the provision of water infrastructure to meet the needs of the ever increasing population. Consequently, they urged the government to encourage private sector participation in urban water supply through partnerships and granting of operating licenses and tax concession to the private sector. About 76% and 87% of the mobile and fixed point water vendors respectively called for private sector participation in urban water supply. They contended that the private sector had the financial resources to produce and distribute their own source of water such as mechanized boreholes with distribution line as done under the small town water supply system. Moreover, they deemed the private sector to be more efficient when it comes to delivery of services. They also argued that aside increasing water supply, private sector participation in urban water supply will create employment opportunities. They were however quick to add that the activities of the private water providers should be regulated by a governmental institution to ensure that the private sector produce and distribute quality water at affordable prices.

The call by the water vendors for the government to encourage private sector participation in urban water supply is very pertinent. It is in line with one of the objectives of the

National Water Policy that aims at promoting private sector participation in investment and management of water supply as a means of mobilizing investment and improving overall efficiency

(Government of Ghana, 2007). The proposition for private sector participation in urban water delivery by the water vendors is apt. Private sector participation is actually one of the elements of good pro-poor policy implementation strategies identified in the review of case studies of best practices in pro-poor water supply. It has the propensity to improve water supply to the urban poor on sustainable basis. However, private sector participation in the urban water sector should not be limited to public-private-partnerships alone. The private sector could venture into small-scale water production by themselves without public sector partnership.

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CHAPTER SEVEN: IMPLEMENTATION OF THE NATIONAL WATER POLICY

7.1 Introduction

Chapter seven examines how the National Water Policy targets the urban poor. It starts with the awareness level of the households on the National Water Policy and then takes a retrospective view of the urban water situation in the study communities. This is followed by the examination of the current water situation with the view to assessing how the National Water Policy has impacted on water supply to the urban poor. The chapter afterward presents the status of implementation of measures outlined in the National Water Policy to improve access of the urban population in general and the urban poor in particular to water supply. It ends with discussion on policy implementation challenges and ways of achieving sustainable water supply to the urban poor.

7.2 General Awareness of the Water Policy

The study revealed that the awareness level of the households on the National Water Policy was very low. Only 4.5% of the total sampled respondents (247) indicated that they had heard of the policy. The remaining 95.5% were not aware of the policy. Even those who claimed to be aware of the policy could not tell what the policy was about. The situation was even worse in Akweteman where only one out of the 94 respondents (1.1%) was aware of the policy. This could be attributed to the fact that since the formulation of the policy in 2007 no serious efforts had been made to inform and educate the beneficiaries of the policy. It may also explain why the citizenry have not been able to demand better water services from the GWCL and the MWRWH.

7.3 Water Situation before the Implementation of the Policy

This section looks at the water situation in the case study communities prior to the implementation of the urban water policy in 2008. It attempts to assess how the policy had impacted on water supply. About 72% of the responses to a question on the preintervention water situation by the households indicated that availability of water to the case study communities was a challenge. The households mentioned that there was scarcity of water in the communities with La Old Town recording the highest percentage of 78% and Akweteman the lowest with 60.6%. Aside unavailability of water, 10.1% of the respondents

revealed that water was not affordable prior to the implementation of the water policy, whilst another 4.9% of the respondents indicated that the quality of water was bad.

The focus groups also recounted the water situation in their respective communities before the implementation of the national water policy. The opinion leaders' group and the women group in La Old Town revealed that in the 1990s the community had GWCL reticulation, and water supply to the community was very reliable. It was also very affordable, accessible and acceptable. They however indicated that water supply to the community started to deteriorate in 2001, and continued to deteriorate prior to the implementation of the National water Policy. They mentioned that between 2007 and 2008 the community had serious challenges with water as water from the GWCL network to the community did not flow for months. They also reported that whilst the supply of water to the community was decreasing the cost of water was increasing at an increasing rate due to scarcity of the commodity. The participants also stated that the quality of water and accessibility to water also deteriorated, and that they had to walk for long distances and spent more time to access water of doubtful quality.

The pre-intervention water situation in Adenta Village was not different. The focus group discussants in Adenta Village also indicated that between 1990 and 2000 the community had GWCL reticulation. Water from GWCL network to the community was very reliable and virtually free. However, the flow of water to the community started to decline in 2001, and by 2007 the situation had worsened. Water was rationed to the community and people received supply at most once in every two weeks. They argued that the decline in water supply to the community impacted negatively on accessibility, acceptability, and affordability of water. They contended that the deteriorating water situation in the community resulted in the proliferation of water vendors in the community.

The study revealed that the pre-policy implementation water situation in the Akweteman area was better than that of La Old Town and Adenta Village. The focus group participants in both the opinion leaders and women groups at Akweteman attested to this. They mentioned that there was GWCL reticulation in the community prior to the implementation of the water policy and people served by GWCL's piped network received water two to three times in a week. They stated however that only few people had pipe connection in their homes and as a result majority of the people had to rely on a limited number of stand pipes in the

community for water. In view of this there were always long queues in the morning and evening at the water point, and those who could not join the queues and wait for their turn had to walk to Achimota College, a distance of about two kilometres to fetch water.

Data from the GWCL indicated that at the cradle of the implementation of the National Water Policy in 2008, La Old Town had reticulation but water was not flowing through the pipes. Adenta Village also had reticulation but experienced erratic water supply. Households in Adenta Village with pipe connection had piped water once in every two weeks. The data further showed that the water supply situation in Akweteman at the commencement of the implementation of the water policy was better than that of La Old Town and Adenta Village. Households in Akweteman who had connection to the network had two days in a week water supply from GWCL. The data from GWCL therefore affirm the accounts given by the respondents in the survey on piped water supply to their respective communities before the implementation of the National Water Policy.

7.4 Water Situation after the Implementation of the Policy

The study revealed that the implementation of the water policy had impacted differently on access to water among the study communities. Almost all (93 out of 94) the respondents in Akweteman reported that the current water situation was better. The situation in La Old Town and Adenta Village was however different. A little over half (50.5%) of the households in La Old Town declared that the current water situation was better, whilst another 46.5% stated that water supply to the community was still a challenge. The data also shows that 46.3% of the households in Adenta village asserted that there had been an improvement in the water supply to the community. Another 33.3% of the households however disagreed with the assertion that the water situation had improved in Adenta Village as illustrated in Table 7.1.

Table 7.1: Current Water Supply Situation

Variable	Household Respondents in La Old Town		Household Respondents in Adenta Village		Household Respondents in Akweteman		All Household Respondents	
	Number	%	Number	%	Number	%	Number	%
Current Water Supply is Better	50	50.5	25	46.3	93	99	168	68

Water is Still Scarce	46	46.5	18	33.3	0	0	64	25.9
Water is not Affordable	19	19.2	8	14.8	2	2.1	29	11.7
Water is not Potable	0	0	8	14.8	0	0	8	3.2
Number of Responses	115		59		95		269	
Number of Household Respondents	99		54		94		247	

Source: Field Survey, 2013

When the households were asked whether they were generally satisfied with the current water situation, the responses were mixed although 57.5% indicated in the affirmative. Almost all (89.4%) the households in Akweteman gave an indication that they were satisfied with the current water situation. However, majority of the respondents in La Old Town (61.6%) and Adenta Village (63%) stated that they were not happy with the current water situation as depicted in Figure 7.1.

The households that were not satisfied with the general water situation cited supply constraints and high cost of water as the main reasons for their position. An official of GUWL admitted in an interview that the urban poor are not satisfied with the water services. The official disclosed that most of the poor stay in areas that do not have pipedwater connection and as such will not be satisfied with water services. The official pointed out that even most of the people with connection to the piped-water network are not satisfied with water services due to the erratic nature of the water supply.

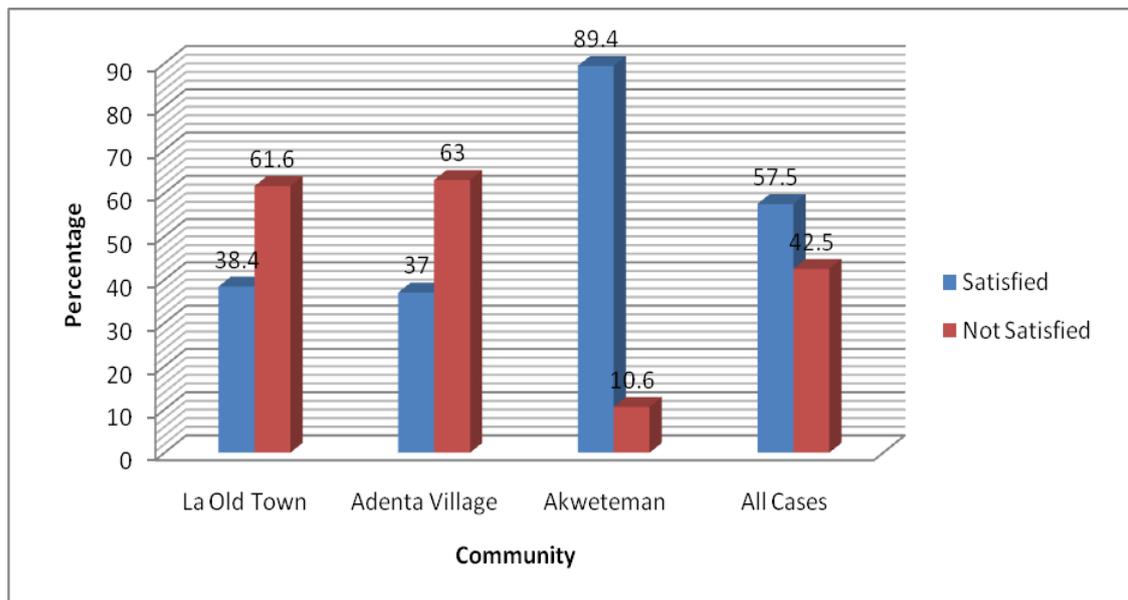


Figure 7.1: Satisfaction with Water Supply

Source: Field Survey, 2013

7.5 Willingness to Pay for Improved Service

The households did not only register their dissatisfaction with water supply, they also expressed a high desire to pay more for improved service, one that they will be satisfied with. In all, 74.9% of the households indicated their willingness to pay more for improved service.

The disaggregated data, however, painted a different picture. Whilst 87.7% and 87% of the households in La Old Town and Adenta Village respectively were willing to pay for improved water supply, only 54.3% of their counterparts in Akweteman were desirous of paying more for improved service. The difference can be explained by the fact that the residents in La Old Town and Adenta Village had a higher level of water scarcity than those in Akweteman. In the focus groups discussion in Akweteman, the participants stated that water scarcity was not an issue in that community and that the residents enjoy seven days in a week water supply. Moreover, analysis of water prices in the three communities revealed that residents in Akweteman paid the lowest poverty premium on water. It is therefore not surprising for 45.7% of the households in Akweteman to indicate that they were not willing to pay more for improved service as illustrated in Table 7.2.

Table 7.2: Willingness to Pay

	La Old Town	Adenta Village	Akweteman	All Cases
Willing to pay	87.9	87	54.3	74.9

Not Willing to pay	12.1	13	45.7	25.1
Total	100	100	100	100

Source: Field Survey, 2013

7.6 Improving Access to Water

The National Water Policy identified four main challenges in the urban water supply, namely rehabilitation and expansion of existing infrastructure; achieving equity in access to water supply for peri-urban and urban poor; improving operations and management; and reducing the high level of physical losses. To address the challenges, the policy set as its objectives to ensure sustainable financing of infrastructure deficit to meet present and future demand; and improve management and operations of the urban water sector. Four policy measures are mentioned in the policy to achieve these objectives. These are the introduction of private sector participation, rehabilitation and upgrading of reservoirs, prioritization of new investment, and extension of services to low income areas. This section dwells on the extent of implementation of these policy measures.

7.6.1 Introduction of Private Sector Participation

The first policy measure is to introduce private sector participation in the operations and management of urban water supply. The study indicates that the government in its quest to introduce private sector participation in urban water supply entered into a 5-year management contract with Aqua Vitens Rand Limited (AVRL) to operate and manage Ghana's urban water systems. The contract was signed on November 22, 2005 and officially commenced on June 5, 2006 (GWCL, 2012b). The overall objective of the management contract was —to restore GWCL to a sound financial footing and make a significant improvement in the commercial operations of the company (MWRWH, 2009:59).

The management contract with AVRL ended on June 6, 2011 and was not renewed (GWCL, 2012b). An official of the GWCL revealed that ‘the result of the AVRL management contract was not good, that was why the contract was not renewed’. This was confirmed by an official of the Ministry of Water Resources Works and Housing

(MWRWH). The official at the MWRWH indicated that ‘one of the things that the AVRL was to do was to reduce unaccounted for water but at the end of their first term of the contract,

during the evaluation it was found that, they were unable to do that work so government did not see the need to extend the contract so to speak’.

Studies by Maliha et al. (2013) however traced the perceived non-performance of AVRL to weak foundation of the management contract, among others. They observed that precontract projects and programmes such as the procurement and installation of bulk meters to measure the production and distribution of water was not done before the commencement of the contract. Moreover, there were no agreements on certain baseline concepts and terminologies such as what constitute ‘customer response time’ and even the value of ‘non-revenue water’ (Maliha et al., 2013:48-49). This revelation gives credence to the argument that successful policy implementation is contingent on the availability of clearly specified task and objectives, measureable policy indicators, and standards for measuring performance, among others, as observed in the literature (Van Meter and Van Horn, 1975; Elmore, 1978).

An official of the MWRWH disclosed in an interview that private sector participation in urban water supply was still high on the agenda of the government, and what the government did not want to do was to allow only the private sector to participate. He continued that it was the policy of the government to promote public-private-partnership (PPP) initiatives as a way of leveraging resources and expertise from the private and the public sectors to improve urban water supply. It must be indicated though the promotion of PPP in urban water supply has the potential to improve urban water supply, the government insistence of not allowing the private sector alone to participate in urban water delivery is worrying.

It was revealed during an interview with an official of the GWCL that the company had leased part of its assets to the private sector to operate in Amasaman and Ada in the Greater Accra Region and Berekum in the Brong Ahafo Region. The source also disclosed that the GWCL had entered into an agreement with a private entity to undertake a desalination project in Teshie to provide potable water to augment the water situation in

Accra under the Build-Operate-Transfer (BOT) approach. The official averred that the policy of the government in the urban water sector was to use PPP initiatives to meet the infrastructure deficit in the urban water sector and improve urban water coverage to the desired level of 100%.

The government recognizes PPP as a strategic mechanism for financing and delivering public infrastructure. Consequently a unit has been created under the office of the president which

is headed by a minister of state to promote PPP initiatives. A PPP policy has also been formulated. The PPP policy which was launched in October, 2011 has received the support of the World Bank and other development partners.

It must be indicated however that the reluctance of the government in allowing the private sector alone to take part in urban water production and distribution is at variance with the elements of good pro-poor water policy implementation as observed in the literature. Evidence from the case studies, especially the pro-poor water supply model in Lugaba, Uganda, show that partnerships need not necessarily be between the private and the public sectors. There could be partnerships between two or more private sector entities to improve water supply to the urban poor. What is important is the recognition and support of the local government.

The private sector is perceived to be more efficient in the production and delivery of some public services as per the results of the household survey. It has been argued however that the private sector is profit oriented and that goods and services delivered by the private sector may not be accessible to the poor who cannot afford to pay their market price. Therefore, in order to reduce the possibilities and intensities of market failure, there is the need for the public to partner the private sector to build a strong, effective, efficient, and sustainable public-private partnerships that would improve efficiency and at the same time safeguard the interest of the poor (Ngowi, 2008). A serious weakness with this argument, however, is that what is the guarantee that the bad influence of the public sector will not infest the private sector? Furthermore, the general notion that the public will safeguard the interest of the poor has no basis when there is endemic corruption. Moreover, the current system is wholly operated by the public but it is not working. PPP can only be supported if the issue of resources (the big purchasing power of the state) is brought into the argument.

7.6.2 Rehabilitation and Upgrading of Reservoirs

The second policy measure is to carry out rehabilitation and upgrading of reservoirs and increase their capacity, where feasible, and build new ones where required. Data available from GWCL indicate that prior to the implementation of the National Water Policy in 2008, the government through the MWRWH and the GWCL had undertaken and is still undertaking major rehabilitation and expansion works on a number of urban water supply systems throughout the country. Notable among the projects were Cape Coast Water Supply Expansion Project, Baifikrom/Mankessim Water Supply Expansion Project, Tamale Water

Supply Expansion project, Koforidua Water Supply Project, Kpong Water Expansion Project, and Kumasi Water Supply Project. Other major projects were Urban Water Supply Projects in selected urban centres including the Kasoa-Kwanyaku Water Interconnection Project, Accra –Tema Metropolitan Area (ATMA) Rural Water Supply Projects, Mampong Water Supply Project, Kwahu Ridge, Konongo, and Kumawu Water Supply Projects, and Essarkyir Water Supply Project. A number of the projects had been completed whilst others were on-going. The major rehabilitation and expansion works had increased urban water production from 217.9 million m³/year in 2007 to 254.8 million m³/year in 2012. This impacted positively on urban water coverage which increased from 56% in 2007 to 63.9% in 2010. However, due to increase in demand coupled with challenges with the Weija Water Works which had reduced its production capacity, urban water coverage started to decline in 2011. It reduced from 63.9% in 2010 to 63.4% in 2011, and then to 62.9% in 2012 as shown in Figure 7.2.

Notwithstanding the improvement in the urban water infrastructure, urban water supply is still a challenge because water supply still lags behind demand. The 62.9% urban water coverage in 2012 means that in that year 37.1% of urban dwellers in Ghana did not have access to water from GWCL network. Data from GWCL showed that as of December 2012, the water produced from the 83 urban water systems was 707,783m³/day but this was not able to meet the total demand of 1,125,253m³/day resulting in a supply-demand gap of 417,470m³/day.

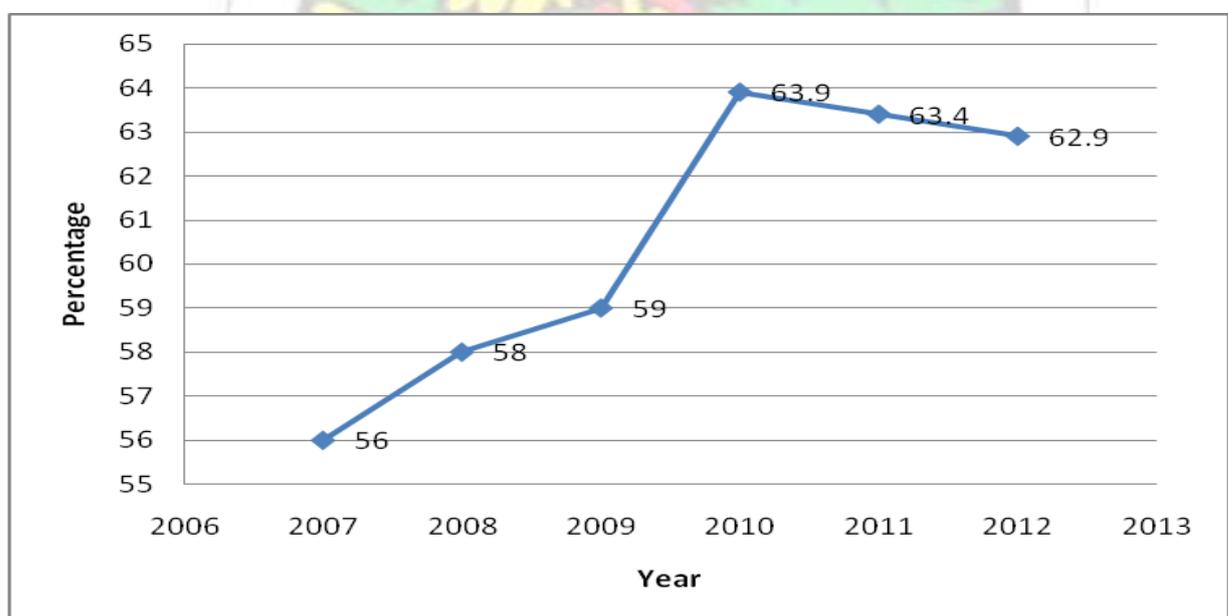


Figure 7.2: Urban Water Coverage Trend, 2007-2012

Source: MWRWH 2010; Project Planning and Development Department of GWCL

In its quest to bridge the supply-demand gap in urban water supply, the GWCL developed a Strategic Investment Plan (SIP). An official of GWCL pointed out that the SIP had identified all major rehabilitation and capacity expansion needs in the existing urban water system as well as development of new ones to meet the 2025 demand for water. He revealed that the implementation of the projects outlined in the SIP would be financed through contractor-source financing where contractor sources funds that meets Government of Ghana borrowing requirements to implement turn-key contracts; and through PPP. The official explained that 'the policy is to borrow or to guarantee external loans on concessionary terms, with a minimum grant element of 35%. Commercial borrowing will be contracted guaranteed for projects that have positive economic rate of returns'. It must however be indicated that to ensure equity and achieve the pro-poor objective of the National Water Policy, there is the need to factor in cross subsidization in the PPP arrangements.

7.6.3 Prioritization of New Investments

The third policy measure is to prioritize new investments in system extension and expansion of bulk water production based on well-established criteria that include health factors. As already indicated an official of GWCL disclosed that the company had developed a SIP which outlines priority projects. He stated that what was yet to be done was to source for funding to implement the projects. The official mentioned the Sogakope Lome Water Supply Project, Essiama Enclaves Water Supply Project, Tamale Water

Supply Project, Sunyani Water Supply Project and Sekondi-Takoradi Water Supply Project as some of the priority projects.

7.6.4 Extension of Services to Low Income Areas

The fourth strategy for improving access to water is to ensure that equitable amount of investment resources are dedicated to extending services to low-income communities. In response to a question on efforts being made by GWCL to extend services to low income communities, a respondent of the company affirmed that the company had challenges in that respect. The official stated that water supply was done by systems and that if the line passes

through a low income community that community would be served but GWCL did not have dedicated lines for low income communities. The official further stressed that low income customers cannot accumulate funds to pay at the end of the month, in view of that the company served such communities through stand pipes. In a similar vein, a respondent of the defunct GUWL in an interview reiterated that the mission of GUWL was to ensure adequate supply of water services to all urban areas in Ghana irrespective of their income status or place of residence. The respondent stated that it was even difficult to lay the distribution line into some of the low income communities due to their unplanned settlement and high population density. The official added that besides, the ‘people do not have money for new connection’.

One of the limitations of this explanation is that if the policy is to use public standpipes to reach the urban poor then the point that the poor cannot pay for new connection does not apply. It is also difficult to affirm that the urban poor are served by public standpipes as the present study revealed that none of the standpipes surveyed in the study communities was publicly owned. This cast doubt on the competences of the GWCL, the policy implementing agency, in pro-poor water service provision which is a key condition for successful pro-poor water policy implementation. The right skills and/or attitude to implement the pro-poor measures in the policy appear not to be available. This is worrying because the review of the case studies of pro-poor urban water supply, especially the Kugugube Project in Kampala, actually brought to the fore the importance of functional pro-poor units; precise targeting; in-depth knowledge of informal settlements; and strong performing utility that exudes confidence in its ability to deliver services to the poor in the provision of water services to low income area. There is therefore the need for the regulator, PURC, to compel GWCL to establish functional pro-poor units manned by staff who are well-versed in pro-poor service delivery to ensure accurate targeting of the urban poor for water services.

7.7 Pro-Poor Water Issues

Aside the general urban water supply issues, the National Water Policy also identifies three main challenges of making the urban water sector sensitive to the needs of the poor. There are increasing tariffs to fully recover cost while paying attention to affordability particularly by the poor; achieving equity in access to water supply for peri-urban and urban poor to meet

basic needs at affordable cost; and understanding the needs of the poor and designing interventions to suit their supply and payment choices.

To ameliorate these challenges, the National Water Policy outlines as one of its key objectives to ensure improved and sustained access of the poor to water for their basic needs. In furtherance of this, five measures or strategies have been designed to achieve the policy objective. These are the adoption of a tariff structure that provides optimal benefits to consumers including low income consumers; encouraging cooperation between the private sector and small-scale independent providers; establishment of social connection fund; defining un-served zones and identification of ways of extending services to these areas; and the recognition of small-scale providers (secondary and tertiary) in the water supply chain. This section discusses the five pro-poor policy measures and how they are being implemented.

7.7.1 Tariff Structure

This sub-section presents the findings on the adoption of the tariff structure and how it is providing optimal benefit to consumers including those in the low income bracket as outlined in the National Water Policy.

Water tariffs in Ghana are proposed by the utility and approved by the regulator, PURC, after consultation with stakeholders. The PURC has therefore developed Urban Water Tariff Policy to guide its tariff setting mandate. In line with the dictates of the Urban Water Tariff Policy and in conformity with national policy for price uniformity for essential services, the PURC applies a uniform tariff structure across the country. The tariff system uses a rising block structure for domestic consumers. The rising block tariff structure has a lifeline component which is pegged at 20m³ or 20,000 litres per month for households with network connection. This is meant to ensure that poor households with network connection have access to water at affordable cost. The PURC designates 1000 litres of water as a block. At the time of the survey, the lifeline rate was GHp 129.5952 per 1000 litres for consumption between 0 – 20,000 litres. The rate for domestic consumers who use 21,000 litres and above was GHp 194.2712 per 1000 litres.

However, the results of the household survey showed that only 22.3% of the households were connected to the GWCL's network. The remaining 77.3% of the households relied mainly on water vendors for their domestic water supply at a higher cost. They paid between 4.21 to 24.10 times the prices charged by GWCL at public standpipes. Moreover, 86.2% of the 247 households surveyed lived in compound houses with an average household size and households in a house of 4.5 and of 6.2 respectively. This amounts to an average of 27.9 people per house. If on the average a person uses a minimum of 30 litres per day as stipulated by the Ghana Planning Standards, then a house will averagely use a minimum of 25,110 litres of water per month. This invariably moves them out the lifeline bracket of 20,000 litres per month even if they had access to network connection since most compound houses have only one meter. A study in Kumasi cited in Nyarko et al. (2006) revealed that the lifeline tariff did not benefit poor households living in compound houses with single meter since their total consumption per month exceed the lifeline threshold.

There was unanimity on the ineffectiveness of the lifeline tariff as a pro-poor measure among the key stakeholders interviewed for the study. They contended that the lifeline tariff rather benefits the rich but not the poor since the poor mostly lived in compound houses. An official of GUWL which has now been merged with GWCL lamented that:

‘The lifeline tariff was meant for the poor but it is not being accessed by them. They are not enjoying it. It is the rich who live in single apartments who enjoy it. So in my view, the progressive rate of tariff has to be abolished. We have to look for solutions that will target the poor people including the tariff structure’.

The PURC also recognizes that the lifeline tariff was not an efficient mechanism for delivering affordable water to the poor as majority of them were not connected to the pipe network. The commission therefore indicated in its Urban Water Tariff Policy to ‘replace the lifeline tariff with a more appropriate pro-poor tariff arrangement at some time in the future’ (PURC, 2005b:7). However, almost a decade after the realization of the ineffectiveness of the lifeline tariff structure in targeting the poor, nothing concrete has been done to change it to a better system. This finding underscores the importance of dedicated pro-poor unit with a clear cut mandate to accurately target the urban poor for tailor-made water solutions as espoused in the review of case studies of pro-poor urban water supply in developing countries.

7.7.2 Cooperation between Private Operators and Small-Scale Providers

Another strategy outlined in the National Water Policy to facilitate adequate provision of safe drinking water to un-served and under-served areas is to encourage cooperation between private operators and small-scale independent providers rather than grant exclusivity to either party. This has however not been implemented. Officially, there was no private operator involved in the urban water provision. The GWCL was the only statutory body responsible for producing and distributing potable water to the urban population in Ghana.

It was however observed during the study that small-scale private water providers had emerged in the urban water sector, albeit un-officially. It was observed that private individuals had drilled and mechanized boreholes and were selling water to both secondary suppliers such as tanker trucks, water trucks, and motorized water cart operators, as well as other end users. In fact, the activities of small-scale independent water providers were rife in Accra as per the results of the survey of water vendors. Data gathered from 25 mobile vendors during the study indicated that 72% of them depended on private mechanized boreholes as their main source of water supply.

Separate interviews held with the policy makers, policy implementers and other stakeholders in the urban water sector revealed that they were aware of the presence of the small-scale independent water providers who were operating un-officially in the system.

In a response to a question on the role of the private sector in urban water supply, an official of PURC stated that:

‘Currently there is no private sector organization officially working in the system. We have heard of people who have dug their own boreholes in places like Bogoso, Sunyani, and Tarkwa and are selling water but currently there is no private sector’.

The official of the commission continued that the commission regulates only the GCWL in the water sector but there were plans to initiate public-private partnership projects and cited the on-going Teshie Desalination Project as an example.

The presence of un-official small-scale independent water providers in the urban water sector was confirmed by officials of GWCL, CONIWAS, and GUWL. The officials further expressed concern about the unregulated nature of the activities of the small scale water providers and called for the regulation of their operations.

An official of GUWL, for example, acknowledged the role of small-scale water providers in the urban water sector but expressed concern about the unregulated nature of their operations. The official indicated that:

‘Even though we do not have to lose sight of the role that alternative service providers are also playing in the sector but they are on their own. Nobody is regulating them. If we really want these other actors to be seen as providing an essential service then they all have to come under the regulatory body for PURC to regulate them. Like we can even talk about water sachet producers as providing a vital service but who is regulating them? They are not being regulated. So it will be important to bring all of these bodies under one umbrella’.

7.7.3 Establishment of Social Connection Fund

The establishment of a social connection fund to support the connection of low-income consumers to the utility’s network was another policy measure outlined in the policy to improve water supply to the urban poor. This section looks at the status of implementation of the social connection fund.

The social connection fund which was meant to subsidize the connection of poor households to the network has not been implemented. Prior to the launching of the policy in 2007, the PURC, the regulator, which was also party to the formulation of the policy, had indicated its objection to the establishment of the social connection fund. This is evident in a statement by the PURC that:

‘It is often cited that the principal barrier for the poor to access water supply is the connection charge as opposed to the volumetric unit tariff. This is demonstrated in Ghana whereby the non-serviced customers pay substantially higher volumetric rates to secondary market service providers than those connected to the GWCL system. However, in Ghana the barrier is not through customer choice but as a result of a lack of adequate infrastructure. It is considered that the full costs of connections can be met by the customers once the service is expanded to reach them. Consequently, PURC sees no need at present to cross-subsidise connection charges’ (PURC, 2005b:8).

This position was re-affirmed in an interview with the PURC. The respondent indicated that the social connection fund was something that was being practiced in Argentina and other places but not in Ghana. He stated that at the moment nothing had been done to subsidize connection for the poor to the network.

The study also found that the implementation of the social connection fund was not on the agenda of government as both the GWCL and MWRWH had issues with it. When an official of the GWCL was asked why the social connection fund had not been established, he remarked that:

‘The Urban Water Project proposed to introduce the Social Connection Fund but at the time we were doing the proposal we kicked against it because if a man can build a house he can afford a connection which is now between GHC300.00 to GHC400.00. We want the standpipe as a mode of connection because the consumers pay before they fetch the water’.

What the official of the GWCL failed to realize was that none of the sampled households had access to water from a public standpipe. Moreover, the poor are not house owners but rather tenants. It is also worth noting that the connection cost of GHC300.00 to GHC400.00 (US\$150 to US\$200) is just the official price but the bribes you actually have to pay and other ancillary cost would be several times more. This is what makes the poor consumers unable to connect. An opinion leader in La Old Town pointed out that it was very expensive to get connected to the GWCL piped network in the community. He indicated that aside the cost of a meter, one needs to buy pipes, pay the cost of excavation, and other associated costs. He revealed that a neighbour recently paid more than GHC2, 000.00 (US\$1000) to get connected to the pipe network for a distance of about 250 metres.

The finding that both the GWCL and the PURC are not interested in the establishment of the social connection fund is in agreement with a study by Van Meter and Van Horn (1975) which revealed that the disposition of policy implementers toward a policy may have an effect on their ability and willingness to implement the policy. The authors indicated that the comprehension or understanding of implementers of a policy; their response in the form of acceptance, indifference, or rejection of a policy; and the intensity of the response may affect their ability and readiness to implement the policy.

An official at the MWRWH also confirmed that the social connection fund had not been established by the government. He indicated that the government views it as discriminatory for it was not only the poor that live in places classified as low-income areas. He asserted that some people living in places like Nima and Akweteman which had been classified as low income areas were richer than some people residing in Roman Ridge which had been classified as a high class residential area.

An official of the Coalition of NGOs in the Water Sector (CONIWAS) also confirmed that the social connection fund had not been established and questioned the commitment of government to pro-poor water supply issues.

It is difficult to explain the position of the MWRWH on the establishment of social connection fund since it was the key ministry in charge of the formulation of the water policy. What has suddenly changed the position of MWRWH and for that much the government? This may be attributed to the change in government immediately after the commencement of the implementation of the policy. This is in line with Mazmanian and Sabatier (1983) that the net effect of a variety of political variables on the balance of support for a policy affects the achievement of a statutory objective. It may also be due to lack of legal structures to ensure compliance by implementing officials and target groups as observed by Sabatier (1986). There is therefore the need for a legal instrument to establish the fund.

7.7.4 Defining Un-served Zones

The national water policy, as a pro-poor strategy, also calls on the policy implementers to facilitate the defining of un-served zones and identify cost effective alternatives for progressively extending services to these areas. This sub-section takes a look at how this has been implemented.

Prior to the finalization of the National Water Policy, the PURC had outlined a number of initiatives aimed at improving accessibility and affordability of potable water to the urban poor in its Social Policy and Strategy for Urban Water Regulation. In the policy, the PURC stated its determination to take a 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 (PURC, 2005a:10). In consonance with this the PURC in collaboration with GWCL, and WaterAid undertook a pilot study on pro-poor water supply in three communities in Accra, namely Glefe, Teshie and Nima. An official of the commission reported in an interview that the pilot pro-poor project was successful as it enabled majority of people in the pilot communities who did not have access to potable water to be served either through water kiosk, standpipes or boreholes. The official indicated that the pilot project which was funded

under the Urban Water Project of the World Bank was very successful and as a result will be replicated in other deprived communities.

An interview with an official of the GUWL which has now been merged with the GWCL revealed that the pro-poor water project which the company did with the PURC and WaterAid achieved positive results. The official revealed that the GUWL/GWCL in partnership with the World Bank was about to commence the implementation of the Greater Accra Metropolitan Area (GAMA) Water and Sanitation Project which would seek to increase access of low income communities to improved water supply and sanitation in the GAMA. The official indicated that needs assessment of all the potential beneficiary communities under the project has commenced to identify the specific water and sanitation challenges of the communities and fashioned out interventions to meet their local needs. The above was summarised by an official that:

“You cannot use one size fit all like the current supply led approaches that we are using. You cannot go and lay the lines and then leave, but this time we want to do a survey of the area, map their existing water facilities, and then look at solutions that best meet their needs. We want to involve the communities, work with key stakeholders in the area, and then probably use a delegated sort of management to make sure that the people are put at the centre of their own needs‘.

It can be deduced from the foregoing discussion that the GWCL has done very little to precisely target the urban poor for water services. This may be attributed to the supplydriven approach used by the utility provider in water services delivery. There is therefore the need for the GWCL to adapt good pro-poor strategies such as encouraging active participation of communities in the design and implementation of water projects, establishment of dedicated pro-poor unit to facilitate mapping of un-served and underserved pro-poor areas for eventual targeting and service provision.

7.7.5 Recognition of Small-Scale (secondary and tertiary) Providers

Small scale water providers also referred to as secondary and tertiary providers or water vendors play an important role in urban water supply. They are actually an integral part of the urban water distribution chain especially in water stressed communities. In view of this, the National Water Policy advocated for the recognition of their role in the urban water

supply chain in order to provide them with support where necessary. This subsection highlights the extent of implementation of this policy measure.

The study found that the PURC had resolved to support initiatives that would enhance the capacity of small-scale water providers to deliver acceptable services at affordable price. The PURC acknowledged in its Social Policy and Strategy for Water Regulation that it recognises the role and importance of secondary suppliers in the water distribution chain, particularly in reaching the urban poor. It will therefore support initiatives that enhance their capacity to deliver acceptable service at an affordable price (PURC, 2005a:15). In furtherance of this, the PURC has therefore resolved to adopt innovative approaches to reaching the urban poor in the short term through various interventions to enhance the capacity of secondary suppliers to deliver acceptable service at an affordable price. The interventions include bringing tanker filling points closer to areas of need through collaboration with the GWCL; urging the GWCL to allocate a percentage (say 10%) of their production to secondary providers; and promoting co-operation between the utility and secondary providers in safeguarding the quality of service given to consumers (PURC, 2005a).

The study showed that both the policy formulators and implementers recognize the role and contributions of water vendors in urban water supply especially to the un-served and under-served areas. The PURC had developed tanker guidelines and liaised with the GWCL to establish designated tanker service points where tanker operators and other motorized mobile water vendors fetched water at PURC's approved rate to service their clients. In 2008, the AVRIL in partnership with GWCL and the MWRWH in response to acute water shortage in Accra, especially in La, Teshie, Osu, Adenta and its environs used the services of tanker operators to supply water to the water stressed communities.

The above notwithstanding, the data gathered from participants among the water vendors indicated that the supply chain of the water vendors was highly constrained. The vendors complained of inadequate access to water supply. The vendors revealed that the GWCL had closed down most of the hydrants leading to long waiting time at the few vending points. This compels some of them to fetch water from alternative sources of doubtful quality such as wells and washing bays. It was however revealed in an interview with the PURC that the directive for the closure of the hydrants was from the national security. The commission

explained that people in the areas where the hydrants were sited complained that the operation of the hydrant was impacting negatively on the flow of water in their area, in view of this the national security came out with a directive to stop the hydrants from operation. The commission was disappointed with the closure of the hydrants and sees it as an infringement on their duties. An official of the commission lamented that

PURC was poised to ensure access of tanker truck operators to quality water _but here is the situation that officially at the upper level a decision has been taken to stop them from getting water‘.

As already indicated, the results of the household survey showed that generally households have positive perception about water vendors but they had issues with the quality of their water. Although PURC indicated in its Social Policy and Strategy for Water Regulation to institute appropriate measures to regulate the quality of water of secondary suppliers (PURC, 2005a), it is having challenges in safeguarding the quality of water supplied by water vendors. Aside the closure of some hydrants, the commission indicated in an interview that some of the tankers did not belong to the association so it was difficult to ensure the quality of water supplied by them. An official of the commission queried _if you see a tanker and you ask and he says I am carrying the water to a construction site how can you tell whether what he is saying is true or not?‘ He said the commission was planning to have water tanker suppliers inscribe _drinking water‘ on their tanks so that they could in a way be checked. He therefore called for the support of the public to patronize water from tankers with the drinking water inscription on them when it is finally implemented. He could however not give a timeframe for the implementation of the policy.

7.8 Policy Implementation Challenges

The urban water policy provides a comprehensive framework for the provision of water services in urban areas of Ghana. However, the implementation of the policy has been slow especially with regards to water supply to the urban poor due to a myriad of factors. This section looks at the key implementation challenges of the urban water policy which is militating against urban water supply. It has been organised under seven main themes namely inadequate investment, operational inefficiencies, poor corporate governance, and poor urban planning and urban sprawl. The rest are commitment to policy implementation, frequent power outage and critical media reportage.

7.8.1 Inadequate Investment

The study revealed that the GWCL is challenged when it comes to investment in infrastructure to expand its capacity to meet present and future demand as stipulated in the National Water Policy. It was observed that the level of investment in the urban water sector was inadequate and as a result water supply had not been able to keep pace with demand. It has been estimated that about US\$100 million per year has to be invested in sector infrastructure development in order to achieve the desired coverage levels over time (GWCL, 2012 c). According to the GWCL's Strategic Investment Plan about \$717 million will have to be invested in water production to help increase current urban coverage to about 100% by 2025 (GWCL, 2012c). An official of the company confirmed that there was a shortfall in supply. This was attributed to low production capacity of the company and ever increasing demand by domestic, industrial, and commercial users of water. The official said that the level of investment in the urban water sector is not adequate and that has resulted in low production capacity of the company. The official further explained that the shortfall in supply had compelled the utility to ration water. The households also identified inadequate investment to expand urban water infrastructure as a major cause of poor water supply to the urban poor. According to the respondents who held this view, the level of investment in the urban water sector especially water supply to poor urban communities was very low. The low level of investment in the urban water sector was corroborated by the MWRWH and CONIWAS during key informant interviews. They indicated that budgetary allocation by the Government to the water sector was low.

Aside the small size of the budget, even the little amount that was allocated to the water sector in the annual budgets was not fully released by the Ministry of Finance and Economic Planning. In 2008 for example, an amount of GHC 29,341,000 was approved for allocation to the GWCL, however only GHC4,197,095 representing about 5% was released, whilst in 2009 the government released only 23% of the approved budget of GHC 11,794,000 to the GWCL (MWRWH, 2009). The policy implementers and the other stakeholders in the urban water sector were not happy with the level of funds allocated by the government to undertake investment in the urban water sector.

An official of CONIWAS disclosed that ‘the challenge we are facing is that we can set a target in the budget but at the end of the year the releases from the Ministry of Finance to the sector ministry is a different thing’. An official of GUWL also lamented that the level of commitment by the government to water supply to low income communities was low.

The official argued that ‘if we want universal coverage for low income areas then the government should be committed to the policies that they already have on paper. You cannot formulate a policy and then no action is taken to get it implemented’.

This finding is in agreement with WaterAid (2013) findings which showed that despite the high level of commitment made by governments in Ghana, Niger, Sierra Leone, Rwanda, and Uganda to resource the water and sanitation sectors, financing is falling short of the required investment. According to WaterAid (2013) as per the Africa Infrastructure Country Diagnostic (AICD) benchmarks, each country requires annual investment of 3.5% of GDP in the water and sanitation sector to achieve the MDG targets for water and sanitation. However, none of the countries have since 2008 invested more than 1.5% of GDP in the water and sanitation sector. The findings also support earlier studies that espouse the centrality of resources in policy implementation (Van Meter and Van Horn, 1975; Bhuyan et al., 2010; Thomas and Grindle, 1990; Rothstein, 1998; Buabeng, 2010). Rothstein (1998) for example, argues that effective and successful policy implementation is contingent on significance of resources allocated for the implementation of the policy.

In response to a question on why the government had not achieved the policy objective of ensuring sustainable financing of the infrastructure deficit in the urban water sector to meet present and future demand, an official at the MWRWH revealed that:

‘The quantum of money that you require to be able to do enough projects in the water sector is not there. Government has to borrow and then pay. Government has to look at its strength, its ability to borrow the funds and then make payment. So government hesitates to take more loans. For example, there is a project in the Central Region that has been done and up to a point the contractor realized that, they needed just about some 2 million Euros to be able to extend the network to cover many communities but we have not been able to source any funds’.

The official further revealed that the MWRWH was planning to set up a National Water Fund to finance the implementation of water projects but the idea has been shelved. He explained that due to an avalanche of funds such as the National Health Insurance Fund, Ghana

Education Trust Fund, Communication Fund, among others the government had issues with the proposal on the grounds that it would overburden the citizenry since ‘every fund is a kind of tax’.

Availability of resources is a necessary condition for successful policy implementation (Ripley and Franklin, 1986). Also Scott (2003), Hewlett and Ramesh (2003), Grindle (1980), and Van Meter and Van Horn (1975) have all under scored the significance of resources to effective policy implementation. The low budgetary allocation to the urban water sector and the subsequent inadequate investment therefore has the tendency to negatively affect the implementation of the measures outlined in the policy.

7.8.2 Operational Inefficiencies

Another major challenge identified in the urban water sector was operational inefficiencies which had resulted in high Unaccounted for Water (UfW). The UfW is the difference between the volume of water produced and the volume supplied/distributed by the utility. Normally it would be expected that, when a water system is efficient and effective, the volume of water produced should relatively be the same volume supplied/distributed to consumers. This is however not the case due to commercial losses (water theft, metering errors, and billing anomalies) and physical losses (pipe breaks and leaks, house connection leaks and storage overflows). Since it is almost impossible to eliminate cases of UfW, the industry regulator has benchmarked for the GWCL not to exceed 45% (PURC, 2013) although in other jurisdictions in Africa such as Kenya the acceptable level of UfW is not above 25% (Mwangi, 2009).

The above notwithstanding, available data from the GWCL showed that UfW had been hovering around 50% since 2007. The volume of water produced by the GWCL in 2007 was 217.9million m³, however only 103.9million m³ was supplied to customers. This means that the 114 million m³ (52.3%) of water produced in 2007 was not supplied and could not be accounted for. In 2012, GWCL produced 254.4million m³ of water and supplied only 131.78million m³ to customers giving a 48.20% UfW. In order words, 122.62million m³ of water produced in 2012 was not supplied to consumers and thus could not be accounted for as depicted in Figure 7.3

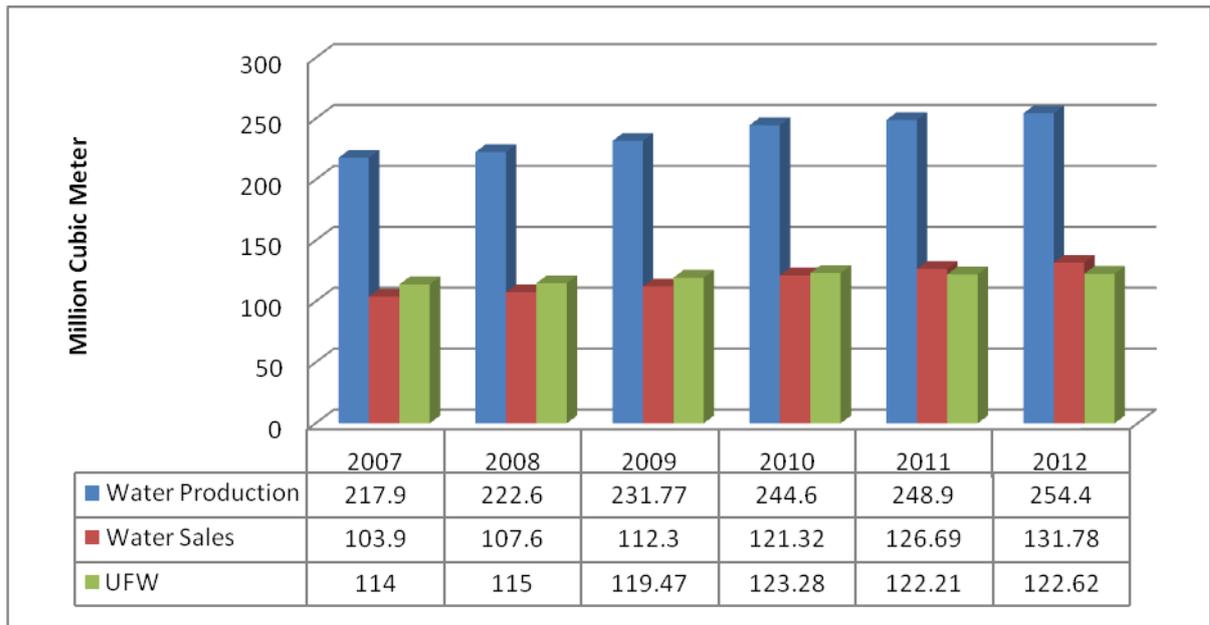


Figure 7.3: Water Production and Distribution by GWCL

Source: MWRWH 2009; Project Planning and Development Department of GWCL

It is worth noting that the volume of water produced but not supplied to customers is almost equal to the volume of water produced and supplied. In other words about 50% of water produced is not supplied. This means that if UfW is reduced to the barest minimum, urban water supply would be greatly enhanced and the urban water sector could be self-sustaining. The GWCL would be able to rake in more revenue to undertake capital investment without recourse to the government and the development partners.

An official of GWCL attributed the high rate of UfW to over aged infrastructure. The official revealed that the company was making efforts to reduce the UfW through rehabilitation, repairs, and replacement of defective components under their routine operation and maintenance budget. About 50% of the respondents also attributed the operational inefficiency which has resulted in the poor urban water supply to over-aged infrastructure. About 50% of the households disclosed that some of the distribution lines which were laid before Ghana attained independence were still in use. They indicated that the over-aged distribution lines leaked when water passes through due to rust and breakages. They asserted that when such distribution lines are detected instead of replacing or repairing them the GWCL rather blocked water from passing through them, thereby denying people served by

such lines access to water. This assertion was validated by focus group participants in La Old Town and Adenta Village.

CONIWAS however ascribed the high level of UfW to management inefficiencies in the urban water system. An official of the organization pointed out that though GWCL had argued that they were not getting the right tariff to enhance their operations, the issues bother on inefficiencies in the system. He questioned the basis for the high level of UfW and quizzed that ‘_how can you produce 100% and say 50% is unaccounted for? Who should pay for that 50%?’ This could only be attributed to operational inefficiencies on the part of the GWCL. The official further indicated that the utility was not operating efficiently and that ‘_anytime they increased revenue it came at the back of increase in tariffs. Look at their financial profile or portfolio and anytime they have increase in revenue it is because of increase in tariffs. It means they do not have any efficient mechanism to reduce cost and increase revenue’. The official pointed out that if the utility provider could reduce the UfW by 5% every year or even between 2% to 5% they would be discovering gold. The high level of UfW also raises doubt about the competence of the utility providers which is a critical condition for effective policy implementation.

An official of the MWRWH corroborated the position of CONIWAS. He indicated that the UfW was about 49% and that if we were able to reduce it to even 40%, the 9% gap would be so much money. The official also touched on the operational inefficiencies in the GWCL and called on GWCL to prop up the administrative competencies. The official argued that apart from the reduction in UfW:

‘_If you go into the company itself and they are monitoring administrative things very well, there is a lot of money that they can save and when they have all that money, there wouldn’t be the need to increase the tariff. Of course they need money but I believe that they can take the money from some other places if even they do not increase the tariff.’

The UfW is caused by physical losses, estimated to be 45% of the total UfW, and commercial losses also estimated to be 55% of the total UfW (Lievers and Barendregt, 2009 cited in Adank et al, 2011). Granted that the GWCL cannot reduce the physical losses which arise as a result of leakages, burst pipes among others and over aged infrastructure, the company should be in a position to tackle the economic losses which is mostly through illegal connections and siphoning of water when they put in place a good monitoring system. When this is done, the financial position of the GWCL is likely to improve significantly and may

reduce the dependence of GWCL on the government and the development partners for funds to rehabilitate and expand urban water infrastructure.

7.8.3 Poor Cooperate Governance

It was revealed during the study that there were challenges with the governance of the urban water sector. Although GWCL was formed to replace the Ghana Water and Sewerage Corporation (GWSC) in 1999, the company was still operating as a corporation through the appointment of Managing Directors by the government. The companies' code prescribes that a company should have a Board of Directors appointed by the owners of the company referred to as shareholders. It should also have a Managing Director who is appointed by the Board of Directors. It was however revealed during the study that the government as the sole owner of GWCL appoints both the Board of Directors and the Managing Director which has been the source of conflict in the governance of the urban water sector.

An official of CONIWAS disclosed in an interview that the urban water sector was confronted with governance and accountability issues. He pointed out that: Government appoints the board as prescribed by the company's code. Government appoints the Managing Director which is not a prescription of the company's code. So if you have a situation where you appoint a board and you appoint a Managing Director, the Managing Director is answerable to the minister or the government not the Board of Directors. So if you do not have a board that is reasonable there will always be a conflict and this is one of the problems that have happened to our sector.

The official also revealed that people are not also appointed on competitive basis and that appointment to the topmost positions in the urban water sector was shrouded in politics and that had impacted negatively on the performance of the sector. Aside political patronage in the appointment of people to key positions in the urban water sector, there was an issue of accountability in terms of performance. He further indicated that the government did not demand accountability from the actors in the urban water sector and lamented that:

We know Managing Directors sign performance contracts administered by the State Enterprises Commission. At the end of the day, the state Enterprises Commission evaluates the performance. The State Enterprises Commission does not have teeth to bite. They send their report to the presidency where action should be taken, but ask when was the last time action was taken?

The issue of performance appraisal was not limited to only the Managing Directors of GWCL. It was revealed that the management staff of the company also did not have performance contracts based on which their performances could be realistically assessed. Moreover, the GUWL, the company that took over the operation of the urban water sector from AVRL, did not sign any performance contract with GWCL because the baseline data on which to set the performance targets were not available. An official of GWCL disclosed that GUWL argued that there was no basis for the performance contract since there were no bulk meters to measure the water produced and distributed.

The issues raised by the official of CONIWAS enumerated above were to a large extent validated by an official of GWCL during an interview. The official confirmed that the government appoints both the Managing Director and the Board of Directors although the companies' code requires that the Managing Director should be appointed by the Board of Directors. He explained that since GWCL is a wholly government company, the Managing Director is appointed by the government through the public service commission. He further indicated that 'the Managing Director is answerable to the government but reports straight to the board and to the minister. The government appoints the Board of Directors because it is the sole shareholder but we have a situation where the president appoints the board and the Managing Director and there are issues and difficulties'. He disclosed that 'the people appointed by the government as Board of Directors do not have a clue about water business and this does not help our course'. He therefore called on the government to appoint more technocrats like engineers, accountants, among others as Board of Directors in addition to whoever they want to appoint as a board member. He also indicated that Managing Directors of the company should also be appointed through a competitive process.

In respect of the refusal by GUWL to sign the performance contract, the official confirmed that the draft contracts were not signed due to non-availability of bulk meters to measure performance and disagreement on which company should control the revenue from water supplied. The official explained however that although there was no strict regime of penalties and rewards, there are targets outlined in the business plans of GUWL at the regional level upon which performance was assessed.

When an official of the MWRWH was confronted with the seemingly management crises in the urban water sector it was disclosed that government was aware of the management challenges in the urban water sector and was working to ameliorate the situation. The official stated that:

‘When it comes to management, yes government has been very much aware. I think as a PhD student if you had followed the statement by the president, you should also be able to put something in your document that the president has said that he has found challenges with the management of the company. Now there have been plans to improve the urban water sector and through this, a new board is being put in place. Definitely, government will have to play a role in the selection of the board. Then the arrangement is that when the board is in place, the board should now source for the Managing Director and his deputies and when the Managing Director and the deputies have been poached they will also help the board to put in place the other officers of the company. We also have an arrangement with the State Enterprise Commission where they give you some targets to meet. At the moment, we are moving to a new level where these people are going to sign performance contracts with the board’.

The official of the MWRWH confirmed that GWCL and GUWL were being merged and that the later had moved to join the former. It was also disclosed that although the legislative instrument had not been rectified yet whatever proposal that the ministry had submitted to the government on the merger had been approved by cabinet.

The issue of the political interference in the appointment of key staff of the urban water institution is worrying. It has the tendency to lower the moral of implementers and affect their ‘disposition’ towards the implementation of the policy (Van Meter and Van Horn, 1975:472-473).

Political patronage in the appointment of top officials of urban water sector institutions became a topical issue in March 2013 when a former Minister of the MWRWH accused the then Managing Director of GWCL of corruption and mismanagement. In a media banter, the Managing Director also accused the former minister of plotting to remove him from office due to his perceived political affiliation and uncompromising attitude. In one of the media encounters, the Managing Director stated that ‘the fact of the matter is that he (the former minister) consciously goes about telling people that I am an NPP element in

Ghana Water. I would sabotage the government and for that matter he must flush me out’ (Mordy, 2013:1).

Equally worrying is the lack of mechanisms to measure performance of the implementing agencies since performance measurement and monitoring are success factors in policy implementation as highlighted in the literature and the conceptual framework for the study. Van Meter and Van Horn (1975:464), for example, indicated that policy implementation requires that goals and objectives be identified and measured since

‘implementation cannot succeed or fail without a goal against it to judge it’. According to the pair, for implementation to be successful there is the need for effective and wellcoordinated institutional machinery and procedures by which higher authorities may attain higher compliance on subordinates to conform to stated standards and objectives. Elmore (1978) also identified the availability and enforcement of a management plan that allocates task and performance standards to sub-units as an important ingredient for effective policy implementation.

7.8.4 Poor Urban Planning and Urban Sprawl

An official of GUWL indicated that aside resource constraints that had hampered the capacity of the utility to produce water to meet the needs of urban dwellers especially the urban poor, the unplanned nature of the low income settlements made extension of services to these areas very difficult. She argued that:

‘At the base of the challenge is the fact that production is lower than demand. Supply is lower than demand so we are not able to meet the people’s need for water. But when it comes to the poor areas, the low income communities there are specific challenges. Apart from the lack of water, these areas are haphazard in their layouts. You take Nima for example, it is very difficult to even lay the distribution lines into the community because the place is so densely populated, unplanned and there are no spaces available for pipes to pass through’.

It was also revealed by GWCL that extension of services to such unplanned areas involved high compensation cost, and that demand for compensation threatened project execution. Moreover, project affected persons held projects to ransom by insisting on payment of compensation before commencement. This position was affirmed by an official of CHF International, an NGO in the urban water sector. The official indicated that extension of water supply to the urban poor is a challenge due to unplanned nature of their settlements. He revealed that extension of piped-water network to such areas normally results in breaking down of houses to make way for the pipelines, thereby increasing the cost of connection.

An official of the MWRWH also cited poor urban planning and urbanization in general as hindrance to efficient urban water provision to meet the objectives outlined in the urban water policy. The official indicated that at the moment everybody wants water but we are not able to meet the demand due partly to urbanization and poor planning. The official posited that ‘even the planning system we have in the country makes it difficult for you to extend water because instead of Accra to grow vertically, Accra is growing laterally, and so as Accra grows laterally, it means that we have to extend the network over a long distance, so these are some of the basic challenges that we have’.

About 13% of the households also argued that population increase and the resultant urbanization was the cause of poor water supply to the urban poor, especially those who live in the peri-urban areas. The respondents explained that Accra had expanded laterally due to rapid urbanization; however GWCL had not been able to increase water supply to meet the increasing demand which had resulted in poor water supply in Accra and its environs especially the low income areas and the peri-urban settlements. This view was also shared by the participants in the focus group discussions. The focus groups partly attributed the scarcity in Accra especially to the peri-urban areas to population increase and urbanization.

This is not surprising since until 2012 Ghana did not have an urban policy which would have promoted a sustainable, spatially integrated, and controlled development of urban settlements with adequate provision of housing and services.

7.8.5 Commitment to Policy Implementation

It emerged from the interviews with the stakeholders in the water sector that in theory there is strong commitment to improve access of the urban poor to water supply but this has not been translated into policy implementation. It was evident that there was commitment to improve access of the urban poor to water as per the strategies outlined in the National Water Policy. However, the challenge has been the translation of the policy measures into action by the government and other key policy implementers. Moreover, the resources allocated for the implementation of the policy were inadequate and at times the flow was erratic as already indicated. An official of GUWL was of the view that the level of commitment by the government to water supply to low income communities was low.

The official indicated that ‘if we want universal coverage for low income areas then the government should be committed to the policies that they already have on paper. You cannot put it on paper, document it and then no action is taken to get it implemented’. An official of GWCL also reported that the support by the government for water infrastructure investment was inadequate. An official of the MWRWH attributed the relative lull in the implementation of the National Water Policy to financial constraints on the part of the government.

The households also blamed the poor access of the urban poor to water supply on perceived government insensitivity to the plight of the poor. About 13% of the respondents argued that the government did not have the interest of the poor at heart hence the low level of investment in water supply to poor neighborhoods. It emerged during the focus group discussions that the communities perceived that the government was not committed to pro-poor water supply issues. Some of the focus group participants in La Old Town and Adenta Village indicated that their water supply situation would have been solved if successive governments had been committed to the plight of the poor.

One is tempted to believe that the issue is not just lack of resources; it may also be on lack of commitment as espoused above. It is an undeniable fact that successful policy implementation is contingent on availability of resources, both human and financial. According to Buabeng (2010) resources are vital in policy implementation because the sufficiency or otherwise of both human and financial resources for the implementation of policy may correlate with the level of effectiveness of the policy implementation process.

7.8.6 Frequent Power Outage

The study also identified frequent power interruption as one of the constraints to urban water supply. An official of the MWRWH argued in an interview that water production and distribution is subject to availability of power supply. He stated that the frequent power interruption was having a telling effect on water production and distribution. The official indicated that ‘one key issue is that water supply is dependent on electricity supply but the GWCL does not have a dedicated electricity line. In view of this the company can only pump water when there is electricity supply’. This finding is consistent with a study by Kanin (2010) which indicated that water production is contingent on stable power supply and that frequent power interruptions result in substantial loss in water production figures. Kanin

(2010) further revealed that an hour of power outage at the Weija Water Works which has a capacity of 42 million gallons a day, results in a loss of almost 2 million gallons of water.

7.8.7 Critical Media Reportage

Media reportage that whips up public sentiments against the utility and the regulators also came up as a factor hampering the smooth implementation of the National Water Policy. This was articulated by the MWRWH. According to the MWRWH, people who ought to know better about water issues deliberately distort facts and put it into the public domain to incite the public against the utility and the water directorate. An official at the MWRWH cited the recent media reportage on the use of expired alum by GWCL as a classic example. The official explained that:

Alum is a kind of salt and alum as a salt does not expire..... So if alum has stayed for even five years and you are using it, the only thing is that you may use more of it to achieve the result that you want. So if somebody clandestinely goes to write that Alum has expiry date and then it creates problem and then they say that now GWCL is killing Ghanaians softly by using expired alum. Then people say we will not drink Ghana Water Company water anymore. So these are some of the challenges that we have in the water sector‘.

It must be indicated that due to the media reportage, the Minister of WRWH commissioned an investigation into the matter. It was established that the GWCL actually used expired aluminum sulphate to treat water; and four officers at the GWCL and GUWL were interdicted for their roles leading to the importation and use of expired Aluminum Sulphate in treating water in the country (Nanor, 2013).

7.9 Towards Sustainable Water Supply to the Urban Poor

When the 247 households were asked to mention two ways by which water supply to the urban poor could be improved on sustainable basis, five main proposals were put forward. These are rehabilitation of urban water infrastructure, expansion of water supply infrastructure, increased commitment by government to pro-poor water supply and private sector participation in urban water supply.

Over 57% of the responses called for the rehabilitation of the distribution lines in order to improve operational efficiency of the public utility. The households contended that the

distribution lines were old and weak and as a result a lot of water is lost during distribution. They stated further that the GWCL in its quest to reduce operational losses cut water supply to such areas. They therefore urged the GWCL to undertake massive replacement of the distribution lines to improve urban water supply in general and water supply to the urban poor in particular.

Another 28.7% of the respondents also wanted the GWCL and the government to invest more in urban water infrastructure to rehabilitate the existing urban water systems and build new ones to expand urban water supply. The respondents were of the view that when the urban water systems are expanded it would increase the productive capacity of the GWCL to meet the water needs of the urban poor especially those in peri-urban areas.

A third major proposal put forward by the households was that the government should stop paying lip services to pro-poor water issues and be more committed to the course of the urban poor when it comes to water delivery. Nineteen percent of the responses articulated this position (See Table 7.3).

A sizeable percentage of the responses (11.3%) also advocated for private sector participation in urban water supply. The households were of the view that private sector participation in urban water supply would improve water supply to the urban poor on sustainable basis.

In addition, the respondents also advanced five proposals which received less rating. These are promotion of community participation in urban water delivery, upgrading of unplanned settlements to facilitate extension of water services to such communities, proactive leadership at the local level to champion the course of the citizenry, improving the quality of water supply, and non-politicization of water issues.

Table 7.3: Enhancing Water Delivery

Variable	La Old Town		Adenta Village		Akweteman		Total	
	Number	%	Number	%	Number	%	Number	%
Rehabilitation of Distribution Line	61	61.6	27	50	53	56.4	141	57.1
Expansion of Water Infrastructure	28	28.3	19	35.2	24	25.5	71	28.7

Increased Commitment by Government	17	17.2	17	31.5	13	13.8	47	19
Private Sector Participation	20	20.2	3	5.6	5	5.3	28	11.3
Improved Community Participation	3	3	3	5.6	7	7.4	13	5.3
Upgrading of Settlements	4	4	5	9.3	3	3.2	12	4.9
Proactive Local Leadership	2	2	3	5.6	7	7.4	12	4.9
Improving Water Quality	2	2	5	9.3	3	3.2	10	4
Non Politicization of Water Issues	4	4	0	0	1	1.1	5	2
Total Respondents	99		54		94		247	

Source: Field Survey, 2013

7.10 Conclusion

It can be inferred from the foregoing analysis that there is a strong desire to improve access of the urban poor to water supply on paper but this has not been translated into policy implementation. The National Water Policy outlines a number of strategies to improve water supply to urban areas in general and poor urban communities in particular. However the challenge has been the translation of the policy measures into action by the government and other key policy implementers. With the exception of clearly stated policy objectives of the National Water Policy, all the conditions for successful policy implementation identified in the literature were virtually non-existent or at best inadequate to facilitate the successful implementation of the policy. Moreover, the elements of good pro-poor policy implementation strategies derived from the review of the six case studies of best practices of pro-poor water policies were not found to be present in the operations of the GWCL. It was revealed that the role of the private sector in urban water provision was widely acknowledged, however their activities were not regulated as they seem to operate on the fringes of legality. Resources allocated for the implementation of the policy were inadequate, even the little that was allocated was not fully released. This gives the impression that government is not committed to pro-poor water supply issues as espoused by the policy implementers during the stakeholders' interviews and the household heads during the household survey. Moreover, the political patronage in the appointment of the top echelon of professionals for the urban water sector and poor cooperate governance impact negatively on the performance of the key institutions in the urban water sector. Furthermore, the policy

implementer, the GWCL, was negatively disposed to the implementation of the social connection fund which is meant to subsidise connection of poor households to the piped-water network.

KNUST

CHAPTER EIGHT: DISCUSSION OF FINDINGS OF THE STUDY

8.1 Introduction

The findings of the study are discussed in this chapter. The discussion has been organised under three main sections based on the research questions for the study. These are access of the urban poor to potable water; implementation of pro-poor urban water policy measures which is preceded by the awareness level of the households about the National Water Policy; and achieving sustainable water supply

8.2 Access of Urban Poor Sectors to Potable Water

The findings with regards to access of the urban poor to potable water has been subdivided into three, namely, accessing water, level of access of the urban poor to potable water, and satisfaction of the poor with water services

8.2.1 Accessing Water

The study found that the urban poor access potable water mainly through secondary and tertiary suppliers of water, also known as water vendors. Only 22.3% of the households are connected to the GWCL network. Moreover, connection to the network does not guarantee access to water supply. In view of this, more than 78% of the households depend on water vendors for their water needs at a higher cost. It was revealed that poor households that depend on fixed point water vendors (standpipe, reservoir and borehole) pay a high average unit price of GHp21.00 per 20 litre container of water. Whilst those depending on reservoir water vendors pay the highest average unit price for water at GHp 42.17 per 20 litre container of water as indicated in Table 6.3 in chapter seven, section 6.4. The implication of this

finding is that there is no equity of access to potable water supply. This finding corroborates the findings of some notable previous works in the field (Sarpong and Abrampah, 2006; UNDP, 2006; Nyarko, 2007; Van Rooijen et al, 2008; Norström et al, 2009; and Adank et al, 2011).

According to Sarpong and Abrampah (2006), Adank et al. (2011) and UN Water (2011) poor households depend on water vendors for their water needs at a higher cost than the

PURC approved tariff due to limited access to GWCL network. On their part, Norström et al. (2009) observed that in many parts of Accra, water from water vendors is often more reliable as compared to piped water, even in some of the areas with reticulation. The high price charged by water vendors may be attributed to the investment cost which should be recouped over time and the extra operational cost they incur before they supply water to their clientele. The operational cost of the fixed point water vendors such as standpipe, reservoir and borehole water vendors include the cost of the water, as well as labour to sell the water to customers. Whilst that of mobile water vendors such as tanker, water trucks and water cart operators is made up of bulk water cost, labour cost, maintenance cost, transport cost which is contingent on distance. Nyarko (2007) also revealed that a significant proportion of the urban population without direct access to piped-water connection or standpipes rely on other informal service providers such as tanker operators, other water vendors, and independent producers at a higher cost, and often of doubtful quality. Another study by UNDP (2006) showed that the perverse principle that cuts across most countries in SSA is that the poorest people not only get access to less water and to less clean water; they also pay some of the world's highest prices due to their reliance on water vendors.

The study also revealed that sachet water is the main source of drinking water for the urban poor. About 64% of the residents depend on sachet water as their main source of drinking water. This finding contrasts sharply with the results of the 2010 Population and Housing Census (Ghana Statistical Service, 2012) which pointed out that only 28% of the residents in the Greater Accra Region use sachet water as their main source of drinking water. It however, affirms a study by CHF International which revealed that more than 56% of poor residents in Accra use sachet water as their main source of drinking water (USAID/CHF International, n.d). The discrepancy may be explained by the fact that majority of the respondents in the current study have challenges with the quality of water supply and thus are 'compelled' to drink sachet water.

The popularity of sachet water may be seen as a sign of lack of public trust in the quality of the water delivered by GWCL and water vendors. Moreover, the quality of sachet water is generally perceived to be good, even though there is evidence that some sachet water producers actually deliver water of lower quality than that of the utility (Adank et al. 2011).

Furthermore, ground water sources in Accra are generally saline and as such not suitable for drinking (Kortatsi and Jørgensen 2001). It was observed in Akweteman during the field survey that GWCL pipe distribution lines were in gutters and covered with dirt and other faecal matter which makes the water that flow through the pipe very susceptible to contamination. It is therefore not surprising that majority of the households in Akweteman use sachet water as their main source of drinking water though they have access to piped-water. Additionally, some of the households are ‘_compelled’ to drink sachet water because they do not have access to improved water sources and as such are counted among users of improved water sources (WSMP, 2009:5). A classic example is the situation in Adenta Village where 98.1% of the respondents said they use sachet water as their main source of drinking but, 48.2% of them do not have access to improved water source for other domestic purposes and are therefore ‘_compelled’ to drink sachet water.

8.2.2 Level of Access to Water

With regard to the level of access of the urban poor to potable water, the conceptual framework for the study used four main variables to define the concept of access. These are availability, affordability, accessibility, and acceptability. The results of the study revealed that according to international benchmarks, availability of water and accessibility to water by the urban poor are generally good. Drinking water sources of the urban poor are also generally good. However, the sources of water to the urban poor are not affordable. These notwithstanding, the poor feel that they have challenges with availability, acceptability and affordability of water.

The study shows that only 29.1% of the respondents consume less than the recommended 20 litres per capita per day. When the data was disaggregated however, it was revealed that the level of per capita daily consumption of water mirrors the incidence of water deprivation in the communities. At Akweteman, where water from GWCL network was reliable, only 22.3% of the households consume less than the recommended 20 litres per capita per day as against 38.4% recorded in La Old Town, a community with erratic water supply (refer to Table 5.7, section 5.3.1). This finding confirms the association between frequency of water supply and the quantity of water consumed by households observed in the literature. Lamptey (2010) for instance indicated that water consumption in Accra was influenced by the frequency of water supply with consumers under continuous flow having high per capita

consumption than their counterparts with erratic water supply conditions. A study by Andey and Kelkar (2009) also revealed that domestic water consumption was contingent on adequacy of water supply, and concluded that short duration of water supply with enough pressure can satisfy the demand of consumers better than long duration with less pressure.

The study however revealed that the minimum per capita daily consumption of 20 litres was too small and as such did not adequately measure water deprivation. It was evident that people had developed coping strategies and were economizing the use of water due to cost and availability constraints. This finding is in agreement with Sarpong and Abrampah (2006) which showed that poor households in Accra averagely used 36 liters of water per capita per day for bathing, cooking and drinking. It also corroborated the results of a study commissioned by the PURC in 2000/2001 cited in WaterAid (2012) which revealed that the majority of the poor connected to GWCL network used 35 litres per capita per day of water, whilst their counterparts who depended on water vendors consumed 15 litres per capita per day of water.

It was observed that the visible presence of water vendors in the communities had shortened the walking distance between the house and the vending point. The water source of about 95% of the households was less than one kilometer from the household; which is the internationally accepted threshold of accessibility to water (UNDP, 2006). About 83% of the households even walk for less than $\frac{1}{2}$ a kilometre to fetch water. At least 71% of the households who access water from outside their homes spend less than 10 minutes on a round trip, excluding waiting time, to access water.

However, in densely populated urban settlements, a time-use criterion seems to be a more reasonable measure of access than the standard accepted distance of one kilometre from the water source in urban settings (UNDP, 2006). This is because, despite the presence of water points close to the house, demand for water in overcrowded spaces may involve a longer waiting time to fill containers (UNDP, 2011). If the time spent at the water point waiting in line and the numerous weekly trips made by households are factored, then the total time spent per household on fetching water is significantly higher. The present findings are consistent with other studies which found that the proliferation of water vendors has improved accessibility to water. A recent baseline study by TREND Group that was commissioned by CHF International/USAID in Nima, Ayidiku and Avenor, all in Accra

revealed that at least 98% of poor households without household water source do not walk more than ½ a kilometer to access water. Similarly more than 50% of those who access water outside their house spend less than 15 minutes per round trip to access water (USAID/CHF International, n.d).

The drinking water sources are also generally acceptable. About 85% of the households used improved drinking water, but the bulk of the water, 77.3%, comes from other improved sources such as standpipes, boreholes, protected well, and sachet water. This result is in line with the results of the 2010 Population and Housing Census (GSS, 2012) which revealed that the sources of water for drinking of the majority (67.3%) of urban residents in the Greater Accra Region were from improved sources. However the percentage of people using improved water source for drinking (85%) is far higher than the 67.3% recorded by the 2010 census for the region. The high usage of drinking water from improved sources may be attributed to the high proportion (64%) of people in the study area who rely on sachet water as their main source of drinking water.

With regard to affordability, the study revealed that water was expensive to the urban poor. About 71% of the households spent above the UNDP's affordability threshold of 3% of household income on water. On the average, households spent 7.83% of their income on water which is quite close to the catastrophic spending threshold of 10% of household income (Van Doorslaer et al., 2007 cited in Mendoza, 2011:9; Xu et al., 2003 cited in Mendoza, 2008:9). The study further showed that households in Adenta Village and La Old Town spent 29.6% and 26.3% respectively of their income on water which is above the catastrophic spending threshold identified in the literature (Van Doorslaer et al., 2007 cited in Mendoza, 2011:9; Xu et al., 2003 cited in Mendoza, 2011:9). The low percentage (5.3%) of respondents who spend above the affordability threshold on water in Akweteman can be attributed to the reliable water supply from the GWCL network to the community coupled with the relatively low price charged by standpipe water vendors in the community. This implies that the price of water is influenced by the presence or absence of GWCL network, the source of water and its availability. This corroborates the findings of a study by Van Rooijen et al. (2008) in Accra which showed that the market prices of water were contingent on the availability of water infrastructure.

The study further discovered that the poor who are not connected to the GWCL pay high poverty penalty than the rich who are connected to the network due the reliance of the former on water vendors for their water needs. Households that depend on fixed point water vendors pay a mean poverty penalty of 15.29, whilst those that rely on mobile water vendors pay a mean poverty penalty of 11.50. In other words, poor households who get water from fixed point water vendors on the average pay 15.29 times the price charged by GWCL for water at public standpipes. These findings are consistent with studies by PURC (2000/2001) as cited by WaterAid (2012); (UNDP (2006); Sarpong and Abrampah (2006); Van Rooijen et al. (2008). According to a PURC survey in 2000/2001 cited in WaterAid (2012), majority of the poor connected to GWCL water supply actually spent less than 5 percent of their income and use more water, whilst their counterparts who depend on alternative suppliers consume less water and spend about 12 percent of household income on water. Another study by Van Rooijen et al. (2008) in Accra reported that poor consumers without piped connections in their homes rely on water vendors for water and pay between 4 – 18 times the normal tariffs charged by the public water company. Sarpong and Abrampah (2006) also disclosed that poor consumers served by water vendors pay up to 14 times the unit cost of water approved by the utility provider. Many of the 800,000 people living at or below the poverty line in Accra pay ten times more for their water than residents in high income areas (Ainuson, 2010).

According to UNDP (2006), people living in the slums of Jakarta in Indonesia, Manila in the Philippines and Nairobi in Kenya pay five to ten times more for water per unit than high income areas in the same cities. Not only do poor people in urban areas in developing countries pay more for their water than high income residents of the same cities; they also pay more than people in rich countries. Residents in New York and London for example pay about US\$0.50 and US\$1.60 respectively per cubic meter of water; whilst residents of poor neighbourhoods in Accra and Manila pay approximately US\$3.10 and US\$2.90 respectively per cubic meter of water as a result of their reliance on informal water providers (UNDP, 2006). These findings lend credence to a study by UNDP (2011) which showed that in situations where the poor are not connected to the utility's piped network there is a combined quality and price related poverty penalty. Moreover, since water is indispensable to sustaining life, non-usage of available water supply is generally not likely. In view of this, the unfortunate position of the urban poor in the urban water market is likely to push them into the catastrophic expenditure threshold (UNDP, 2011).

The study found that the urban poor do not have large storage facilities and thus buy water in smaller quantities. The study discovered that 96.2% of the urban poor do not have large

storage tanks and hence buy water in smaller units and store it mostly in barrels and ‘Kuffour gallons’. This finding is consistent with a study by UNDP (2011) which indicated that the price-related poverty penalty that the urban poor face in the urban water market is exacerbated by the fact that they do not have large water storage tanks and thus tend to buy water in smaller units. These findings suggest a strong correlation between poverty and water deprivation. There is however no evidence to ascertain which variable influences the other. One can therefore not conclude that people are poor because they lack water, neither can it be said that people lack water because they are poor. It has however been established that unfair water pricing has bad consequences for household poverty (UNDP, 2006).

8.2.3 Satisfaction with Water Services

With regards to the satisfaction of the poor with water services, it is somewhat not surprising to note that poor households with access to reliable water from GWCL network are generally satisfied with water supply, whilst those with erratic or no water supply from GWCL network are not satisfied with water supply. The results of the study show that 89% of the households in Akweteman, a community with a reliable flow of water from GWCL network, were satisfied with water supply. However, only 37% of the households in Adenta Village, a community currently not served by GWCL, are satisfied with water supply to the community due to their reliance on water vendors. They mentioned supply constraints and high cost of water as the main reason for their dissatisfaction with water supply to the community. The focus group participants in Adenta Village also indicated that they were not satisfied with water supply to the community because though they have reticulation, water has not flowed through the pipes for years. Moreover, their grievances on water situation in the community to the GWCL have been treated with contempt.

The situation is not different in La Old Town, a community with erratic water supply from GWCL reticulation, where only 38.4% of the households were satisfied with water supply to the community. The households in La Old Town indicated that availability of water to the community was a challenge. They mentioned that water flow through the pipes only once in a week for a very short duration. Aside this, the price of water in the community was expensive. On their part, the focus group discussion participants in La Old Town indicated that water was expensive in the community as a result of supply constraints. They averred that within a day one could buy water from the same vendor at different prices, depending on whether piped water flows to the community or not. They stated that when piped water

from GWCL is flowing water is sold at GHP30 per a 20 liter container. However the same quantity is sold at GHp50 when piped water stops flowing. In all the three case study communities, the focus group participants voiced out their dissatisfaction with water supply. They posited that the GWCL does not involve them in decision making concerning water supply to their respective communities due to lack of community participation in the urban water sector. Moreover, complaints handling mechanism of the GWCL is very week if not non-existing. This is consistent with the conceptual framework for the study which postulates that when access of the urban poor to water is improved, the urban poor will be satisfied with water supply and vice versa.

In an interview with an official of GUWL it became manifest that the utility was aware that the urban poor are not satisfied with water services. The official indicated that generally most of the urban poor are not connected to the piped-water network. Moreover, water supply is very sporadic even for those who have water connections in their homes. In view of this, the official was of the view that the urban poor are not satisfied with water services. These findings seem to confirm studies by WSP (2007) which revealed that 67% and 45% of households with access to piped water connection and households that rely on water vendors respectively are generally satisfied with the water supply. The result of the study shows the close association between reliable access to water from GWCL network and satisfaction with water services. This may be explained by the fact that water prices are generally affordable in areas with reliable water supply from GWCL network.

8.3 Level of Awareness of the National Water Policy

The results of the study show that the awareness level of the households on the National Water Policy was very low. More than 95% of the sampled population was not aware of the National Water Policy. Even those who professed to be aware of the policy indicated that although they had heard of the policy they did not know anything about it. The low level of awareness of the households on the National Water Policy could be attributed to the fact that no serious efforts had been made to inform and educate the citizenry about the policy and what it seeks to achieve since its formulation in 2007. It is therefore not surprising that the urban poor have not been able to demand better services from the utility provider.

8.4 Implementation of Pro-poor Urban Water Policy Measures

This section discusses the implementation of the policy measures outlined in the National Water Policy to improve and sustain water supply to the urban poor.

8.4.1 Status of Implementation of the Pro-poor Policy Measures

The National Water Policy outlined five key policy measures to ensure improved and sustained access of the urban poor to water supply for drinking and other domestic purposes. These are the adoption of a tariff structure that provides optimal benefits to consumers including low income consumers; encouraging cooperation between the private sector and small scale independent providers rather than granting exclusivity to either party; establishment of social connection fund; defining un-served zones and identification of ways of extending services to these areas; and the recognition of small scale providers (secondary and tertiary) in the water supply chain.

It is important to note that only three out of the five of the policy measures have been implemented with limited success. These are the adoption of a tariff structure that provides optimal benefits to consumers including low income consumers; defining un-served zones and identification of ways of extending services to these areas; and the recognition of small scale providers (secondary and tertiary) in the water supply chain. The remaining two policy measures which are yet to be implemented are encouraging cooperation between the private sector and small scale independent providers, and establishment of social connection fund to subsidize connection to poor households. The section below discusses the status of implementation of the pro-poor policy measures.

8.4.2 Tariff Structure

As already indicated, the lifeline tariff has been adopted by the PURC as a means of cushioning the urban poor against high tariffs. However, the results of the study did not show that the rising block tariff structure which has a lifeline component for households with network connection is achieving its objective. It is interesting to note that due to limited piped water coverage, majority of the households (77.3%) depend on water vendors for domestic water supply and as a result are not benefitting from the lifeline tariff. Moreover, 86.2% of the households lived in compound houses with

an average household size and households in a house of 4.5 and of 6.2 respectively. This gives an average of 27.9 people per house. This undeniably moves them out the lifeline bracket of 20m³ or 20,000 litres per month even if they had access to network connection since most compound houses have only one meter. Moreover, 86.2% of the 247 households surveyed lived in compound houses with an average household size and households in a house of 4.5 and of 6.2 respectively. This amounts to an average of 27.9 people per house. If averagely a person uses a minimum of 30 litres per day as specified by the Ghana Planning Standards, then a house will on the average use a minimum of 25,110 litres of water per month which exceeds the lifeline threshold of 20,000 litres per month for a house with a single meter..

The results of the interviews with all the key stakeholders revealed that they were aware that the lifeline tariff was not an effective pro-poor measure. The key stakeholders conceded that the lifeline tariff rather benefits the rich instead of the poor since most of the poor live in compound houses with single meters. An official of GUWL which has now been merged with GWCL, for example, bemoaned that the lifeline tariff was meant for the poor but they are not enjoying it. The official further indicated that the lifeline tariff benefits the rich who live in single apartments. The findings observed in this study mirror those of the previous studies that have examined the effectiveness of the lifeline tariff as a pro-poor measure. According to Nyarko et al. (2006) low income households living in compound houses with a single meter pay 20% more per unit volume than high income households in single family houses with a direct connection to GWCL network. Other studies have also revealed that tariff systems like increasing block tariffs penalize clusters of households that share a single connection as they will fall in a higher tariff block because of the higher level of consumption from the water point, which means they pay more per unit water than households in single family houses with piped water connection (Ryan and Adank, 2010; McIntosh, et al 2009; Castro, 2009). Although the PURC has for about a decade recognized the ineffectiveness of the lifeline tariff as an efficient mechanism for delivering affordable water to the poor, it has not done anything concrete to improve the situation. This finding underlines the importance of accurate targeting of the urban poor for pro-poor water supply as highlighted in the review of case studies of pro-poor urban water supply in developing countries.

8.4.3 Defining Un-served Zones

With regard to the call on policy implementers to facilitate the outlining of un-served zones and identification of cost effective alternatives for progressively extending services to these areas, the study revealed that the PURC in collaboration with the GWCL and WaterAid have piloted a pro-poor water supply intervention in three communities in Accra, namely Glefe, Teshie and Nima, but are yet to officially share the lessons on the intervention. However, during separate interviews with officials of PURC and GUWL it was revealed that the pilot pro-poor project was successful as it has helped majority of the people in the pilot communities who did not have access to potable water to be served either through water kiosk, standpipes or boreholes.

It also came to light during an interview with an official of the GWCL that the company has no pro-poor criteria for urban water supply except the use of public standpipes. However, not a single public standpipe was found in the case study communities. The utility does not also have a pro-poor policy to demonstrate its commitment to progressively extending service to the poor. The GWCL only has a pro-poor coordinator with limited functions. A possible explanation for this result may be that the GWCL is not pro-poor inclined and thus finds it difficult to formulate and implement pro-poor policies. A study by AWF (2010) showed that the mandate, organisational structure and skills of utilities are often inappropriate to deliver service to the urban poor.

To overcome this shortfall, a number of utilities have in recent times set up dedicated units to oversee service delivery to the poor. These pro-poor units, in a number of ways, mimic the processes used in the management of rural and small town water and sanitation delivery where there is more active participation of the community (AWF, 2010). The purpose of the pro-poor unit is to improve coordination between and amongst external partners and lead the effort to increase access and coverage; increase utility revenue; reduce water losses; and improve relations with poor consumers. This is to ensure that the utility proactively improves services to the poor, rather than responding on an ad hoc basis (WSP, 2009). The use of pro-poor units is common in Kenya, Uganda, Tanzania, and Zambia and their activities are well coordinated. In Uganda for example, the National

Water and Sewerage Corporation's (NWSC) pro-poor unit has a field office where customers can pay bills, apply for a new connection, or report problems. The pro-poor field office supports the other traditional field offices throughout Kampala, and is supported by staff members at the corporation's Kampala headquarters, who drive the propoor investment

programme (WSP, 2009). Since the establishment of the pro-poor unit by the NWSC in Kampala the branch office has increased its revenue collection twenty-fold due to its close relationship with customers. The pro-poor unit in Kampala also connects approximately 50 new customers a month to the piped-water network (WSP, 2009).

It is therefore surprising that although the GWCL is aware of the existence of pro-poor units in other jurisdictions, it decided to opt for a pro-poor desk which is manned by a single officer. Naturally, such an arrangement will not be able to surmount the numerous challenges confronting the urban poor with regard to water supply.

8.4.4 Recognition of Small Scale Water Providers

The results of the study indicate that small scale water providers are recognized by the policy makers and policy implementers as providing useful services in the water supply chain as stipulated in the policy. However, the activities of the water vendors, apart from the tanker operators, are not regulated. They operate as informal business and do not usually register their businesses. Aside the tanker operators who have some formal relationship with the GWCL and PURC and are thus loosely regulated, the other small scale water providers operate without supervision and regulation by the PURC. The vendors seem to operate on the fringes of legality and do not come under any regulatory authority. The PURC believes that it is the quality of water supplied by water vendors that should be regulated, but not the prices charged by water vendors as prices of water are subject to free market forces and do not warrant regulator's intervention.

However, the study revealed that apart from the tanker operators who have been given operational guidelines by the PURC, the activities of the water vendors are not supervised and regulated, not even the quality of the water that they dispense. This finding lends credence to a study by Kjellén and McGranahan (2006) which revealed that water vendors typically operate outside or at the fringes of established legal framework and that too little attention has been given to regulating their activities. On their part, McGranahan et al. (2006) indicated that in spite of the significant role played by water vendors in the water distribution chain, they have historically existed at the fringes of legality and several factors militate against their operation. Another study by Ainuson (2010), also observed that the

refusal of government and other practitioners to recognize and pay close attention to the services of water vendors is militating against their operations in Ghana.

One cannot disagree with the observation by Ainuson (2010), McGranahan et al. (2006) and others in the literature, since legal status of water vendors can make a big difference in their operations. It can make water vendors more efficient by opening up their relations with other actors of the system such as the utilities, financiers, and clientele and reduce the risks involved in investments. It can also enhance access of water vendors to credit as a business without legal identity or one operating at the fringes of legal framework cannot access formal banking services. Thus, an entrepreneur in the water vending business has to borrow at high rates which decrease the incentive for investment. The end result is that water vendors are forced to make short term investments as long term investments are much more uncertain and they could be banned by authorities at any time (Provost, 2010). Moreover, institutional arrangements and legal reforms that integrate water vendors into the formal solution reduce opposition and improve transparency. It allows the informal providers to gain security and legitimacy and the utility can take advantage of the knowledge and skills of the informal providers. In addition, regularization of water vendors can help utilities to reduce illegal connections and corrupt practices by staff, lower water prices, and improve the reliability of services, especially if adequate oversight or regulatory arrangements are put in place (Ryan and Adank, 2010; McIntosh, et al 2009).

8.4.5 Social Connection Fund

As already indicated the social connection fund which is meant to subsidize the connection of poor households to the network has not been established. The study revealed that the PURC (the regulator), the GWCL (the utility provider) and the MWRWH are against its establishment although the three institutions were part of the policy formulation process. In an interview with an official of GWCL it was revealed that the establishment of the social connection fund was proposed under the World Bank funded Urban Water Project. However, the GWCL kicked against it because the corporation is of the view that if a person is able to build a house she/he should be able to pay for connection of piped-water to the house. When a question was posed to an official of the MWRWH as to why the social connection fund has not been established, he responded that the government views it as discriminatory. The

official argued that the places referred to as low income areas are inhabited by both the poor and the rich so targeting the poor for connection subsidy will not only be difficult but discriminatory.

This finding is consistent with the model of policy implementation by Van Meter and Van Horn (1975:472) which indicates that the disposition of implementers toward a policy may affect their ability and willingness to carry out the policy. The model postulates that implementers' cognition of the policy; the direction of their response to the policy whether acceptance, neutral, or rejection; and the intensity of the response may affect their ability and preparedness to implement the policy. It is also in tune with Sabatier (1986) which established that successful policy implementation is based on the consistency of actions of implementing officials and target groups with the objectives and procedures outlined in a policy decision. The findings of the study clearly show that the GWCL, the PURC, and even the MWRWH are negatively disposed toward the implementation of the social connection fund.

In an interview with an official of the PURC, he affirmed that the establishment of the social connection fund is not on the agenda of the utility regulator and that nothing has been done to subsidize connection for the poor. The PURC believes that the principal barrier for the poor to access water is not the connection fees but rather lack of adequate infrastructure since the poor are already paying high volumetric rates to water vendors. The PURC is therefore of the view that if the service is expanded to reach the poor they can meet the full cost of connection which was (as at the time of the survey) officially between GHC300.00 to GHC400.00 (US\$150 to US\$200). The PURC therefore sees no need at present to cross-subsidise connection charges (PURC, 2005b). However, there is no guarantee that if this connection subsidy was to be implemented it would not lead to the exploitation of the people to be subsidized by the workers of the GWCL.

Even if the water infrastructure is extended to poor neighbourhoods in the foreseeable future, water connection to poor household could still be a challenge due to high connection fees and unfavourable terms of payment of the fees. The connection fees are set as one off payment to recover the full cost of connection from the network to the customer. It includes the service pipe, meter, trench excavation, and other associated charges which are beyond the reach of the poor. In Akweteman, for example, majority (54.5%) of the households who

do not have connection to the network assigned high connection fees as the major reason for not connecting to the network. At the time of the survey an official of GWCL gave the cost of connection to the piped network as between GHC300.00 to GHC400.00 (US\$150 to US\$200).

What is worrying is that the connection cost quoted by the GWCL is just the official price, as households in need of connection often have to get it through the back door at a higher cost which could be several times more. An opinion leader in La Old Town, for example, indicated that it cost more than GHC2, 000.00 (US\$1000) to get connected to the pipe network for a distance of about 250 metres away from the mains. This matches those observed in earlier studies (Adank et al. 2011; Jocabs and Franceys, 2008; Franceys 2005). Franceys (2005) noted that the urban poor were discouraged from obtaining piped water connection by unaffordable connection charges in spite of the savings in time and money that they could make once connected.

Utilities fail to ensure that the poor get the public health benefit of clean water by often requiring them to pay, often in advance, for the full cost of a new connection. A study by Franceys (2005) which was carried out in Ghana, India, Philippines and Uganda also discovered that the mean cost for a functioning piped water connection of the four countries was US\$295 which was regarded as unaffordable to the poor. According to the study, poor households in Ghana living in cities and secondary towns pay on the average US\$331.3 and US\$358.3 respectively for a functioning piped-water connection. The amount include the application costs, the connection costs and fees including any additional payments for components, e.g. pipes and meters; and the extent of any additional cost that are required including ‘speed money’, ‘thank-you money’, transport and snacks for workers and inspectors among others (Franceys, 2005:5). Adank et al. (2011) also observed that in Ghana due to relatively high connection cost coupled with complicated procedures and legal boundaries such as proof of ownership of house, poor households living in rented premises struggle to get connected to the piped-water network. People therefore resort to illegal connection and consumption. Ordinarily it is the wealthier strata of the population that is connected to the GWCL network, which enables them to profit from the lifeline tariff at the expense of the poor who are not able to connect.

The unwillingness of the GWCL and the PURC to establish the social connection fund is disturbing as it is denying the poor access to improved water supply. The literature is replete with case studies on the association between subsidizing connection cost and improved access of the poor to water supply, especially when the subsidy comes with flexible terms of payment. Jacobs and Franceys (2008) for instance argued that affordability is essential to create sustainable water supply to the poor. The pair, studied better practices in supplying water to the poor, and found that subsidizing connection and granting the urban poor flexible payment terms on consumption charges has given the urban poor in Niger, South Africa, Senegal, Jakarta, Morocco, Ivory Coast among others the opportunity to get connected to the network. They outlined a combination of ways of promoting affordability in terms of connection fees and consumption charges. Notable among them are a special charge or tax on water bills used to fund network expansion in Buenos Aires and Ivory Coast; international grants and loans that subsidise socially assisted connection in Niger, Burkina Faso and Senegal; and inter-service crosssubsidization where for example electricity revenue partially fund water investment or consumption as practiced in Gabon and Morocco.

Another study by IRC and WSUP (2012) revealed that in 2010, the Mozambique WaterSector Asset Owner and Investment Agency (FIPAG) in its quest to improve services to the poor whilst at the same time driving greater service provider efficiency, reduced the connection fee by 50% (about US\$75 per connection) and now allows fee payment over a period of 12 months in Maputo and 13 other towns and cities. This has resulted in a sharp increase in the connection rate among poor householders, most of whom previously paid much higher per-litre prices for lower quality water from informal suppliers. This was made possible by streamlining connection processes and thus reducing per-connection cost; levying a new surcharge on water supply to the country's ports; and setting up a revolving fund to finance the remaining balance.

8.4.6 Cooperation between the Private Sector and Independent Providers

As mentioned earlier, the policy measure which seeks to encourage cooperation between the private sector and small scale independent providers as a way of improving access of the urban poor to water supply is yet to be implemented. The results of the study show that officially, there is no private operator involved in urban water provision; neither are there small scale independent water providers in the urban water sector. The GWCL is the only statutory body responsible for producing and distributing potable water to the urban

population in Ghana. It came to light during the study however that small scale private water providers have emerged in the urban water sector, albeit un-officially. It was observed that private individuals are operating mechanized boreholes and selling water to both secondary suppliers such as tanker trucks, water trucks, and motorized water cart operators, as well as other end users. These providers are operating illegally and as such their activities are not regulated.

The study found the small-scale independent water providers are rife in Accra. About 72% of the 25 mobile water vendors sampled during the survey indicated that they depend on private mechanized boreholes as their main source of water supply. In separate interviews with officials of GWCL, CONIWAS, and GUWL it was revealed that the officials were aware of the presence of the small scale water providers. However, nothing concrete has been done to regulate their activities. The officials therefore expressed apprehension about the unregulated nature of their activities. An official of GUWL, for example, acknowledged the contribution of the small scale water providers but was quick to add that their activities should be regulated in order to protect the interest of the consumers.

It was however revealed that the current policy of the government is to promote public-private-partnership (PPP) initiatives as a way of pulling resources and expertise from the private and the public sectors to improve urban water supply. A possible explanation of this might be that the government has realized that the public sector alone cannot fill the gap in urban water supply and that there is the need for the public to partner the private sector to improve water supply to the urban poor. This must however be done in consultation with communities and the civil society organisations as previous attempts to bring the private sector into urban water supply was seriously resisted by civil society organizations.

8.5 Policy Implementation Challenges.

From the study, there were six main challenges to the delivery of water to the urban poor. These are insufficient investment with special reference to water supply infrastructure; over aged distribution lines and pipes; and operational inefficiencies. The rest are poor corporate governance; urban sprawl and its associated poor urban planning; and frequent power outage.

8.5.1 Insufficient Investment

The results of the study show that a challenge thwarting water supply to the urban poor is inadequate investment to expand the infrastructure capacity of GWCL to meet present and future demand as stipulated in the urban water policy. Resources needed to facilitate the effective implementation of the policy are inadequate. The results of the study showed that water production lags behind supply. As of December 2012, the water produced from the 83 urban water systems was 707,783m³/day but this was not able to meet the total demand of 1,125,253m³/day resulting in a supply-demand gap of 417,470m³/day. Officials of the GWCL and the MWRWH attributed the supply-demand gap to rapid urbanization and low level of investment.

According to GWCL estimates about US\$100 million per year has to be invested in sector infrastructure development if the desired coverage levels are to be achieved over time (GWCL, 2012c). The GWCL's Strategic Investment Plan prepared for systematic development of all urban water supply systems in the country indicates that about \$717 million will have to be invested in water production to help increase current urban coverage to about 100% by 2025 (GWCL, 2012 c). This finding is consistent with a study by WaterAid (2013) which revealed that notwithstanding the high level of commitment made by governments in Ghana, Niger, Sierra Leone, Rwanda, and Uganda to resource the water and sanitation sectors, financing is falling short of the required investment. Ghana, for example, requires an annual investment of 3.5% of GDP in the water and sanitation sector to achieve the MDG targets for water and sanitation. However, since 2008 the country has not invested more than 1.5% of GDP in the water and sanitation sector (WaterAid, 2013).

It can be seen from the WaterAid studies that inadequate investment in the urban water sector is not limited to Ghana. According to the UN Water (2011) investments in urban water infrastructure in SSA are not in tandem with the rate of urbanization. Water and waste services have not been given the needed priority, as significant under investment has been the bane of urban water utilities despite the economic, social and environmental benefits of water. It was confirmed during interviews with the key stakeholders in the urban water sector, namely, the GWCL, GUWL, MWRWH, and CONIWAS that the budgetary allocation to the water sector is low. An official of GUWL, for example, bemoaned the low level of commitment of the government to water supply to the urban poor. The official therefore called on the government to be more committed to the implementation of the policies that are already on paper. It was also indicated by an official of CONIWAS that the

small amount allocated to the water sector in annual budgets is often not fully released by the Ministry of Finance.

An official of the MWRWH explained that the government does not have the quantum of money needed to finance the infrastructural requirement of the urban water sector. The government therefore has to borrow but this is based on its ability to repay the loans. In view of this the government hesitates to take more loans. The official further revealed that a proposal to set up a National Water Fund to finance the implementation of water projects was jettisoned on the grounds that it will overburden the citizenry due to an avalanche of funds such as the Ghana Education Trust Fund and the Communication Fund, among others.

The main sources of funding for development projects in the urban water sector are primarily from external support agencies amounting to about \$30 million per year,

Government's annual budgetary allocation of about \$ 2 million a year and internally generated funds mainly through water sales totaling about \$3 million a year (GWCL, 2012 c). The average inflows from these sources over the past years amount to about 35% of the level required to achieve the Millennium Development Goal of 85% coverage (GWCL, 2012 c). The urban water sector therefore relies heavily on external grants and loans. According to WaterAid (2011), the water sector in Ghana is dominated by donors, with very little funding from the Government. In 2010 for example, donors provided 78% of funds for the MWRWH as against 22% by the government. However, in that same year, the government provided 95% and 85% of funds allocated to the Ministry of Education and Health respectively. Budgetary allocation by the government to the water sector as a percentage of total social sector budget has been averaging about 3.6% (WSMP, 2009 cited in WaterAid, 2012).

Aside the inadequate budgetary allocations to the urban water sector, the small funds approved for the sector are not fully released. In 2007 for example, GoG released only 4.6% of the GH¢25.7 million approved, while in 2009, GoG released about 23% of the approved GH¢11.8 million (MWRWH, 2009). This suggests a relative neglect of the water sector compared to health and education. These findings also affirm the importance of resources in the policy implementation as identified in the literature (Van Meter and Van Horn, 1975; Bhuyan et al., 1978; Thomas and Grindle, 1990; Rothstein, 1998; Buabeng, 2010). Rothstein

(1998:89) for example, argues that effective and successful policy implementation has to do with the significance of resources allocated for the implementation of the policy.

8.5.2 Over Aged Distribution Lines

Another challenge confronting water supply to the urban poor is over aged infrastructure. This was attested to by about 50% of the households. The study findings show that some of the distribution lines which were laid before Ghana attained independence were still in use. The focus group participants in La Old Town confirmed that the distribution lines in the community are old and leak due to rust and breakages. The focus group participants also indicated that when leakages from the distribution lines are reported to the GWCL for redress, the company rather blocks the piped lines and thereby denying people serviced by such lines access to water. This finding supports previous research on challenges of urban water supply in Ghana which links poor urban water supply to over aged infrastructure. A study by Sarpong and Abrampah (2006) revealed that one of the major challenges facing the GWCL was over aged distribution lines which results in frequent leaks and bursts. Some of the pipe works were done in the 1930s when the Weija Water System was first commissioned. Another study by Adank et al. (2011) also identified dilapidated water distribution infrastructure as a challenge in the urban water sector. The poor state of the water distribution line may be attributed to poor maintenance of water infrastructure which could also be linked to low investment in the urban water sector.

8.5.3 Operational Inefficiencies

The study identified operational inefficiencies as one of the challenges in the urban water sector. Analysis of data from GWCL revealed that operational inefficiencies have resulted in high level of Unaccounted for Water (UfW) which has been hovering around 50% since 2007. For example, the volume of water produced by GWCL in 2007 was 217.9 million m³. However only 103.9 million m³ was supplied to customers. This means that the 114 million m³ of water produced in 2007, representing 52.3%, was not supplied and could not be accounted for due to operational and commercial losses. In 2012, GWCL produced 254.4 million m³ of water and supplied only 131.78 million m³ to customers leading to an UfW value of 48.20%. Normally it would be expected that, when a water system is efficient and effective, the volume of water produced should relatively be the same volume supplied/distributed to consumers. This is however not the case due to commercial and physical losses. In view of this, the PURC has benchmarked for the GWCL not to exceed

45% UfW (PURC, 2013) although this is far higher than the best practice of 20% for developing countries (World Bank, 2012). This notwithstanding, the GWCL is struggling to meet the set target of 45%.

An official of GWCL affirmed that the high rate of UfW is due to over aged infrastructure. The official stated that the company in its quest to reduce the high level of UfW is undertaking rehabilitation, repairs, and replacement of defective components. On their part, CONIWAS attributed the high level of UfW to inefficient management of the urban water system. An official of CONIWAS debunked the claim by GWCL that water tariffs are not adequate to enhance their operations. The official questioned the rationale for producing a quantity of water and claiming the 50% cannot be unaccounted for. He therefore maintained that the high level of UfW is caused by inefficiencies in the system. This finding is consistent with World Bank (2012) findings which identified high level of non-revenue water as a major challenge facing water supply providers in Sub-Saharan Africa. The study showed that averagely, a service provider in SSA loses 39 percent of its water produced, almost twice as much as the best practice of 20 percent. This means that although utility providers in SSA generally have a challenge with UfW, however, the UfW levels recorded in Ghana over the years are far higher than the SSA average. Moreover, there is evidence to show that some South African and Namibian utilities record only 12% of their revenues as UfW (World Bank, 2012); whilst in Kenya the acceptable level of UfW is not above 25% (Mwangi, 2009).

The UfW is caused by physical losses, estimated to be 45% of the total UfW, and commercial losses also estimated to be 55% of the total UfW (Lievers and Barendregt, 2009 cited in Adank et al. 2011). Physical losses in the system are to a large extent caused by leakages and burst pipes as a result of over aged infrastructure. This is compounded by the lack of bulk meters to measure water produced and distributed by the utility and poor leakage detection mechanisms. Discussion with officials of the GWCL revealed that the company is aware of the existence of modern system of monitoring and controlling physical losses such as Supervisory Control and Data Acquisition (SCADA) system. However, the GWCL has not been able to procure and use it due to financial constraints and outdated water infrastructure.

8.5.4 Poor Corporate Governance

The findings of the study show that the governance structure of the GWCL is at variance with the dictates of the companies' code. The companies' code prescribes that a company should have a Board of Directors appointed by the owners of the company referred to as shareholders. It should also have a Managing Director who is appointed by the Board of Directors. The essence of this is to make the Managing Director answerable to the Board of Directors who provides policy direction for the company. Contrary to the dictates of the companies' code, the results of this study show that both the Board of Directors and the Managing Director of GWCL are appointed by the government and this has been a source of conflict in the governance of the urban water sector. Moreover, the management staff of the company also do not have performance contracts based on which their performances could be realistically assessed.

An official of CONIWAS divulged in an interview that the urban water sector is plagued with governance and accountability challenges. He revealed that the government appoints both the board of directors and managing director of the GWCL and that has been a source of conflict in the urban water sector. The official further disclosed that appointments to the topmost positions in the urban water sector are not done on competitive basis but are based on political lineage. He also indicated that the staff of the utility does not sign performance contracts. In an interview with an official of the GWCL he confirmed that the Managing Directors of GWCL are not appointed on competitive basis. He also affirmed that the appointment of both the board and the Managing Director of the utility by the government do not facilitate effective management of the sector.

An official of the MWRWH admitted in an interview that there are management crises in the urban water sector. He indicated that the government is aware of the management challenges of the GWCL and is putting in place a new Board of Directors who will be allowed to appoint the Managing Director and Deputies. This finding is in agreement with Nyarko's (2007) findings which showed that political interference in the appointment of top management of GWCL, GWCL Board of Directors and in tariff setting was adversely affecting GWCL performance. According to Nyarko (2007), from 1992 to 2001 all the substantive Chief Executives or Managing Directors of GWCL were fired by the government before the end of their term without recourse to the GWCL Board.

The issue of political patronage in the appointment of key staff of the urban water institution is worrisome since this has the tendency to lower the moral of implementers and affect their disposition towards the implementation of the policy (Van Meter and Van Horn, 1975:472-473). Moreover, political interference in the appointment of Board members and Managing Directors makes them more accountable to the political system rather than the general public, since they would be more disposed to serve the interest of the appointing authority. Warwick (1982 cited in Brynard, 2005:18), argued that government may have the most logical policy imaginable, the policy may pass cost/benefit analyses with honours, and it may have a bureaucratic structure that would do honour to Max Weber, but if those responsible for carrying it out are unwilling or unable to do so, little will happen'. Sabatier (1980) also stressed that success of policy implementation depends among others on committed policy implementers.

The lack of effective mechanisms to measure performance of the top management of the GWCL is equally worrying since it has the tendency to perpetuate mediocre performance. This is because policy implementation requires that goals and objectives be identified and measured since implementation cannot succeed or fail without a goal against it to judge it' (Van Meter and Van Horn, 1975:464). According to Van Meter and Van Horn (1975) successful policy implementation is contingent on effective and well-coordinated institutional machinery and procedures by which higher authorities may attain higher compliance on subordinates to follow stated standards and objectives. Elmore (1978) and Rothstein (1998) also acknowledge the importance of performance standards and objective means of measuring performance and ensuring compliance of policy implementers.

Moreover, good governance mechanisms require citizens' participation in decisionmaking. In consonance with this, the urban water policy supports customers participation in decision making, however, the existing institutional framework does not amply empower the customers and for that matter communities to demand accountability from GWCL. The policy and regulatory framework does not sufficiently empower the users, customers or beneficiaries to demand accountability from GWCL management or its Board members.

8.5.5 Urban Sprawl and its associated Poor Urban Planning

Poor urban planning and urban sprawl in general was found to be a hindrance to water supply to the urban poor. The study established that rapid urbanization has stretched the capacity of

the GWCL to serve the ever increasing urban population with water. The supply of water has consistently fallen short of demand as already indicated. Moreover, urban sprawl has made extension of services to low income areas very difficult due to the unplanned nature of the settlements. Similarly, previous studies have demonstrated that urbanization is actually enlarging the areas and number of people without access to water supply from public utilities and as a result poor people, who live in informal urban settlements, are forced to buy water from water vendors at a higher cost (UN Water, 2011).

In fact, the rate of urbanization in Ghana outstrips the current levels of urban water supply and as a result water is considered as a critical resource in short supply among the urban poor (GoG, 2007). In an official interview with an official of GUWL it was disclosed that the unplanned nature of the low income settlements is making extension of piped-water network to these areas very difficult. The official explained that it is very difficult to even lay the distribution lines to the low income areas due to the unplanned nature of the settlements. The challenges associated with the extension of piped-water network to unplanned and densely populated settlements were also espoused by an official of GWCL during an interview. The official stated that the extension of piped-water to unplanned settlement involves high compensation cost. He also said that the demand for compensation by project affected persons before the start of a project threatens project implementation in unplanned settlements which is mostly inhabited by the poor.

These results also match those of Adank et al (2011) which identified key constraints to urban water supply as high population density and the unplanned nature of many parts of Accra which makes it difficult to lay tertiary mains and service connections to the individual households. The financial costs of breaking down illegal structures as well as the political costs in order to extend connection to unplanned settlements are sometimes too prohibitive for water agencies to undertake any progressive water supply planning (Ainuson, 2009). This is not surprising since urbanization in general and urban planning in particular, has not been given the needed attention by policy makers. Until 2012, Ghana did not have an urban policy which would have promoted a sustainable, spatially integrated, and controlled development of urban settlements with adequate provision of housing and services. Moreover, in Ghana just like in other developing countries, the decision to implement or not to implement policy measures is often looked at with political lenses.

8.5.6 Frequent Power Outage

Frequent power interruption was also identified as a key constraint to urban water supply. An official of the MWRWH indicated in an interview that water production and distribution is contingent on reliable power supply. He revealed that the GWCL does not have a dedicated electricity supply line to facilitate uninterrupted pumping of water. The official indicated that the GWCL can only distribute water when there is power supply; in view of this the frequent power interruptions impact negatively on water production and distribution. This finding is in agreement with Kanin's (2010) findings which showed that frequent power interruptions result in significant loss in water production figures. An hour of power outage, for example, at the Weija water works with a capacity of 42 million gallons per day results in a loss of almost 2 million gallons of water (Kanin, 2010).

8.6 Making Sustainable Water Supply to the Urban Poor a Reality

Following the identification of the above challenges, the households, policy implementers, focus group discussants and other stakeholders in the urban water sector put forward five key interrelated recommendations aimed at improving urban water supply on sustainable basis. These are improving operational efficiency of GWCL; expansion of water supply infrastructure; private sector participation in urban water supply; increased commitment by government to pro-poor water supply; and community participation in the urban water sector.

First, the participants called for the rehabilitation of the distribution lines in order to improve operational efficiency of the public utility. The households contended that the distribution lines were old and weak and as a result a lot of water is lost during distribution. They therefore advocated for massive replacement of the distribution lines to improve urban water supply in general and water supply to the urban poor in particular. These findings are in agreement with that of Mwangi (2009) who recommended a continuous investment in the sector to rehabilitate water infrastructure as a means of overcoming inefficiency in water supply disruption and reducing UfW. In recent years, UfW in Ghana has been hovering around 50%. This is actually a drain on the resources of the GWCL. It also reduces the quantity of water supplied by the utility to consumers. In view of this, any intervention aimed at reducing UfW and increasing water supply is welcome.

Second, it was recommended that the GWCL and the government should invest more in urban water infrastructure to rehabilitate the existing urban water systems and build new ones to expand urban water supply. The participants are of the view that when the urban water systems are expanded it would increase the productive capacity of the GWCL to meet the water needs of the urban poor especially those in peri-urban areas. This recommendation agrees with a study by Adank et al. (2011) in Accra which called for the expansion of the capacity of the water system to satisfy the future water demand and ensure reliable water supply. This however demands a huge financial outlay. However, judging from the quantum of budgetary allocation to the urban water sector and the amount disbursed from the allocated funds, it may not be possible to finance the system expansion from the consolidated fund, at least for now. Government therefore has to look at alternative sources of funding.

Third, there was a call for private sector participation in urban water supply. The results of the study showed that 76.9% of the surveyed households advocated for private sector participation in urban water supply. The households are of the view that the private sector was more efficient and their inclusion in urban water supply would improve water supply on sustainable basis. This finding is however a contested issue as the literature is replete with studies that are in favour or against private sector participation in urban water supply. Those who are for privatization argue that privatization brings efficiency in the provision of water services which translates to improved access to water services by consumers (International Institute for Environment and Development, 2010; Saeed and Nural, 2009; Gerhager and Sahooly, 2009). Whilst those who are against privatization posit that privatizing the provision of public goods such as water will increase the cost of water to the detriment of the poor as the private sector is profit inclined (Petit, 2009; Ohemeng and Grant, 2008; UNCESCR, 2002). Due to these contesting claims, privatization of water services has often been opposed by civil society organizations including those in Ghana.

Fourth, it was also recommended that the government should stop paying lip services to pro-poor water issues and be more committed to the course of the urban poor when it comes to water delivery. The focus group participants in La Old Town and Adenta Village indicated that their water supply situation would have been solved if successive governments had been committed to the plight of the poor. The findings of the current study are consistent with those of WaterAid (2012) which indicated that just having a pro poor policy means little without resources to implement the policy. There is therefore the need for government to

show more commitment to improve water supply to the urban poor by providing sufficient resources for the implementation of the pro-poor policies.

Finally, the participants clamoured for community participation in the urban water sector to enable them articulate their needs to the utility provider. It emerged during the focus group discussions that community participation was lacking in the urban water sector and this has resulted in poor handling of complaints and poor service delivery by the GWCL. This recommendation affirms the results of a study by the World Bank (2009), which shows that community participation helps build ownership and enables citizens to demand transparency and accountability from decision makers and service providers, and thereby enhances effectiveness of development projects and policies. However, in many developing countries, the voice of the poor is often not heard. Poor citizens have had a weak voice in the water sector politics as posited by Petit (2009). In view of this the call for community participation in urban water supply is apt.

8.7 Conclusion

This chapter sought to discuss the findings of the study. It looked at the nature of water supply to the urban poor, the implementation of the pro-poor urban water supply policy measures outlined in the National Water Policy, and the way forward. The study found out that the urban poor access water mainly through water vendors. Compared to international benchmarks, the findings of the study showed that generally the urban poor have good access to water. It was however revealed that the water sources of the urban poor are not affordable. The urban poor pay a high poverty penalty in the urban water market as a result of their reliance on water vendors for their water needs. Moreover, they have challenges with reliability of water supply and the quality of their water sources. With regard to the implementation of the pro-poor water policy measures, the study established that only three out of the five policy measures have been implemented with limited success. The study argued that successful policy implementation is dependent on clearly stated policy objectives; measurable policy indicators; availability of resources; competences of the implementing agency; disposition of the implementers; and the social, cultural and political milieu. It is also contingent on the adoption of good policy implementation strategies.

CHAPTER NINE: SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

9.1 Introduction

This chapter draws the curtain on the study. It is divided into four main sections starting with an overview of the research problem. This is followed by a summary of the main findings of the study and the implications of the findings for policy and practice. The chapter ends with two sets of recommendations, namely recommendations for further studies and recommendations to ensure sustainable water supply to the urban poor.

9.2 Overview of the Research Problem

Water is central to human survival. It is also a key factor in poverty reduction and economic development. In spite of this, access of the urban poor in Ghana and other developing countries to potable water is a challenge. The GWCL, the utility provider, has not been able to produce adequate potable water to meet the needs of the ever increasing urban population. In view of this, urban water supply lag behind demand with the urban poor being the most affected.

In recognition of the challenges in the urban water sector, various governments in Ghana have since the mid 1990s, implemented a string of reforms in the water sector with the view to improve urban water supply. These reforms resulted in the establishment of the Ghana Water Company Limited (GWCL) in 1999 to cater for only urban water supply under the supervision of the MWRWH. A National Water Policy was also formulated in 2007 to promote sustainable development, management and use of Ghana's water resources. With regards to water supply to the urban poor, the National Water Policy outlined policy measures to ensure improved and sustained access of the urban poor to water supply for drinking and other domestic purposes.

Despite the reforms in the water sector and the formulation of the National Water Policy, water supply to the urban poor is still a challenge. The urban poor do not only have poor access to water, both in quality and quantity, they also pay more for water than those with piped-water connections. The study therefore set out to examine the extent to which the National Water Policy is addressing the water needs of the urban poor. Specifically, the study was designed to determine how the urban poor access potable water; assess how the National

Water Policy targets the urban poor; and examine how access of the urban poor to water supply could be improved on sustainable basis.

Due to the nature of the research problem, a mixed method research design was adopted to draw on all relevant research tools and techniques for the investigations, data collection, data analysis, and presentation of the research results.

9.3 Summary of Main Findings

The main findings of the study are presented below. It has been organized under the specific objectives of the study.

9.3.1 How the Urban Poor Access Potable Water

The study shows that although all the three case study communities had reticulation, more than 70% of the households did not have piped-water connection. Moreover, connection to the piped-water network was not a guarantee of water supply by the utility provider, GWCL. In view of this, majority (82.6%) of the households depended on small-scale water providers, also known as water vendors, for water and they pay a high poverty penalty than the rich who are connected to the piped-water network.

Specifically, the study findings show that sachet water was the main source of drinking water for majority (64%) of the urban poor. Most of the respondents were not satisfied with the quality of water supplied by the GWCL and /or water vendors and so they felt reluctant to drink water from such sources.

The research also found that the implementation of the National Water Policy had impacted differently on access to water in the study communities. As per international benchmarks, access of the households to water was generally good. Aside affordability of water, all the variables of access, namely availability of water, accessibility to water and acceptability of water sources indicated that the households had good access to water.

Close association between reliable access to water from GWCL network and satisfaction of households with water services is another finding that emerged from the study. Almost all the households in Akweteman, a community with reliable water supply from GWCL were satisfied with water supply to the community. On the contrary, majority of the households in La Old Town and Adenta Village, with poor access to water, were generally dissatisfied with water supply to the community.

One of the significant findings of this study is that there are operational inefficiencies in the urban water sector. This has resulted in high level of UfW which is normally due to physical and commercial losses. The UfW has been hovering between 48% and 52% since 2007.

9.3.2 How the National Water Policy Targets the Urban Poor

The study revealed that the National Water Policy provides a comprehensive framework aimed at ensuring improved and sustained access of the urban poor to potable water supply. However, the challenge has been the implementation of the policy. The water policy has clearly stated objectives but there are no measurable performance indicators to assess the extent of realization of the policy objectives. Moreover, the staff of the policy implementing unit, the GWCL, do not sign any performance contract. There are no objectively verifiable standards for measuring performance.

Contrary to the dictates of best practices of pro-poor water supply strategies revealed through the review of literature on pro-poor water supply in developing countries, the utility provider does not have a pro-poor unit to facilitate precise targeting of the urban poor for water supply. The company has a mere pro-poor desk which is manned by a single person. The GWCL does not also promote active community participation in the design and implementation of water projects. Moreover, the GWCL is negatively disposed toward the implementation of some of the pro-poor measures outlined in the National Water Policy such as the establishment of the social connection fund. This brings into question the commitment of the policy implementer to the implementation of the pro-poor policy measures outlined in the National Water Policy.

Furthermore, the level of investment in the urban water sector was found to be very low. It appears the National Water Policy was formulated to be used as a tool for marshaling

resources for its implementation. There is therefore over reliance on development partners for the implementation of the policy. This has resulted in inadequate investment to fund capital projects.

The governance of the urban water sector was also found to be at variance with the prescriptions of the companies code with regard to the appointment of Managing Directors of the GWCL. The government appoints both the Board of Directors and Managing Directors of the GWCL and this has been a source of conflict in the urban water sector. Besides, the appointment of people to the top-most positions of the GWCL is heavily politicized.

9.4 Implications of the Findings

This study sought to examine the extent to which the National Water Policy is addressing the water needs of the urban poor. The analysis of the research data had revealed several salient issues in water supply to the urban poor and pro-poor policy implementation in general. The major findings of the study have various implications on policy, existing studies on urban poverty and urban water supply, theories, and future studies in urban water supply.

9.4.1 Policy Implications

Based on the findings of this study, five key policy implications can be drawn. First, the evidence from this study suggests that the problem of water supply inadequacies to poor urban settlements is significantly linked to inadequate investment in the urban water sector. The utility lacks the needed investment to extend services to new settlements or even maintain the standard of service in areas with reticulation. Government budgetary allocation, grants, and other financial flows are inadequate to increase water supply to meet demand. In view of this, there appears to be little prospect for the utility to extend water supply to the urban poor. If immediate steps are not taken to improve access of the urban poor to water services they will continue to have less access to water and even to less clean water with its attendant health implications.

The findings also indicate that the urban poor would continue to pay high poverty penalty in the urban water market due to their reliance on water vendors for water supply. The disadvantaged position of the urban poor is likely to push them to the catastrophic spending threshold if the cost of water becomes too expensive. This will compel the urban poor to

adapt a number of coping strategies including reliance on unimproved sources at a lower cost with its associated health risk.

It is evident that although the WHO and UNICEF do not consider sachet water as an improved source of drinking water, it will continue to be a popular source of drinking water for the urban poor. The issues associated with the quality of water supplied by water vendors, and in some cases GWCL, will compel the urban poor to drink sachet water which they perceive to be of better quality.

The findings therefore provide support for the conceptual premise that satisfaction of the urban poor with domestic water supply is contingent on four key variables. These are accessibility to water, availability or reliability of water supply, acceptability of water sources, and affordability of water. However, reliability of water supply from a piped network enhances the level of satisfaction of the urban poor to water services. This is because piped-water is affordable and somehow of acceptable quality compared to water from other sources.

Finally, the findings of this study show that given the current status of implementation of the pro-poor policies outlined in the National Water Policy, it is not likely that sustainable water supply to the urban poor will be achieved in the foreseeable future. The status of implementation of the pro-poor policy measures may not change significantly, unless the policy implementers are re-oriented to incorporate the conditions for successful policy implementation and the elements of pro-poor policy implementation strategies, which form the conceptual base of this study, into their operations.

9.4.2 Theoretical Implication

The findings of the study reflect various theoretical perspectives discussed under the theoretical and conceptual framework for the study. It confirms studies by Penchansky and Thomas (1981) which revealed that when consumers have challenges with any of the components of access they become less satisfied with services they receive. The study found that the level of access to water, namely accessibility to water; availability of water; acceptability of the quality of water; and affordability of water have positive correlation with

the level of satisfaction of the urban poor with water services. The study, for example, revealed that households with reliable water supply from the GWCL's piped connection were very satisfied with water services and vice versa.

The findings also corroborate a study by Mendoza (2011) which established that the poor are confronted with both quality and price related poverty penalty in the urban water market. Mendoza, for example, argues that poverty penalty could result in a catastrophic spending burden when the consumption of a good or service is a necessity and as a result the poor cannot opt out from consuming that good or service. In such situations, according to Mendoza, the poor adopt a variety of coping strategies to meet the consumption of that good. A number of perspectives on the high poverty penalty shouldered by the urban poor in the urban poverty market have reflected in the research findings. These perspectives contend that due to poor access of the urban poor to water from piped connections, they pay higher prices for water of doubtful quality (UNDP, 2006; Sarpong and Abrampah, 2006; van Rooijen et al. 2008; UNDP, 2011). This study is therefore of the view that the disadvantaged position of the urban poor in terms of water supply could push more of them to the catastrophic expenditure thresholds if immediate steps are not taken to target the urban poor for water supply. Moreover, when cost of water becomes exorbitant poor households may resort to extreme coping mechanisms such as using bath water to undertake other household chores observed in the study.

The study is also consistent with the findings by Van Meter and Van Horn (1975), Elmore (1978), Thomas and Grindle (1990), Bhuyan et al., (2010) and Buabeng (2010) on policy implementation. Van Meter and Van Horn, for example, argue that favourable disposition of policy implementers toward a policy is a key success factor in policy implementation as policy implementers may refuse to carry out a policy measure that they are negatively disposed to. Moreover, successful policy implementation is contingent on the availability of performance indicators to assess the extent of implementation of the policy goals and objectives. Above all, successful policy implementation is dependent on availability of resources. On his part, Elmore (1978) identifies availability of performance standards, and objective means of measuring performance and ensuring complaints of subordinates, among others, as ingredients for successful policy implementation. Bhuyan et al. (2010) also argue that resource mobilization and the level of consensus among leaders and other policy stakeholders on the content of a policy and its need for implementation, among other

variables, have effects on the degree and timing of its roll-out. Moreover, the effectiveness of a pro-poor water policy in achieving its outcomes from the review of the six case studies of best practices of pro-poor water delivery is dependent on the presence of dedicated pro-poor units, active community participation, institutionalization of social accountability mechanisms, charging of realistic tariffs aimed at cost recovery, and private sector participation.

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9.4.3 Contributions to Knowledge

The findings add to a growing body of literature on water supply to the urban poor. For example, the current study adds to the body of research that established that the urban poor have poor access to piped-water supply. The study further affirms that poor households without piped-water connection depend on water vendors for their water needs at a higher cost (Sarpong and Abrampah, 2006; UNDP, 2006; Nyarko, 2007; Van Rooijen et al, 2008; Norström et al, 2009; and Adank et al, 2011). The study also confirms that the disadvantaged position of residence in Adenta Village and La Old Town with respect to water supply is not limited to Ghana, but exists throughout poor urban settlements in SubSaharan Africa (UNDP, 2006; Adank et al., 2011; UN Water, 2011).

The popularity of sachet water as the main source of drinking water of the urban poor revealed by Adank et al. (2011) and USAID/CHF International (n.d) is another subject that is validated by this study. Here, the researcher concludes that reliance on sachet water by the urban poor may be a sign of loss of public trust in the quality of water supplied by GWCL in particular and water vendors in general. The present study presents additional evidence with respect to the association between the frequency of water supply and the quantity of water consumed by households observed in the literature (Lamprey, 2010; Andey and Kelkar, 2009). It also confirms the close connection between reliable water supply from a piped-water network and satisfaction with water services and vice versa.

The findings of this research however disagree with the minimum per capita consumption benchmark of 20 liters of water per day (UNDP, 2011) as an adequate measure of water deprivation. Focus group discussion participants argued that the per capita consumption of 20 liters of water in a day is not enough for cooking, washing, bathing, and other hygienic purposes. The study also questions the classification of bottled/sachets water as unimproved

source of water (WHO and UNICEF, 2013; WSMP, 2009c) since such classification makes the statistics on access to improved source of water unrealistic, especially in the developing world where its practical realities are limited.

This study also contributes to knowledge on access of the urban poor to potable water and policy implementation. The study is a novel one which has observed that due to water scarcity, high cost of water, and lack of bathrooms in houses; women have adopted extreme coping strategy of bathing in pans in their rooms and thereafter using the water in the pan to do other things such as washing of clothes, mopping the floor and other cleaning activities. The study also reveals that critical media reportage that whips up public sentiments against policy implementers hinders smooth implementation of public policy. With regard to the awareness of the citizenry on the National Water policy, this study aspires to be the first that has tested the awareness level of the populace on the National Water Policy, at least in Ghana.

9.5 Limitation of the Study

The findings of this research are subject to three main limitations. First, it was observed during the pilot survey that the households were unwilling to provide information on income. In view of this, household expenditure was used as a proxy indicator of household income during the household survey. Second, the population of the water vendors in the case study communities was unknown. Consequently, snowball sampling techniques was used to select the fixed point water vendors, whilst accidental sampling techniques was employed for the mobile water vendors. Finally, the study used a sample size of 247 households with a confidence level of 90% for the household survey. However, since the study adopted a mixed method design, qualitative techniques such as semi-structured interviews, focus group discussions, pair wise ranking, and observation were used to complement the quantitative data to address this constraint.

9.6 Recommendation for Future Research

Besides the contributions to academic knowledge on the implementation of pro-poor policies on water supply to the urban poor, the study has several implications for future research. Aside confirming certain positions and challenging others, the study has unveiled and highlighted some of the opaque issues surrounding the subject matter. It is however evident

that effective implementation of pro-poor water policies needs further investigation on a larger scale in other poor urban areas. Specifically, further research is needed to determine how to properly target the urban poor for water services since the poor have peculiar challenges with water delivery. A study is also required to establish a specific measure of minimum daily per capita water requirement for Ghana taking into consideration our weather, environment and way of life. Finally, there is the need for a research into the importance of resources; performance evaluation of policy implementers; and the disposition of implementers in policy implementation identified in the study. Such a study will throw more light on the effects of these variables in policy implementation in general and pro-poor policies in particular.

9.7 Recommendations for Practice and Policy

The findings of this study suggest specific courses of action to ensure sustainable water supply to the urban poor.

Establishment of Policy Indicators

It is recommended that the MWRWH in conjunction with the GWCL and other stakeholders in the urban water sector develop objectively measurable indicators to track the implementation of the policy measures outlined in the National Water Policy.

Expansion of Water Supply Infrastructure

There is the need to inject more funds in urban water infrastructure to rehabilitate the existing urban water systems and build new ones to expand urban water supply. When the urban water systems are expanded, it will increase the productive capacity of the GWCL to meet the water needs of the urban poor, especially those in peri-urban areas. It is however evident that the government alone cannot mobilize the needed resources to expand the water supply infrastructure. It is therefore important for the government to explore other avenues to improve urban water supply, especially to low income areas. In this vain, it would be appropriate for the government to encourage small-scale independent water providers to invest in the urban water sector. This could be done by breaking the monopoly of the GWCL as the sole urban water provider through a legislative instrument; licensing of small-scale independent water providers; and regulating their activities. The small-scale independent water providers could partner the public sector or even communities to produce and

distribute their own source of water such as mechanized boreholes with distribution lines as done under the small town water supply system.

Improvement in the Operational Efficiency of GWCL

The study further recommends massive rehabilitation of the over aged distribution lines to reduce the high level of UfW and improve water supply to people connected to the network. It will also improve water supply to water vendors who depend on GWCL for water, and ultimately the urban poor. It is also important for the GWCL to procure bulk supply meters to enable the company to accurately measure water produced and distributed by the water systems. In addition, it would be apt for the GWCL to improve monitoring of the distribution system by investing in modern leakage detection systems such as Supervisory Control and Data Acquisition (SCADA) system. The GWCL should also institute measures to reduce commercial losses which are mostly through illegal connections, metering errors, billing anomalies and siphoning of water. This could be done through procurement of meters for customers, improving billing and collection system and checking of siphoning of water, among others. However, given the current management style of the GWCL there is the need to set performance standards with clear benchmarks and sanctions to make these recommendations work.

Improved Governance and Accountability in the Urban Water Sector

The governance structure of the GWCL should be in tune with the dictates of the companies' code. The appointment of a Managing Director of the GWCL should therefore be the preserve of the Board of Directors devoid of external interferences. The appointment of people to the topmost position in the urban water sector should also be devoid of politics, and be done on competitive basis.

There is the need for the Government to demand accountability from the Board of Directors of the water sector institutions for it to trickle down to the management and other staff. This could be done through the introduction of social accountability mechanisms and the signing of performance contracts with objectively measurable targets which cascade down to departments, regional, district, and individual targets to drive efficiency.

There is a definite call for community participation in the urban water sector. This will enable poor communities articulate their needs to the utility. It will enable citizens to demand transparency and accountability from decision makers and service providers, and thereby enhance the effectiveness of policy implementation. This may however require some changes in the existing system of water services delivery to incorporate a community participation strategy.

Recognition of Small Scale Water Providers

It is also worthy for the MWRWH and the PURC to come out with mechanisms for licensing the small-scale water providers, also known as water vendors, and regulating their activities. This will help to improve the quality of water supply to the urban poor. The licensing and regulation of the small scale water providers will formalize their activities and make them more efficient. It will also compel them to produce and distribute quality water at affordable prices. Registration and licensing of small scale water providers is likely to enhance effective organization of the small-scale water providers into cooperative associations through which their activities can be effectively monitored and regulated. It will also enhance their ability to source more capital and form partnerships to expand their operations to compliment the efforts of the GWCL.

Establishment of Pro-poor Units in GWCL

In order to ensure accurate targeting of the urban poor for water supply, it is recommended that the GWCL establishes functional Pro-Poor Units with clear cut mandate to deal with the peculiar water supply challenges facing the urban poor. This is because evidence from the review of the case studies of pro-poor water supply show that service delivery to the urban poor requires special approach. The establishment of the pro-poor units will ensure local participation in urban water delivery; enhance access of the poor to the piped network; increase revenue of the utility provider; and improve consumer relations. The unit, when established, should however be manned by people who are well-versed in propoor approaches and positively disposed to pro-poor interventions to ensure the realization of its objectives.

9.8 Conclusion

This study attempted to examine the extent to which the National Water Policy is addressing the water needs of the urban poor. It reveals that the policy has a number of policy measures aimed at improving water supply to the urban poor. However, the challenge has been the implementation of the policy measures. The study also affirms the established view that water supply to the urban poor is a challenge and thus majority of the urban poor depend on water vendors for water at a higher cost. Indeed, the urban poor pay high poverty penalty in the urban water market due to their disadvantaged position. There is therefore the need to promote initiatives, some of which have been outlined in this study, to improve water supply to the urban poor on sustainable basis. It is hoped that notwithstanding the limitations of this study, it shall serve as a pivot for future research in pro-poor urban water supply and stimulate further academic pursuit in policy implementation.



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APPENDICES

APPENDIX 1

QUESTIONNAIRE FOR HOUSEHOLD HEADS

Name of Enumerator : _____ **Date** :

Community : **Suburb**:

House No: : **Remarks** :

Introduction

This survey is about sustainable urban water supply. The aim is to examine how the National Water Policy addresses the water needs of the urban poor. The purpose is to explore how sustainable water supply to the urban poor can be achieved. Your participation is voluntary. The information you will provide will be treated with the highest level of confidentiality and will be used only for the purpose of this research. Your kind cooperation, response, and time are highly solicited.

A. Personal Details/Household Characteristics

1. Age

2. Sex

- i. Male () ii. Female ()

3. How long have you lived in this community? _____ Years.

4. What is your status in the house?

- i. Landlord () ii. Relative of the Landlord () iii. Tenant () iv. Caretaker ()
v. Other, specify _____

5. Major/main occupation _____

6. Marital status

- i. Never married () ii. Married () iii. Consensual union () iv. Separated ()
v. Divorced () vi. Widowed ()

7. Highest level of education _____

8. How many people are in your household?—Please specify number of

- i. Adults (18 years and above) ii. Children (Below 18 years)

9. How many households are in this house? _____

10. On the average how much does your household spend on the following items in a month?

No.	Item	Amount (GHC)
I	Food	
II	Clothing	
III	Rent	
IV	Sanitation (toilet/refuse disposal)	
V	Others	

11. What is your average household income?

- i. GHC _____ a day (ii) GHC _____ a week (iii) GHC _____ a month
(iv) Other, specify, GHC _____

12. What are the sources of your household income? **Please list**

B. Acceptability (Quality of Water that is whether from improved or unimproved source)

13. What source of water do you normally use for the following? **Please tick the appropriate cell.**

No	Sources of Water	Uses of Water			
		Drinking	Cooking	Washing/ Cleaning	Bathing
I	Indoor tap				
II	In yard standpipe				
III	Pipe in neighboring house				
IV	Private standpipe				
V	Public standpipe				
VI	In yard Borehole				
VII	Public Borehole				
VIII	Private Borehole				
IX	Water kiosk				
X	In yard well (covered)				
XI	Public well (covered)				
XII	Private well (covered)				
XIII	In yard well (not covered)				
XIV	Private well (not covered)				
XV	Public well (not covered)				
XVI	Cart with small tank/drum				
XVII	Motorized Truck _Tutututu_				
XVIII	Water Truck				
XIX	Tanker Truck				
XX	River/stream				
XXI	Rain water				
XXII	Sachet Water				

XXIII	Others (specify)				
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14. Which of the following do you take into consideration when collecting water for your household? **Please rate on a scale of 1-not critical, 2-Quite critical, and 3Very critical.**

Characteristics	Scale		
	1	2	3
Cost of water			
Distance to water point			
Reliability of supply			
Quality of water			
Time wasted at the water point			

15. Which of the following do you think is/are critical to the supply of water in this community? **Please, rank with the most critical issue being 7, and the least being 1.**

- i. Cost of water () ii. Time wasted at the water point () iii. Intermittent/reliability of supply () iv. Quality of water (colour, smell, dirt etc) () v. Distance to water point () vi. Participation of the community in water issues ()
- vii. Poor handling of complains ()

16. How satisfied are you with the following qualities of your regular water source?
Please tick the appropriate cell.

Water Quality	Scale of Satisfaction				
	1 V. Satisfied	2 Satisfied	3 Neutral	4 Dissatisfied	5 V. Dissatisfied
Colour					
Taste					
Smell/odor					
Dirt/particles					

C. Accessibility (Distance between water source and residence and time spent to fetch water)

17. Is your house connected to the GWCL network?

- i. Yes () No. ()
18. If no to question 17, why? **Please accept multiple answers.**
- i. Expensive connection fee ()
- ii. Pipe connection network is not available in this area ()
- iii. Don't want to be billed on monthly basis ()
- iv. Landlord will not pay the connections fee () v. Others (specify) _____
-
19. How far is your normal water source (distance)?
- i. $\leq 1/2\text{ Km}$ () ii. $\geq 1/2\text{ km but } \leq 1\text{ km}</math> () iii. >1 km but <math>< 2\text{km}</math> ()$
20. How satisfied are you with the distance between your home and source of water?
Please circle a number to indicate the extent to which you are satisfied or not.
- | | | | | |
|---------------------|------------------|----------------|---------------------|------------------------|
| 1 | 2 | 3 | 4 | 5 |
| V. satisfied | Satisfied | Neutral | Dissatisfied | V. Dissatisfied |
21. How many minutes do you spend before you get to your normal water source?
- i. <math>< 5\text{mins}</math> () ii. $\geq 5\text{mins} \leq 10\text{mins}</math> () iii. $> 10\text{mins} \leq 20\text{mins}</math> ()$$
- Iv. $> 20\text{mins} \leq 30\text{mins}</math> () v. $> 30\text{mins} \leq 1\text{hr}</math> () vi. >1hr ()$$
22. How many minutes do you spend at your normal water point before you are served?
- i. <math>< 5\text{mins}</math> () ii. $\geq 5\text{mins} \leq 10\text{mins}</math> () iii. $> 10\text{mins} \leq 20\text{mins}</math> ()$$
- Iv. $> 20\text{mins} \leq 30\text{mins}</math> () v. $> 30\text{mins} \leq 1\text{hr}</math> () vi. >1hr ()$$
23. How satisfied are you with the waiting time at your normal water point before you are served? **Please circle a number to indicate the extent to which you are satisfied or not.**
- | | | | | |
|---------------------|------------------|----------------|---------------------|------------------------|
| 1 | 2 | 3 | 4 | 5 |
| V. satisfied | Satisfied | Neutral | Dissatisfied | V. Dissatisfied |
24. How many trips does your household make to your normal water point in a day? _____
25. Who is responsible in your household for fetching water from your normal source?

- i. Women only () ii. Women and children () iii. Women and men ()
- i. Women, men, and children () vi. Men only () vii. Men and children () viii. Children only ()

26. If your main source of water is from a water vendor, what is your perception on water vendors with respect to water supply to the urban poor?

27. If your main source of water is from a water vendor, how satisfied are you with their services? **Please circle a number to indicate the extent to which you are satisfied or not.**

1 2 3 4 5 **V. satisfied Satisfied Neutral**
Dissatisfied V. Dissatisfied

28. Mentioned two ways of improving the operations of water vendors?

Availability (Reliability of water source/quantity of water that can be accessed from source)

29. How many containers of water (‘Kuffour Gallon’) do you use in your household in a day? Small Gallon (20 liters) in a day **and/or** Big Gallon (25 liters) in a day.

30. If your house is connected to the GWCL network, how often is the supply of water to your household?

- i. Every day () ii. Six days in a week () iii. Five days in a week ()
- iv. Four days in a week () v. Three days in a week () vi. Two days in a week ()
- vii. Once in a week () viii. Once in every two weeks () ix. Other, specify

31. In the event that you do not get water from your main water source how do you get water for your household?

32. All things being equal, how confident are you that you will get water from your main source when you need it? **Please circle a number to indicate the extent to which you are confident or not.**

1 2 3 4 5 V.
Confident Confident Neutral Doubtful V. Doubtful

33. Do you store water in your home?

i. Yes () ii.
 No. ()

34. If yes to question 33, which of the following storage facilities do you use? **Please accept multiple answers.**

i. Poly tank () ii. Metal
 tank () iii. Concrete tank
 () iv. Barrel () v. Jerry
 can ()

vi. Other, specify ()

D. Affordability (Cost of water in relation to income)

35. If your house is connected to GWCL network, how much does your household pay for GWCL water per month? GHC

36. If you are not connected to GWCL network, how much do you pay per a container (Kuffour gallon) of water from your regular water source?

Small Size (20 liters) GHC / Big Size (25 liters) GHC

37. On the average, how much does your household spend on water in

(i) a day GHC (ii) a week GHC (iii) a month GHC

Please include cost of sachet water, where applicable.

38. How affordable is the price you pay for water from your main water source?

Please circle a number to indicate the extent to which it is affordable or not.

1 2 3 4 5 V.
Affordable Affordable Neutral Unaffordable V.
Unaffordable

39. Do you at times buy water on credit?

i. Yes () ii. No ()

E. Willingness to Pay

40. Your community has been identified as one of the communities in Accra with water supply problems. If there is an intervention to improve the level of service in water supply in this community so that you can get reliable, accessibly and good quality water supply; are you willing to pay for improved service?

i. Yes () ii. No. ()

41. If no to question 40, why are you not willing to pay for an improved service?

42. If yes to question 40, what source of improved water supply do you want?

i. Piped source in the house () ii. Mechanized borehole in the house () iii. Stand pipe from borehole close to the house () iv. Stand pipe from GWCL close to the house () v. Water kiosk close to the house () vi. Tanker/truck service () vii. Other, specify.

43. If yes to question 40, why do you want the source you have chosen?

44. If yes to question 40, how do you want the service to improve?

45. If yes to question 40, how much are you willing to pay per gallon of water (Small _Kuffour Gallonl /20 liters)?

i. GHp60 () iv. GH GHp30 ()
ii. GHp50 () v. GHp20 ()

- iii. GHp40 () vi. Other, specify GHp _____

46. If your preferred improved water source indicated in question 42 is either pipe or borehole in the house (answer i or ii) are you and other households in this house willing to pay a minimum connection fees of GH¢400.00?

- i. Yes () No ()

47. If no to question 46, how much are you and the other households willing to pay to get connected? GH¢ _____

F. General Satisfaction

48. What was the water supply situation in this community before the implementation of the National Water Policy (2008)?

49. What is the current water supply situation in this community?

50. Are you generally satisfied with water supply in this community?

- i. Yes () No. ()

51. Give two reasons for your answer.

52. What is your level of satisfaction or dissatisfaction with water supply in this community?

Please circle a number to indicate the extent to which you are satisfied or not.

1 2 3 4 5
V. Satisfied Satisfied Neutral Dissatisfied V. Dissatisfied

53. How do you want the water supply situation in this community to be in the future?

54. Do you think your desired future water situation can be realized?

i. Yes () ii. No ()

55. Give two reasons for your answer.

G. Stakeholders Participation

56. Are you aware of the existence of a National Water Policy?

i. Yes () ii. No. ()

57. If yes to question 56, what does the policy say with regards to water supply to the urban poor?

58. Are you involved in decisions concerning water supply?

i. Yes () No. ()

59. Give two reasons for your answer.

60. Mention two ways by which community participation in urban water supply can be promoted?

H. Sustainability

61. Mention two factors, in your opinion, that are hindering water supply to the urban poor?

62. Mention two ways by which water supply to the urban poor be improved on sustainable basis?

63. Do you think the participation of the private sector in urban water supply can improve water supply to the urban poor on sustainable basis?

i. Yes () ii. No ()

64. Give two reasons for your answer.

65. Mention two ways by which the potentials of the private sector can be tapped to improve urban water supply on sustainable basis?

Thank you.

APPENDIX 2
QUESTIONNAIRE FOR FIXED POINT WATER VENDORS
(TAP/BOREHOLE/WELL/WATER KIOSK VENDORS)

Name of Enumerator: _____ Date : _____
Community : _____ Suburb : _____
House No : _____ Type of Vendor: _____
Remarks : _____

Introduction

This survey is about sustainable urban water supply. The aim is to examine how the National Water Policy addresses the water needs of the urban poor. The purpose is to explore how sustainable water supply to the urban poor can be achieved. Your participation is voluntary. The information you will provide will be treated with the highest level of confidentiality and will be used only for the purpose of this research. Your kind cooperation, response, and time are highly solicited.

A. Personal Details of Respondents

1. Age _____
2. Sex
i. Male () Female ()
3. What is your position in this business?
ii. Owner () ii. Wife of Owner () iii. Husband of Owner () iv. Relative of the owner () v. Caretaker () v. vii. Other, specify _____
4. What is the sex of owner
ii. Male () ii. Female ()
5. Highest level of education _____

B. Sources and Storage of Water

6. What is your main source of water?

- i. GWCL pipe ()
- ii. Borehole (mechanized) ()
- iii. Borehole (Un-mechanized) ()
- iv. Well (covered) ()
- v. Well (uncovered) ()
- vi. Tanker/Truck ()
- vii. Other, specify _____

7. In the event that your main water source is not available, where do you get water from?

- i. GWCL pipe ()
- iii. Borehole (mechanized) ()
- iv. Borehole (Un-mechanized) ()
- v. Well (covered) ()
- vi. Well (uncovered) ()
- vii. Tanker/Truck ()
- viii. Other, specify _____

8. How satisfied are you with your main water source in terms of the following?

Please tick the appropriate cell.

Water Quality	Scale of Satisfaction				
	1 V. Satisfied	2 Satisfied	3 Neutral	4 Dissatisfied	5 V. Dissatisfied
Availability					
Accessibility (Distance and Delivery Time)					
Cost					
Quality					

9. Is your main water source able to meet the demand of your customers?

- i. Yes ()
- ii. No ()

10. Will you prefer another source of water, when given the opportunity?

- i. Yes ()
- ii. No ()

11. Give two reasons for your answer.

12. If yes to question 10, which water source will you prefer?

- i. GWCL pipe ()
- ii. Borehole (mechanized) ()
- iii. Borehole (Un-mechanized) ()

iv. Well (covered) () v. Tanker/Truck ()

vi. Other, specify _____

13. If yes to question 10, give three reasons why you prefer that particular source?

14. Do you sometimes sell water on credit?

i. Yes () ii. No ()

15. What storage facility do you use?

i. Poly tank () ii. Metal tank () iii. Concrete tank ()
iv. Barrel () v. No storage facility () vi. Other, specify _____

16. What is the capacity of your storage tank? _____ Gallons or liters _____

17. How long do you store water?

18. Do you wash your storage facility?

i. Yes () ii. No ()

19. If yes to question 20, how often do you wash your storage facility?

i. Twice in a month () ii. Once in a month () iii. Once in a quarter () iv. Other, specify _____

C. Water Vending

20. How much does it cost you to fill your storage facility? ~~GHC~~ _____

21. How much do you pay for a trip of water supplied by a tanker/truck? ~~GHC~~ _____

22. How many trips (tanker/truck) do you order at a time?

- i. One trip () ii. Two trips () iii. Three trips ()

23. How long does it take to refill your storage facility when it is full? _____ days

24. How much do you spent on the following items per month? (You may add to the items)

- i. Water cost GHC
ii. Salaries and wages of workers GHC
iii. Taxes to the government/Assembly GHC
iv. System maintenance and repairs GHC
v. Fees to the Government/Assembly GHC

25. How much do you sell a 'kuffour gallon' of water? Small size GHC _____ Big size GHC

26. On the average, how much do you get from the sale of water in day? GHC

27. How do you decide on the price/charge for your water?

- i. Cost of service provision ()
ii. Prices charged by competitors ()
iii. What you think the customer can pay iv. ()
Others (specify)

28. Who started this business?

- i. Mother ()
i. Father ()
ii. Sibling ()
iii. Grandparents ()
-

- iv. The current owner ()
- v. Other, specify _____
29. How long have you been in this business? _____
30. Why did you enter the water vending business?
- i. Joblessness/needed income ()
- ii. Profitable business ()
- iii. Community need/neighbour needed ()
- iv. Inherited business/parents were involved ()
- v. Other, specify _____
31. How many people are employed by the business? (Males__ and __ Females).
32. How many unpaid family hands are engaged in the business? (Males__ and Females).
33. What are your working hours? _____ am to _____ pm
34. How many days in a week do you work?
- i. 5 days () ii. 6 days () iii. 7 days ()
35. On the average, how much capital do you need before you can start this type of business?
GHC _____
36. Is your business licensed/registered?
- i. Yes () iii. No ()
37. If yes to question 36, who is the licensing authority?
- i. IRS () ii. AMA/AdMA () iii. GWCL () iv. Others (specify) _____
38. If no to question 36, why?

39. Do you experience people queuing for water at your water point?
- i. Yes () ii. No ()
40. If yes to question 39, what time do people normally queue?

Period of the Day	Ti me	
	From	To
Morning		
Afternoon		
Evening		
Night		

41. How many people are you able to serve at a time?

i. One ii. Two

iii. Three iv.

Four

v. Other, specify

KNUST

42. How many minutes do people normally wait at your water point before they are served?

i. <5mins () ii. $\geq 5\text{mins} \leq 10\text{mins}$ () iii. $> 10\text{mins} \leq 20\text{mins}$ () Iv. $> 20\text{mins} \leq 30\text{mins}$

() v. $> 30\text{mins} \leq 1\text{hr}$ ()

43. Does the private sector have the capacity to supply the urban poor with water?

i. Yes ()

ii. No ()

44. Give two reasons for your answer.

45. Mention two ways by which the potentials of private water providers can be tapped to improve urban water supply on sustainable basis?

46. Mention two major challenges associated with this business

47. How can the challenges be addressed?

THANK YOU

APPENDIX 3

QUESTIONNAIRE FOR MOBILE WATER VENDORS
(TANKER/TRUCK/PUSHCART VENDORS)

Name of Enumerator: **Date** :

Community :

Type of Vendor:

Remarks :

Introduction

This survey is about sustainable urban water supply. The aim is to examine how the National Water Policy addresses the water needs of the urban poor. The purpose is to explore how sustainable water supply to the urban poor can be achieved. Your participation is voluntary. The information you will provide will be treated with the highest level of confidentiality and will be used only for the purpose of this research. Your kind cooperation, response, and time are highly solicited.

A. Personal Details of Respondents

1. Age

2. Sex Male ()

Female ()

3. What is your position in this business?
 i. Owner () ii. Driver () iii. Relative of the owner ()
 iv. Others (specify)

4. Occupation of Owner

5. Highest level of education _____

B. Sources and Storage of Water

6. What is your main source of water?
 i GWCL pipe () ii. Borehole (mechanized) ()
 iii. Borehole (Un-mechanized) () iv. Well (covered)
 () v. Well (uncovered) () vi. Others (specify)

7. In the event that your main water source is not available, where else do you get water from?

- i GWCL pipe () ii. Borehole (mechanized) ()
 iii Borehole (Un-mechanized) () iv. Well
 (covered) () v. Well (uncovered) ()
 vi. Others (specify)

8. How satisfied are you with your main water source in terms of the following?

Please tick the appropriate cell.

Water Quality	Scale of Satisfaction				
	1 V. Satisfied	2 Satisfied	3 Neutral	4 Dissatisfied	5 V. Dissatisfied
Availability					
Cost					
Distance to the source					

Quality					
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9. Is your main water source able to meet the demand of your customers?

- i. Yes () ii. No ()

10. Will you prefer another source of water, when given the opportunity?

- i. Yes () ii. No ()

11. Give two reasons for your answer.

12. If yes to question 11, which water source will you prefer?

- i. GWCL pipe ()
 ii. Borehole (mechanized) ()
 iii. Borehole (Un-mechanized) ()
 iv. Well (covered) ()
 v. Other, specify ()

13. Give two reasons why you prefer that particular source?

14. How often do you wash your tank (s)?

- i. Twice in a month () ii. Once in a month () iii. Once in a quarter ()
iv. Other, specify _____

D. Water Vending

15. Who started this business?

- i. Mother () ii Father () iii Sibling () iv Grandparents () v The current owner () vi. Other, specify _____

16. How long have you been in this business?

17. Why did you enter the water vending business?

- i. Joblessness/needed income ()
ii. Profitable business () iii Community need () iv Inherited business/parents were involved () v Other, specify _____

18. How many people are employed by the business? ___ (Male ___ and ___ Females).

19. What are your working hours? _____ am to _____ pm

20. How many days in a week do you work? i 5 days () ii 6 days () iii 7 days ()

21. What is the capacity of your tank(s)? _____ Litres

22. How much does it cost you to fill your tank(s)? GHC ___ per _____ litres/gallons

23. How much do you sell your water to your customers? GHC_____ per ___ litres/gallons

24. How many tanks do you sell in a day?

25. How do you decide on the price/charge for your water?

- i. Cost of service provision (cost of water + transport) () ii
Prices charged by competitors
() ii. What you think the customer can pay
() iii. Other, specify

26. Do you offer credit to your customers?

- i. Yes () ii. No ()

27. Are you able to meet the demands of your customers?

- i. Yes () ii. No ()

28. Give two reasons for your answer

29. How much do you spent on the following items per month? (You may add to the items)

- i Water cost _____ GHC
ii Salaries and wages of workers _____ GHC
iii Taxes _____ GHC iv System maintenance and
repairs _____ GHC vi. Fees to the Government/Assembly _____ GHC vii.
viii.

30. On the average, how much capital do you need before you can start this type of
business? GHC

31. How did you raise capital to start/finance this business, if you are the owner?

32. Is your business licensed/registered?

i. Yes () iii. No ()

33. If yes to question 32, who is the licensing authority?

i. IRS () ii. AMA/AdMA () iii. GWCL () iv. Others (specify)

34. If no to question 32, why? .

35. Does the private sector have the capacity to supply the urban poor with water?

i. Yes () ii. No ()

36. Give two reasons for your answer.

37. Mention two ways by which the potentials of private water providers can be tapped to improve urban water supply on sustainable basis?

38. Mention two major challenges associated with this business

39. How can the challenges be addressed?

Thank You