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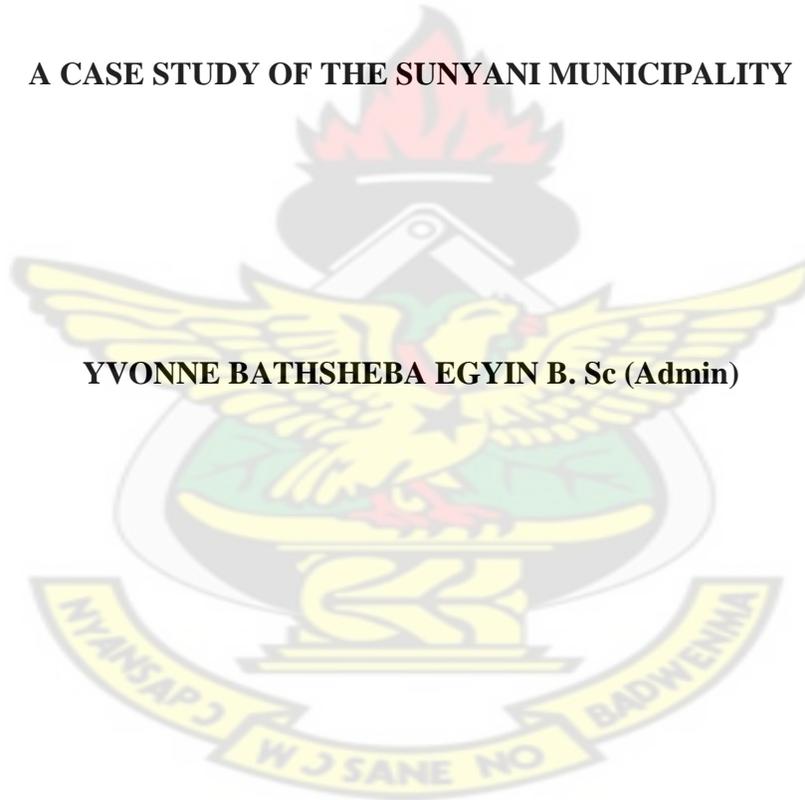
**INSTITUTE OF DISTANCE LEARNING**

**KNUST**

**AN ASSESSMENT OF THE SERVICE DELIVERY OF GWCL/AQUA VITANS:**

**A CASE STUDY OF THE SUNYANI MUNICIPALITY**

**YVONNE BATHSHEBA EGYIN B. Sc (Admin)**



**July, 2011**

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**BY**

**YVONNE BATHSHEBA EGYIN B. Sc (Admin)**

**A DISSERTATION SUBMITTED TO THE INSTITUTE OF DISTANCE LEARNING,  
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI, IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE  
DEGREE OF MASTER OF BUSINESS ADMINISTRATION (CEMBA) DEGREE**

**JULY, 2011**

## DECLARATION

I hereby declare that this submission is my own work towards the CEMBA and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the text.

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Mr. Jones Lewis Arthur \_\_\_\_\_

(Principal Supervisor)

Signature

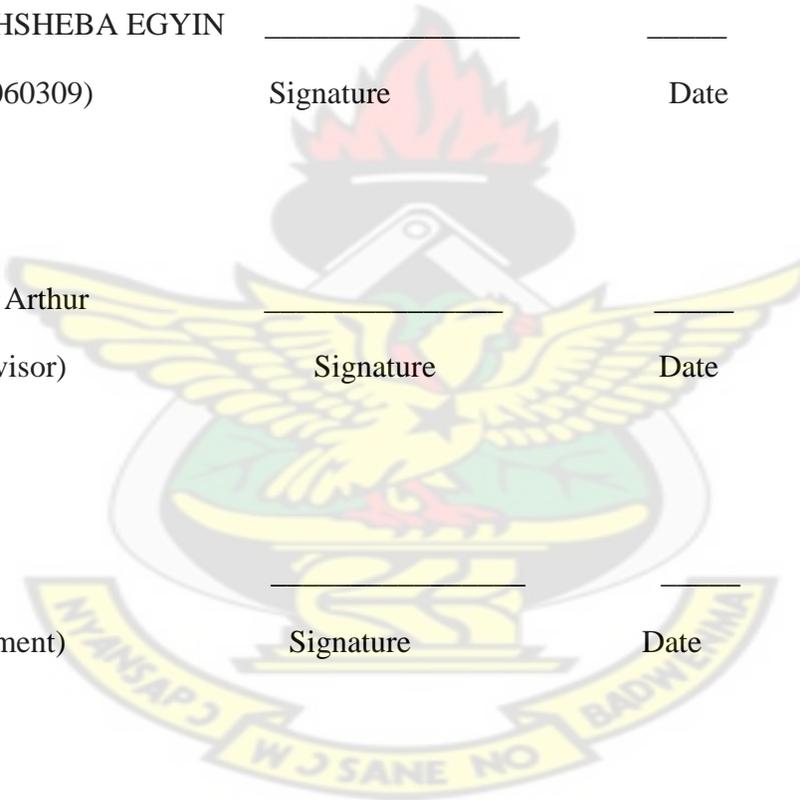
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(Head of Department) \_\_\_\_\_

Signature

\_\_\_\_\_ Date



## DEDICATION

I dedicate this work to God Almighty, my husband, Mr. Kodwo Boakye Egyin, Mr. Jones Lewis Arthur, and my children Kow, Araba and Kurankwesi through whose sacrifice, support and encouragement I have come this far.

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## ABSTRACT

The water supply and sanitation sector in Ghana faces severe problems, partly due to a neglect of the sector until the 1990s. Tariffs were kept at a low level which was far from reflecting the real cost of the service. Economic efficiency still remains below the regional average, resulting in a lack of financial resources to maintain and extend the infrastructure. This thesis assessed the challenges facing water supply in Sunyani Municipality. A questionnaire was designed using structured questions to collect primary data from workers and households served by the GWCL. Personal interviews were held to solicit views and comments from some respondents.

The study showed that 15% of the customers received water supply within 16 - 24 GMT in a day whilst 45% received water supply within 8 - 16 GMT and 40% received water supply within 0-8 GMT in a day. Generally flow of water has improved since AVRIL merged with GWCL for operation of the supply of water. The flow was best in the South districts (76%) and worst in the Central district (56%). Overall it was 59% to 41% improved service and deteriorated service respectively. Customers were also satisfied with the quality of water supply service delivery. Many (77%) customers did not have problems with the smell of the water whilst 80% of the customers had no problem with the taste of the water supplied. The major complaints (67%) was with the colour of the water which needs to be looked at. Complaints were mostly made in person (86%). This in terms of DALY (Disability Adjustment Life Years) could amount to several thousands of cedis lost in a year. The attitude of GWCL/AVRIL staff to complaints was very poor. Sixty-nine percent (69%) were not satisfied with the response to complaints. However meter readers were generally found to be customer friendly with sixty-two percent (62%) of the customers satisfied with the meter readers. Overall the customers perception on the price of water was relatively high (97%) and an increase in the water tariff may create problems.



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## **Glossary of Abbreviation**



<b>AVRL:</b>	Aqua Vitens Rand Limited
<b>AWWARF:</b>	American Water Works Association Research Foundation
<b>CWSA:</b>	Community Water and Sanitation Agency
<b>DA :</b>	District Assembly
<b>DANIDA:</b>	Danish International Development Agency
<b>DCD :</b>	District Coordinating Director
<b>DCE:</b>	District Chief Executive
<b>EPA:</b>	Environmental Protection Agency
<b>ESA :</b>	External Support Agency
<b>GPRS:</b>	Growth and Poverty Reduction Strategy
<b>GoG:</b>	Government of Ghana
<b>GWCL:</b>	Ghana Water Company Limited
<b>GWP:</b>	Global Water Partnership
<b>GWSC:</b>	Ghana Water and Sewage Corporation
<b>HH :</b>	Household
<b>HDW:</b>	Hand Dug Well
<b>ISODEC:</b>	Integrated Social Development Centre
<b>MDAs :</b>	Ministries, Departments and Agencies
<b>MLGRDE:</b>	Ministry of Local Government, Rural Development and Environment
<b>MWRWH:</b>	Ministry of Water Resource, Works and Housing
<b>NWP:</b>	National Water Policy
<b>NGO :</b>	Non-Governmental Organization
<b>NCWSP :</b>	National Community Water and Sanitation Program

<b>NCWSP:</b>	National Community Water and Sanitation Program
<b>NWP:</b>	Netherlands Water Partnership
<b>NEPAD:</b>	New Partnership for African Development
<b>O &amp; M:</b>	Operation and Management
<b>PC :</b>	Private Connection
<b>PO :</b>	Private Operator
<b>PSP:</b>	Private Sector Participation
<b>PSI:</b>	Private Sector Involvement
<b>PPP:</b>	Public Private Partnership
<b>PPIAF:</b>	Public Private Infrastructure Advisory Facility
<b>PSP:</b>	Private Sector Participation
<b>PURC:</b>	Public Utility Regulatory Commission
<b>SMA:</b>	Sunyani Municipal Assembly
<b>STWS:</b>	Small Town Water System
<b>STWSS:</b>	Small Town Water Supply System
<b>STWP:</b>	Small Town Water Project
<b>UFW:</b>	Unaccounted for Water
<b>USAID:</b>	United States Agency for International Development
<b>UNCHS:</b>	United Nations Centre for Human Settlements
<b>UNDP:</b>	United Nations Development Programme
<b>WHO:</b>	World Health Organization
<b>WRC:</b>	Water Resource Commission
<b>WSSCC:</b>	Water Supply and Sanitation Collaborative Council

- WTP:** Willingness To Pay
- WWC:** World Water Council
- WUP:** Water Utility Partnership
- WSS :** Water Supply System
- WSP :** Water and Sanitation Programme
- WSDB:** Water and Sanitation Development Board

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## ACKNOWLEDGMENTS

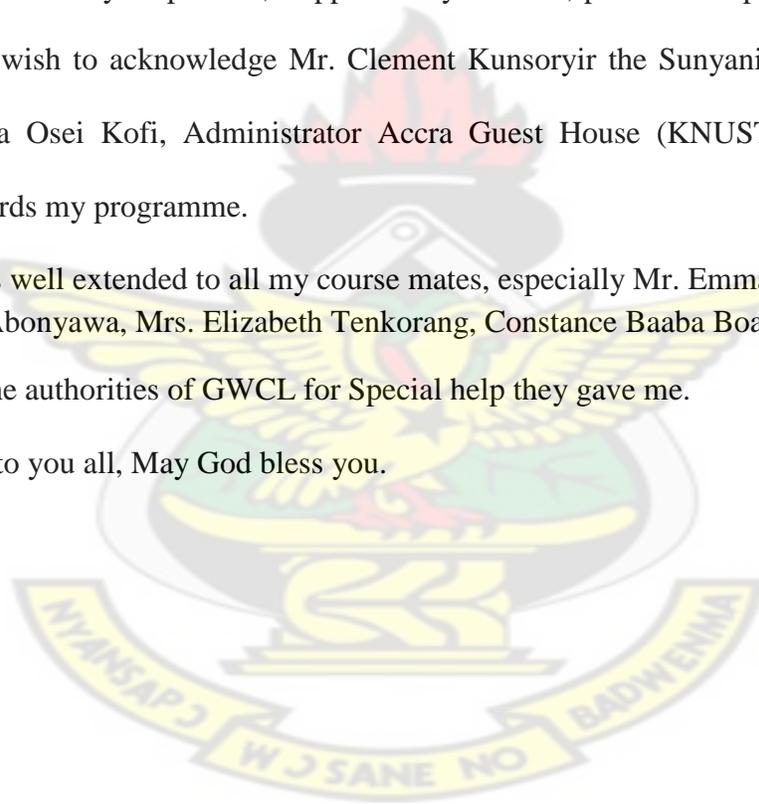
As always, I thank Almighty God for everything He has done in my life, His provision of health, protection and the means to pursue this programme.

I wish to express my profound gratitude to Mr. Jones Lewis Arthur the Executive Director of Brong Ahafo Research and Extension Centre (BAREC) for accepting the task of supervising this research work and for his support and direction. Mr. Kodwo Boakye Egyin my husband, your assistance to me has really helped me, I appreciate your time, practical help and contribution to this work. I also wish to acknowledge Mr. Clement Kunsoryir the Sunyani Cembra Coordinator and Mrs. Theresa Osei Kofi, Administrator Accra Guest House (KNUST) for a special contribution towards my programme.

My gratitude is as well extended to all my course mates, especially Mr. Emmanuel Amoabeng, Owusu Sekyere Abonyawa, Mrs. Elizabeth Tenkorang, Constance Baaba Boateng.

I am grateful to the authorities of GWCL for Special help they gave me.

I remain grateful to you all, May God bless you.



## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 BACKGROUND OF THE STUDY**

“All people, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs” (United Nations publication, Sales No. E.77.II.A.12, Mar del Plata Water Conference, 1977). Water is the most important of all public services. It is the most essential necessity of life after oxygen. Anything that disturbs the provision and supply of water therefore tends to disturb the very survival of humanity.

Although water covers about 70 percent of the Earth’s surface, only 1 percent of it is available to us as a source of drinking. It is understood that our body is made up of about 70 percent water and that it controls virtually every aspect of our health. The importance of water is not only attached to the drinking but also to cooking, bathing, washing and other activities. Where provisions for water and sanitation are inadequate, the diseases that arise from contaminated food, water and hands are among the world’s leading causes of premature death and serious illness. (United Nations publication, Sales No. E.77.II.A.12).

The challenges facing many countries in the world today in their struggle for economic and social development is increasingly related to water. One of the international goals set for the year 2015 in the United Nations Millennium Declaration and in the plan of implementation of the world summit on sustainable development is reducing the proportion of people without adequate

access to water and basic sanitation by one-half. While access to sufficient and clean drinking water may be taken for granted in the developed world, problems with access are most severe in the developing world, where more than five million people perish every year from water-related diseases, and more than one billion people suffer without access to water for their basic needs (Geotimes, 2005).

Africa has the lowest water supply and sanitation coverage of any region in the world. More than 30% of Africans residing in urban areas currently lack access to adequate water services and facilities. In the year 2000, World Health Organisation (WHO) estimated that Africa contains 28% of the world's population without access to improved water supplies, and 13% of the world's population without access to improved sanitation. Only 62% of the people in African countries have access to improved water supplies, and only 60% have access to improved sanitation (WHO, 2000; p6).

The Water Utility Partnership, an organization that deals with capacity building of water supply and sanitation utilities in Africa, has noted that: “public water services in many African countries have been assigned to a single water authority and the abilities of governments to deliver water adequately have been negatively affected by a number of factors. Thus urban water systems are characterized by heavy losses both financially and of water itself. Africa is also noted as urbanizing more than any other region in the world. Between 1995 and 2005, the urban population was expected to grow from 300 to 700 million, and by 2020 it is expected that over 50% of the population in African countries will reside in urban areas” Water Utility Partnership (WUP, Africa, 2003)

According to World Health Organization (WHO), in order to meet the recently established Millennium Development Goals (MDGs) of halving the unserved population by 2015, urban Africa requires about 6000 to 8000 new water connections to water source every day. This will call for strong political commitment backed by resources and action if governments are willing to reduce the widening gap between served and unserved households.

Water utility customers want adequate and a reasonable quality of water service delivery with environmental protection and public health protection at the lowest reasonable cost (AWWARF, 1998). The quality of water delivered and used for households is an important aspect of domestic water supplies, which influences hygiene and therefore public health (WHO, 2003). Large numbers of households in cities around the developing world do not have access to one of the basics of human needs—a safe and reliable supply of drinking water, (McKenzie et al, 2009). At the beginning of 2000, at least 1.1 billion people in the world lack access to safe drinking water (UNICEF and WHO, 2000).

(Stephens, 1996), showed that in Ghana low-income communities that relied on public taps received less water and faced greater shortages than high-income communities in part because of the consumption patterns of the latter. A further problem with intermittent water supply is that households may be forced to store water within or close to the home, thus leading to increasing risks from vector-borne diseases. Zerah (2000) indicates that low-income families in New Delhi are likely to be at greatest risk from poor water supply continuity. Furthermore, as many developing countries are either already experiencing or facing water scarcity and water stress, the need to control consumption of water to conserve resources is also critical (Gleick, 1993). The

reform of public water utilities has received increasing attention over the past decade (Schwartz, 2009). It is in request of this that the study on the assessment of the GWCL service delivery in the Sunyani metropolis of the Brong Ahafo region is being undertaken.

In Ghana rainfall is not scarce and several rivers do not cease to flow, but clean water is denied millions of people. Similar to the urban water sector in many developing countries, there are serious constraints to meeting the challenge to provide adequate water for all urban residents. Water supply shortages and quality deterioration are among the problems which require greater attention and action. Various strategies are always being developed to make water accessible to all inhabitants. However due to insufficient structures coupled with rapid population growth and urbanization, the gap between demand and supply of water continues to widen.

### **1.1 Problem Statement**

The water supply and sanitation sector in Ghana faces severe problems, partly due to a neglect of the sector until the 1990s. Tariffs were kept at a low level which was far from reflecting the real cost of the service. Economic efficiency still remains below the regional average, resulting in a lack of financial resources to maintain and extend the infrastructure. Since 1994, the sector has been gradually modernized through the creation of an autonomous [regulatory agency](#), introduction of [private sector participation](#), and decentralization of the rural supply to 138 [districts](#), where user participation is encouraged. The reforms aim at increasing cost recovery and a modernization of the urban utility Ghana Water Company Ltd. (GWCL), as well as of rural water supply systems. (DANIDA, 2006).

Another problem which partly arose from the recent reforms is the existence of a multitude of institutions with **overlapping** responsibilities. The National Water Policy (NWP), was launched

in 2008 to help further clarify sector roles and priorities. *This seems to have lead to a poor quality of service in both rural and urban areas as consumers keep complaining about poor water delivery and quality* (Ghana News Agency (2004).

The NWP covers water resources as well as urban and community water. The overall objective of the project is to build national capacity for planning and delivery of pro-poor Water Supply, Sanitation and Hygiene – (WASH) services for accelerating access to sanitation and water supply in urban areas (ADB, 2009). This study tries to assess the problems and perceptions of consumers on the water services delivery rendered by the GWCL, Sunyani.

## **1.2 Objectives of the study**

The main objective is to assess the quality of water supply service delivery of Ghana Water Company Limited (GWCL) in the Sunyani metropolis.

The specific objectives for this study are to:

1. Identify the major causes of the frequent water shortages in Sunyani
2. Assess the customers perception on the flow reliability (hours) of the water service delivered
3. Assess the general perception on the quality of water delivered to consumers
4. Investigate the public perception on the Customer Care Services rendered by GWCL.
5. To determine the performance of the water service delivery (technical, financial and customer satisfaction).

## **1.3 Research questions**

The following are the research questions to be considered:

1. What is the major cause of frequent water shortages in Sunyani?

2. What is the assessment of the customers perception on the flow reliability (hours) of the water service delivered by GWCL?
3. What is the assessment of general perception on the quality of water delivered to consumers?
4. What are the public perceptions on the Customer Care Services rendered by GWCL?
5. What determine the performance of the water service delivery (technical, financial and customer satisfaction)?

#### **1.4 Significance of the Study**

This study is expected to increase knowledge and provide an-up-to-date information on urban water supply system and its adverse impacts on the urban poor. It will also serve as a working document to policy makers in the water sector and the Non Governmental Organisations. The study will further serve as benchmark data for any further investigation and also as a useful material for academic purposes.

It will enable the researcher to assess the expectations of the water quality service delivery and make inputs into the success and sustainability of the projects for GWCL. It will provide useful ideas to better enhance community water provision in developing countries.

Again the outcomes and the associated outputs of this research would enable GWCL to equip its partners, other sector players, citizens and communities to engage with sector providers and policy makers in providing quality and affordable water locally. This would enable GWCL and partners to contribute to creating demand and supply side accountability in sector governance.

Finally, this study would stimulate research in new and under researched areas that is likely to provide useful data to inform policy making, planning decisions and advocacy efforts at local and other levels.

### **1.5 Limitation of the Study**

Every research has limitations and this particular one is no exception. Firstly, financial difficulty constrained the researcher to interview a small sample size instead of the entire population of the chosen area for the study.

Again, it is very difficult in Ghana to elicit official information from individuals and households and even from government departments and agencies. As a common thing associated with all household surveys in Ghana some people feel uncomfortable to divulge the correct and absolute information to researchers for fear of being taxed or arrested by the police. No matter how open a researcher is, some respondents prefer to either hide their identity or not to give out the real information. This might be linked to the literacy level of the population as many people of low education are not well informed and exposed to the full relevance of research.

The officials of the Ghana Water Company (GWCL) and the Public Utilities Regulatory Commission (PURC) always have heavy schedules. Due to their extra responsibilities as well as travelling and attending conferences it was difficult to get them to fill their questionnaires. This necessitated the use of emails and telephone calls in some cases to complete the data collection.

The study was carried out in the Sunyani Municipal area which forms the regional capital of the BA region (Ghana) and also forms the central business centre, commercial and industrial part of the Region. The research focused on the assessment of the residents (i.e. consumers connected to GWCL water system), perception on the quality of water services delivery rendered by GWCL

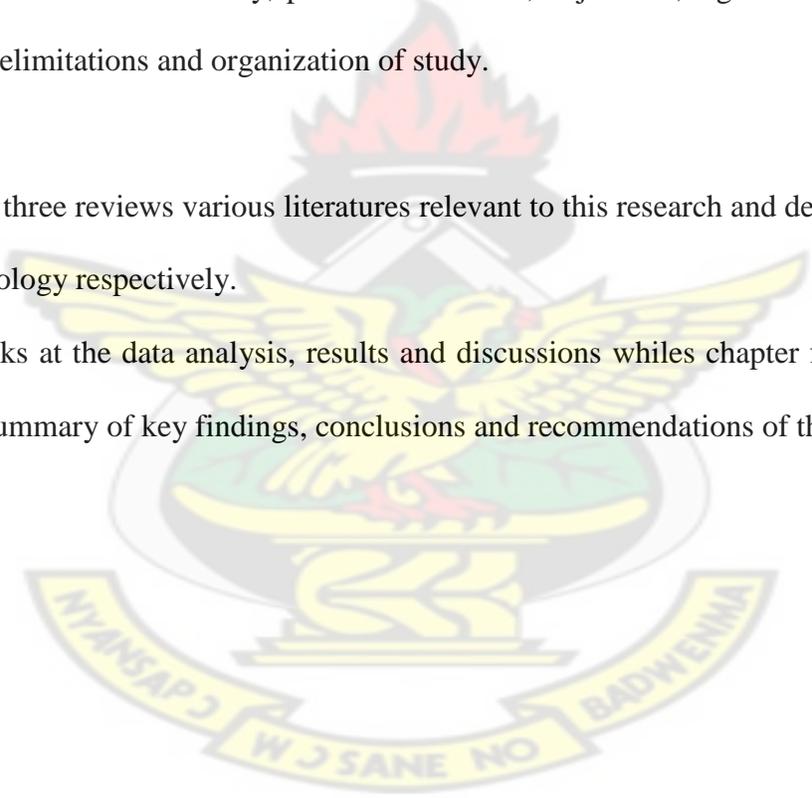
and also focused on the existing tariff of the Operator (GWCL). The study was limited to urban areas in developing countries with special emphasis on the Sunyani Municipal area. Though some work had been done on the state of water supply in Sunyani, research has not been carried out to assess what the public have on the quality of water service delivery to their communities.

## **1.7 Organization of Study**

This thesis was organized into five main chapters. Chapter one presents the introductory and background information of the study, problem statement, objectives, significance of the study, limitations and delimitations and organization of study.

Chapter two and three reviews various literatures relevant to this research and describes the study area and methodology respectively.

Chapter four looks at the data analysis, results and discussions while chapter five finalizes the report with the summary of key findings, conclusions and recommendations of the study.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter, assesses GWCL as a whole, its historical background, management, scope of activities, water sector in Ghana, present level of performance, Community Water and Sanitation Agency (CWSA), Community water supply; Small Town Water Systems in Ghana and other developing countries, the challenges and success of Small Town water Projects in Ghana (CWSA, 2008). It further examines the management and sustenance of water facilities in Ghana's rural communities. It also covers Gender issues, the future perspectives of water supply, and community contribution to the success of Small Town water and Sanitation (STWS) (Water-Aid National Water Sector Assessment 2005)

#### **2.1 HISTORICAL DEVELOPMENT OF GWCL**

In 1928, the first piped water supply system was constructed at Cape Coast. The Water Supply Division of the Public Works Department was responsible for the service provision in rural and urban areas of Ghana. After Ghana's independence in 1957, the division was separated from the Public Works Department and placed under the Ministry of Works and Housing. In 1965, it was transformed into the Ghana Water and Sewerage Corporation (GWSC), a legal public utility responsible for the provision of urban and rural water supply for public, domestic, and industrial purposes as well as the establishment, operation, and control of sewerage systems. (Ministry of Works and Housing, 2005)

Since 1993, various reforms have been introduced to address the problems of the sector. The key objectives of the reforms were to separate rural and urban service, to introduce independent regulatory agencies, and to promote private sector participation.

In order to pay more attention to water supply and sanitation in rural areas, the Community Water and Sanitation Division was founded as a semi-autonomous division of GWSC in 1994. Four years later, it changed its name to the Community Water and Sanitation Agency (CWSA) and became fully independent. In 1999, the GWSC was replaced by the publicly owned GWCL. At the same time, the responsibility for rural water supply and sanitation was decentralized to the District Assemblies. In addition, sanitation was separated from water supply and became a responsibility of the District Assemblies in urban and rural areas (Community Water and Sanitation Agency, 2004) The Act, which established the company, define the company's objectives as follows;

- 1) The provision, distribution and conservation of the supply of water in Ghana for domestic and industrial purposes.
- 2) The establishment, operations and control of sewerage systems for such purposes. The company was mandated among others to construct and operate works, set standard relative to water supply and sewerage, determine rates, charges and effective methods of collection of revenue (GoG 1993 Local Government Act, Act 462)

### 2.1.1 Organizational Structure and Management

The operation of the company are supervised by the Ministry of works and housing (MWH) and steered by an eight-member Board of Directors. The Board is empowered with the approval of the sector Minister to make regulations, fixing water rates and sewerage charges and the conditions of services of the staff of the company. It is managed by a Managing Director who is appointed by the government, his two deputies, nine directors at the head office and ten directors responsible for the regions. (Water and Sanitation Monitoring Platform 2009: A Directory of Ghana's Water and Sanitation Sector: who does what, where and how?)

The nine directors at the head office are responsible for planning and development, water quality assurance, operations and maintenance, administration, corporate planning, internal audit, legal services and commercial operations. The commercial department consists of two sections, each headed by Assistant Director. These are;

- a. Planning, billing and collection, arrears reduction and performance evaluation section.
- b. The public relations section.

Apart from the Head Office, there are also Regional Commercial Managers responsible for the regions of Ghana. These managers are assisted by District Commercial officers (DCO).

Each district is constituted by revenue assistants who are mainly meter readers, bill distributors, money collectors, customer relation officers, cashiers, debt recovery officers and inspectors. The number of staff logically depends on the number of connections within the area. (Ministry of

Works and Housing, Ghana 2005) Operational Manual for Planning, Budgeting, Monitoring and Evaluation of Water and Sanitation: Water and Environmental Sanitation)

## **2.2 Partnerships forms in Small towns**

According to the CWSA report, the following options of partnership prominent in the small towns' water supply:

- a. Public-Public: DA and WSDB with hired professional staff.
  - b. Public-Private: Agreement between DA/WSDB and PO.
  - c. Public-Public: Agreement between GWCL and DA/WSDB with hired professional staff.
- (Franceys and Weitz, 2003) and (Warner, 2005) also measured partnership's 'added-value' by looking at the benefits that are derived by the partners over time.

According to the NWP (2004) report, in this option the DA transfers the management responsibility of the water system to the WSDB. The WSDB engages service operators to undertake the O & M responsibilities and the board maintains the administrative and oversight management responsibility of the system. (NWP-NGO Group Report)

## **2.3 Public-Private-Partnership: DA/WSDB, PO and Community of user**

According to (Mitchell, 2001) in this option the DA/WSDB (on behalf of the 'community') contracts a PO to manage the water system by undertaking the administration and technical management of the water system. (Faulkener,1997).

According to Axelrod and Dion (1988), partnerships can take many forms, can be used for many purposes and involve complex legal, political, organizational and financial interrelationships among partners.(Akintoye, Beck, and Hardcastle 2003).

### **2.3.1 Public-Public: GWCL and DA/WSDB with hired professional staff**

According to the NWP (2004) report, this option consists of GWCL signing an agreement with DA/WSDB to supply bulk treated water (supply is metered). WSDB is then responsible for only the management of the water system i.e. the distribution, tariff setting and revenue collection in the community in which it serves (e.g.Savelugu, Northern Region). Sindane (2000) argues in favour of Public-Public Partnership (PPP) as compared to contractual arrangement where the private takes responsibility for all, or part, of a public functions in delivering service to a target group. Wilcox (1999) sees partnership as ‘deciding together’ and ‘acting together’ (cited in Franceys and Weitz, 2003).

### **2.4 Actors in Partnerships in the Small Towns’ Water Sector**

Several groups play a role in partnerships in the water sector: the government at the local level; the formal private sector; and external support agencies. Households also have a role to play but are often left out. (Tumusiime and Njiru, 2004). Kayaga and Sansom (2003) and appraises the performance of management contracts in small towns in Uganda.

Pessoa *et al* (2008) reports that the involvement of the private sector in the water service delivery require strong economic regulation to protect the interests of the parties involved. Their study reveals that regulators are normally constrained in their operations since majority of the customers are poor and unconnected at their homes.

### **2.4.1 The Public Sector**

UNCHS (2001) reports that the public sector has its primary strength from its legal authority, law making power, monitoring and regulatory function, and the mandate that it has to act directly with (or delegate responsibility to) other stakeholders. Political interference and corruption, high staff turnover and significant inefficient and inflexible bureaucracy are some weaknesses of the public sector (Shashi, et al 2009).

Ministry of Works and Housing (MoWH) – responsible for policy formulation and coordination, for soliciting funding from external support agencies (ESA); monitoring activities of the water supply and sanitation sector, and advising the cabinet. (Water Aid, 2005)

### **2.4.2 The private sector**

Faulkner, (1997) describes the formal private sector as institutions, firms and individuals who may be active in many different aspects of infrastructure management but whose main objective and organization is to generate a profit on their investments. The private sector has strengths in transparency, its ability to innovate and replicate and its customer focus (Caplan, 2001). It is able to respond quickly to the need to improve and deliver services and has limited exposure to political interference. The introduction of Private Sector Participation (PSP) in the urban water sector is in place under a five-year management contract WUP (2001). On November 22, 2005, Dutch company Vitens International, and South African water suppliers Rand Water Services Pty, set up a Ghanaian-registered company to manage GWCL. This is only a management contract relating to urban water supply (Rudolf, 2005).

The Public Utilities Regulatory Commission (PURC) is the economic regulator of the urban water sector in Ghana, responsible for setting water rates, establishing regulatory guidelines and protecting the interests of consumers (Nyarko, Oduro-Kwarteng, and Adusei, 2004). As part of the water privatization process, Adam Smith Institute (ASI), acting as advisor to PURC has identified the need for comprehensive consumer research to aid the development of regulatory policy and guidelines that will protect the interests of all water consumers, in the near future, following implementation of the PSP (Adam Smith Institute, 2002).

According to Emmanuel Addai (2005) poor urban development and population growth is the major cause of this situation in the country. As a result, most homes in the urban cities uses water tanks to store water since the taps are not reliable. This condition has led to the evolution of various tanker water supply services. These tankers distribute water to both private and public institutions. Their activities are coordinated by the Tanker Associations and the rate for the private water tankers is determined by the Public Utility Regulatory Commission together with GWCL (Government of Ghana, 1997).

#### **2.4.3 External Support Agencies**

Huge capital investments in small towns' water supply systems require some form of from external agencies outside the locality. External agencies rarely stay for long and only continue their local presence to guarantee the maintenance and expansion of new projects (UNCHS, 2001). A Project Management Unit (PMU) was set up by the World Bank (WB) and the Ministry of Works and Housing to oversee the on-going privatization process. Its function "has not been very clear". It reports to the WB, the management director of GWCL and the Ministry.

Based on requests, staffs from GWCL were transferred to the PMU, and they were paid better than others” (PPIAF/CWSA, 2001).

Ghana relies heavily on external donor support for the water sector. From 1990-2003 major donors contributed approximately \$500m for water and sanitation projects. Urban water received the highest single amount, mainly attributable to the World Bank’s US\$120 million Water Sector Rehabilitation Project. In terms of volume, most donors focused on rural and small town water supply schemes together worth more than \$270m. Sanitation received significantly less attention. Planned investment by some donors (excluding NGOs) is estimated at \$185m for the period 2004-2010, some 85% of the total planned finance. In addition a multi-donor budget support (MDBS) system is being established where donors pool all of their funds. (www.wateraid.org, 2005).

Global water problems are attracting increasing attention, not just at the international level, but also within the United States, in its popular press, in natural resource journals and as the subject of books. A prime cause of the global water concern is the ever increasing world population. As populations grow, industrial, agricultural and individual water demands escalate. According to the World Bank, world-wide demand for water is doubling every 21 years, more in some regions. Water supply cannot remotely keep pace with demand, as populations soar and cities explode. An estimated 1.1 billion people lack access to safe drinking water, 2.5 billion people have no access to proper sanitation, and more than 5 million people die each year from water related diseases — 10 times the number killed in wars, on average, each year. All too often, water is treated as an infinite free good. Yet even where supplies are sufficient or plentiful, they are increasingly at risk from pollution and rising demand. By 2025, two thirds of the world’s

population is likely to live in countries with moderate or severe water shortages. Fierce national competition over water resources has prompted fears that water issues contain the seeds of violent conflict. But the water problems facing our world need not be only a cause of tension; they can also be a catalyst for cooperation. Two thirds of the world's major rivers are shared by several States. More than 300 rivers cross national boundaries. Increasingly, countries with expertise in the management of watersheds and flood-plains, or with experience in efficient irrigation, are sharing that knowledge and technology with others. Scientists from many nations and disciplines are pooling their efforts, to assess the threat and in the hopes of bringing about a much needed "blue revolution" in agricultural productivity. The organizations of the United Nations system, for their part, in addition to a vast array of operational projects are also preparing the first edition of the World Water Development Report (United Nations, 2002)

#### **2.4.4 Households**

According to Hordijk (2000), the household is the key unit of production, reproduction and consumption, and the unit where decisions on pooling and allocating labour and resources are made (as cited in Sulemanova, 2002). Poor households spend considerable amounts of physical, economic and social energies to maintain access potable water supply (George, 2005).

Unsafe water, sanitation & hygiene produce almost 6% DALYS in high mortality countries. Provision of clean water through municipal or private systems has not yielded the expected health improvements. Socio-demographic determinants of water use and quality need to be understood to efficiently target training to households and communities as water systems are introduced Union for African Population Studies (UAP).

The Consumers' Association has run a stakeholders' workshop on the draft management contract. This includes performance measures and incentive targets for serving the poor, taking account of the need to focus on system expansions and not simply on revenues from lifeline tariff billing which could just reflect increased consumption by those already served. Expansions are needed to deal with the present situation in which the urban poor pay water vendors more than ten times the price paid by those with connections to the piped water network. Government and civil society should respectively ensure and monitor that the management contract to improve the performance of the GWCL equally benefits the poorest people (Benn, 2005)

## **2.5 Previous Framework for Assessing Partnership**

Many authors have tried to study partnerships in different sectors. From literature, reviewing the performance of partnerships involves two elements: an assessment of the results of the partnership and an assessment of how the partners work together. Assessing the results/outcomes is somewhat straight forward. Acutt (2001) provides some quantitative perspectives on costs, benefits and savings of tri-sector partnerships. In this study, the key elements employed in the methodology included: scoping (to identify indicators of partnership benefits); Data collection (to gauge changes in the selected indicators); assessment of incremental contribution of the partnership (to the identified changes); and value for money assessment (comparing net benefits and costs in the partnership process). Other partnership assessment frameworks that have emerged are specifically aimed at assessing the unique characteristics of partnership.

Provan and Milward (2001) for instance proposed a framework for evaluating public sector networks at three levels: the community, the network, and the organization/participant. At the network level, they mainly suggested structural targets of analysis (e.g. number of partners and

number of connections between organizations), or the outcomes of the network (e.g. the range of services provided).

According to Brinkerhoff (2002), their frameworks did not address the quality of the relationships among the partners and how it could be improved for more effectiveness in their outcomes. Mitchell (2001) and Warner (2005) also measured partnership's 'added-value' by looking at the benefits that are derived by the partners over time. Caplan (2005) on the other hand, examined partnerships in relation to accountability to better understand their responsiveness, transparency and compliance. Hasting (1998) in her study on the analysis of power relations in partnerships used data methods such as: attending and recording partnership meetings; conducting interviews with designated representatives of the partner organisations and collecting minutes; policy documents and other written documents. ( Pessoa A. (2008). An outline of three vital components of partnerships in this respect by Mcquaid (1994) include: (a) the mandate, including aims and objectives of the partnership arrangement; (b) the arrangement within each partnership; and (c) the various outcomes (cited in Price, S. and Franceys, R. (2003).

In 2002, Brinkerhoff proposed an assessment approach which covered five general areas: compliance with prerequisites and success factors in partnership relationships; the degree of partnership practice; outcomes of the partnership; partners' performance and efficiency (*ibid.*).

## **2.6 Measuring the performance of water services**

According to Gupta (2006), performance measurement can be defined as an approach to determine how effectively and efficiently a local body delivers the required service. According to

him, there are two methods of measuring the performance of a system, one is the average analysis or simple ratio measures and the other one which takes into account all the inputs used and outputs produced by the utilities called total factor productivity measures. The total factor productivity measures are based on either regression analysis (RA) or Data Envelopment Analysis (DEA) technique.

WSP (2006) developed some performance indicators using ratio methods to measure the efficiency of water supply systems. The indicators chosen were investment, financial, billing and collection, quality, costs and staffing, metering, unaccounted for water (UFW), production/consumption, coverage etc (Kumar, and Sarangi, 2006).

UFW is basically the difference between the quantity of water produced and put into the system and quantity consumed or paid by consumers. It comprises of water losses due to leakage, illegal connection and unbilled authorized consumption like water used for cleaning reservoirs and flushing the network system, fire-fighting and water provided free to certain consumer groups and sensitive institutions (e.g. hospitals, schools, etc (Bernard and Eugene, 2006)

The Region's water supply problems are currently being addressed. There is now extensive coverage of potable pipe-borne water supply for the Districts in the region. The Ghana Water Company currently operates six water supply systems after the transfer of eighteen other small water supply systems to the respective communities in February 2001 for community ownership and management (Information Services Department, 2002). Since January 2001 the Government has doubled its efforts to provide potable drinking water for the people of this

region. Through the Water and Sanitation Programme and PRODICAP, ten (10) towns have been provided with small town water systems while work is on going to provide additional six (6) towns with the system. The total cost of the systems for the sixteen (16) towns is 38.8 billion cedis. (See status of projects below) Small Town Water Systems Beneficiary Towns Status, Goaso - Final Testing Completed, Bechem – Completed, Duayaw/Nkwanta - “, Kenyasi Nos.1 & 2 - “ Japekrom - “ Wenchi - “ Drobo - “ Kwame Danso - “ Kintampo - “, Nkoranza - “ Atebubu - on-going ,Adamsu -,Hwidiem Awisa - “,Ayomso - “,Donkro Nkwanta (Modern Ghana, 2008).

Within the same period three hundred and fifteen (315) bore holes have been provided for some communities in the region. The total cost of the bore holes is 14.17 billion cedi ( Modern Ghana News, 2008) the past two years, there has been shortage of water in Sunyani and its environs due to shortage of raw water for treatment at the Abesim treatment plant during the months of February and March. This problem is likely to continue until a dam is constructed over the river Tano to store adequate raw water for treatment at the plant. Efforts in an attempt to alleviate the hardships in the supply area include test boreholes drilled by GWCL in 1999. These were installed with hand pumps in 2002 and put into use at the cost of ₵18 million. Additional hand pump boreholes were drilled and put into use in 2002 at a total cost of 320 million cedis. Seven (7) of these were to be mechanized and pumped directly into the distribution network at an estimated cost of 434 million cedis (GWCL (Ghanaweb, 2009)

GWCL/AVRL has also faced the challenge of loss of equipment (metres) worth several GHc. The BA Regional office of GWCL/AVRL lost 225 metre reading gadgets worth GH₵12,375. Sunyani Municipality alone had 150 cases, Berekum 45, Dormaa Municipality and the Dormaa East District recorded 20 while Techiman

recorded 10. This is alarming putting residents alert to report any suspicious movements within vicinities to the police. Installation of plastic metres inside of compounds has replaced the brass coated ones that attracted thieves over the years, reducing expenditure and stressful operations. Operations have since improved with relatively stabilized power supply although rationing pumping up to 75 percent of regional water demand. (Modern Ghana News, 2010)

### **2.6.1 Revenue Collection Efficiency**

According to (Acutt, Hamman, Carter, and Kapelus, 2001), sound financing is crucial to long-term operation, maintenance, replacement and expansion. According to Amenga-Etego (2006) the overall income from the water sales should be able to cover operational costs and generate sufficient cash-flow to ensure sustainable long-term operations. Collection efficiency is one of the most important indicators in water supply service delivery that promotes sustainability of the systems but also one of the major shortfalls of many water managers (Sakyi, 2003).

### **2.6.2 Customer Satisfaction**

For any performance measurement system for services in water delivery to be successful, the views of the users of the service is crucial. This is because their level of satisfaction with the services indicates the performance of the system. According to MIME consult report (2003), high access to the service indicates increased customer satisfaction and consequently their willingness to pay for the water; improved health benefits; and improved revenue collection (cited in CWSA/PPIAF document). The time taken to fetch water at the standpipes is a good measure of accessibility.

According to International Water Association (IWA 2004), “access to good, safe and reliable drinking water is one of the most basic needs of human society and as such requires integrated approach, close cooperation and partnership between all stake holders”. (IWA. 2004), Research has shown that access to good, reliable and sufficient water supply increases the health status of people. However it is unfortunate that many people in the world today are lacking such quantity and quality of water needed.

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## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0 Introduction

This section describes the basis for selection of the study areas and the characteristics of the areas and their water supply systems. Based on the literature reviewed, it describes the proposed type of study and how it will be done. It also describes the subjects, the data collection procedure and the method of analysis.

#### 3.1 Research Design

In a scientific study, the appropriateness of a research methodology in relation to the validity of findings and conclusions cannot be overemphasized. In respect to this the researcher used the survey method and qualitative research design processes in carrying out the investigations.

#### 3.2 Population

Population is the entire aggregation of items from which samples can be drawn. This research is focused on the GWCL and the Sunyani Municipality. According to Sunyani Municipality Assembly, 2010) population of Sunyani is about 147,301 but the population was divided into three major groups; that is, modern, semi-modern and deprived residential areas. The areas under modern residential area included Ridge residential, South Industrial, South Ridge Estate and Airport residential areas. Semi-modern residential area had the following areas-Nkwabeng north,

Newtown, new Dormaa and Penkwase. The deprived communities had the following communities; New Dormaa Extension, Zongo, Kwadwofoa and Agyeiano North and South. By random sampling, an area was selected out of each of the larger groups with the Newtown, South Ridge and New Dormaa emerging out of the modern, semi modern and deprived communities respectively (Arthur, 2005).

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### **3.3 Sample**

A total sample of one hundred and twenty (120), respondents were interviewed to represent the target population. A total of 100 was returned at the end of the exercise giving a response rate of 83.3%. The overall sample size was projected to achieve a 95% confidence interval of  $\pm 5\%$ .

### **3.4 Sampling Procedure**

Some categories of people and agencies provided adequate information to the research. Hence the units of analysis are women and men. The researcher used Cluster in the group such as above and Systematic approach is aspect of sampling for every other house to locate the house. To select, the individual respondents, Incidental interview was used for the household so that each man and woman in each family will respond (Saleh, 2002).

The sample was drawn from some houses of GWCL/AVRL in the Sunyani city. GWCL/AVRL geographically identified their service area using Sunyani Municipal Assembly (SMA) housing classification categories (Saleh, 2002)

A convenient sample of household was drawn from consumers connected to GWCL/AVRL distribution system to minimize any systematic biases introduced using this particular sampling method. Also, some Commercial and Institutional service category groups who fell in any one of the three (3) districts were interviewed. The Zongo community was purposively selected due to its strategic position as being in the centre of the town as well as having relevant traits valuable to the study. The systemic sampling procedure was used to select the individual households for the distribution of the questionnaire. Each community was allocated questionnaires with the Zongo community and the management staff of GWCL. Ten questionnaires were administered to the managing staff of GWCL which also came up with a response rate of eighty percent. Sunyani, retailers and Consuming public constituted the population of interest.

### **3.5 Research Instrument**

The primary source of data was obtained from interviewing respondents, observations, information from focus group discussions, field visit, and key informants. Interview guides, structural desk study questionnaire, were designed to guide the interview process.

Good data collection method must allow for collection of complex, rich data. To enable the researcher to collect such a rich data, semi-structured interview guides were developed and used. The researcher engaged in focus groups discussions with key stake holders and reviewed written reports for secondary information. Participant and non-participant observation which are relevant qualitative data collection methods were employed.

The questionnaire explored respondent attitudes and use patterns by eliciting respondent beliefs, opinions, and behaviors to the quality of water delivery service. Before executing the survey, several survey questions were evaluated by internal and external reviewers to determine whether the wording and responding categories were appropriate for the survey population. In addition, a pilot test was conducted to ensure planning and programming accuracy, effectiveness of interviewer training and ultimately to compensate largely for the expected non-response rate. Approximately 20 interviews were collected for each income group during this piloting phase.

Response options to all attitudinal questions were offered as a fully anchored 5-point Likert scale (i.e., “Strongly agree”, “agree”, “neutral”, “Disagree”, and Strongly disagree”). As many of the questions used different response categories, interviewers read all the response options to respondents for each question. Questionnaire items that inquired about the frequency of actions, events, or behaviors were initially asked as a simple dichotomous question (i.e., “Yes” or “No”) to ensure relevancy of the question to the respondent. If the response is affirmative, respondents were then asked to report the frequency of occurrences using “open-ended question”. Respondents’ items for categorical questions were developed individually for each question. Items that required categorical response options fell into two general categories based on whether response were read or not read to the respondent. For those questions where the response were read, the respondent was asked to select which category (or categories) best described his or her answer.

Interviewers were trained to use the “other” response category to capture response that were either unanticipated or novel. These responses were collected as an open-ended question

response and they were subsequently coded with the other response categories during preparation for data analysis. Interviewers were also trained to code non-responsive answers as “Refused” where appropriate.

The researcher also engaged in focus group discussions with the stakeholders including: District Water Board, the Contractor, the District Engineer, Community Water and Sanitation Agency, the District Water and Sanitation Team and the District Assembly.

### **3.6 Administration of Questionnaire**

Data collection Method must be ethically-appropriate: thus it must be „informed consent“, right to withdraw, sensitive to respondents’ rights, ensure fair representation, ensure confidentiality, anonymity and supportive.

Research assistants were recruited and trained on professional, effective and efficient ways of administering questionnaires. Permission was sought from the management of the GWCL before questionnaire was administered to the staff. Due to the nature of the research; involving opinions and perceptions, coupled with time and resource constraints, the researcher used purposive sampling technique to select the sample size; 100 questionnaires were administered to 50 women and 50 men. Compared to men, women are most affected regarding issues related to water. For that matter, it was only appropriate that more of their views were taken. “Women and men generally have very different roles in water supply and sanitation (WSS) activities. These differences are particularly evident in rural areas. Often women are the main users, providers, and managers of water in rural households” (World Bank, 2007).

### **3.7 Analysis of Data**

A research process is both more creative and more interactive at all stages for qualitative researchers. As codes are accumulated, the researcher will begin to sort them into themes. This represents a movement from the particular (line-by-line codes) to the general (patterns within those codes). Similarly, the accounts of these themes which emerge represent a movement from the descriptive (e.g. summarizing what the interview respondent says, or does, in a series of codes) to the interpretative (making some attempt to identify what it all means).

Thus the information collected were coded and sorted into themes (thematic analysis) the analysis and discussions was generally base on the thematic areas. To enhance visual appreciation of data collected, descriptive statistical tools such as percentages, bar graphs, cross tabulation were used to present data collected in summarized charts and graphical forms where necessary. The researcher then used interpretive, discursive, narrative and conversational analytical methods in ascribing meaning to dada collected.

Collection and analysis of data was cross-checked throughout the survey. Preliminary testing allowed the survey instrument to be refined in terms of wording and logic flow. After data collection, general statistical tests (frequencies, mean, bar and pie charts) were performed on the inputted coded data (in SPSS environment) and chi-squared analysis performed. It is worth important to also mention that, interviewers were first and foremost supplied with an introductory letter provided by the Civil Engineering Department for respondents who wanted to verify the legitimacy of the survey. Analysis was carried out separately for the client and

management respondents of GWCL and a comparative analysis and discussion of results undertaken.

### **3.7.1 Desk Study:**

Literature concerning the project was consulted, with the aim of understanding the whole process pertaining to this work. Secondary data were also collected from the following places: Ghana Water Company Limited/AVRL, and on the internet.



## CHAPTER FOUR

### PRESENTATION AND ANALYSIS OF FINDINGS

#### 4.0 Introduction

This chapter covers the data collected through field research, stakeholder forum, site visits and personal observation. Information from the interviews were systematized using excel from which tables and graphs were generated and presented in this chapter. The next chapter contains analysis of the data presented under the various main headings as captured in the objectives of the study. The information presented in this chapter serves as input for the discussions and interpretation.

#### 4.1 Demographic data

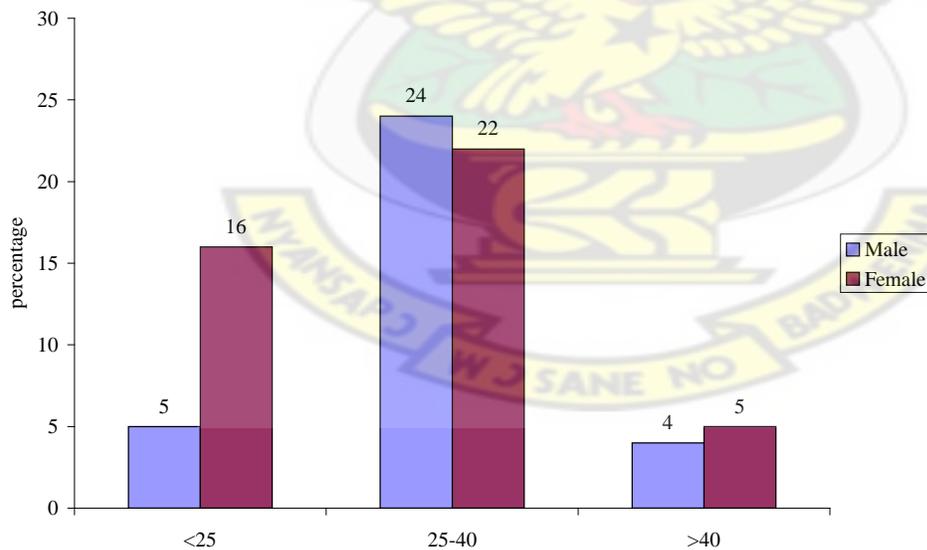
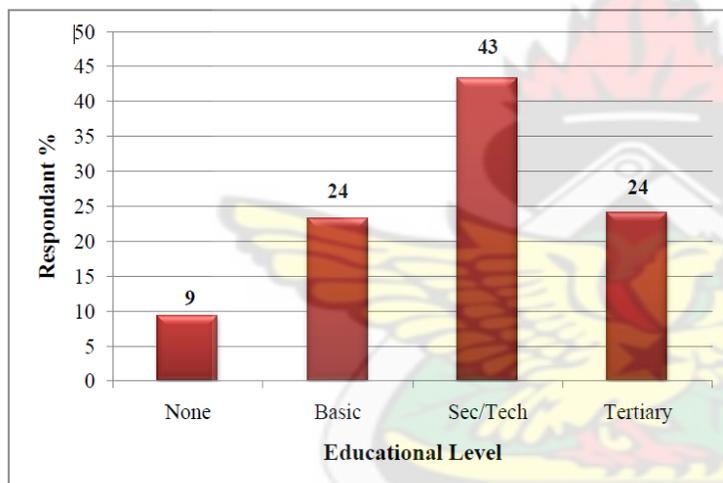


Figure 4.1 Sex distribution of respondents

**Source:** Field Survey, 2011

#### 4.1.1 Educational level of Respondents

The educational levels of the respondents were that, 24% had tertiary education where most of them were government and NGOs employees. Forty-three percent (43%) of the respondents have had secondary level education and 24% of the respondents had basic level with about 9% of them had no basic education. Relatively, majority of the respondent have had some form of education thereby facilitated their understanding of the questions asked on the questionnaire.



**Figure 4.2:** Respondents Educational Level

**Source:** Field Survey, 2011

**Objective 1 – Causes of water shortage**

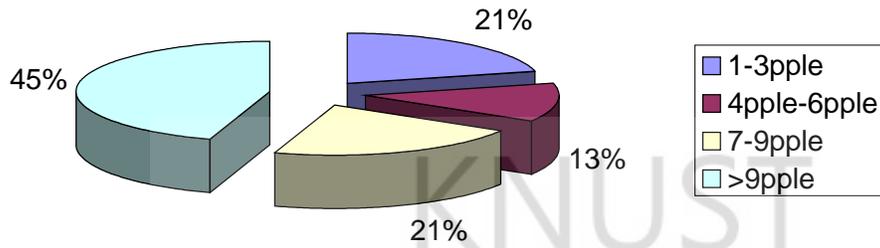


Figure 4.3 Unit household size for water billing.

Source: Field Survey, 2011

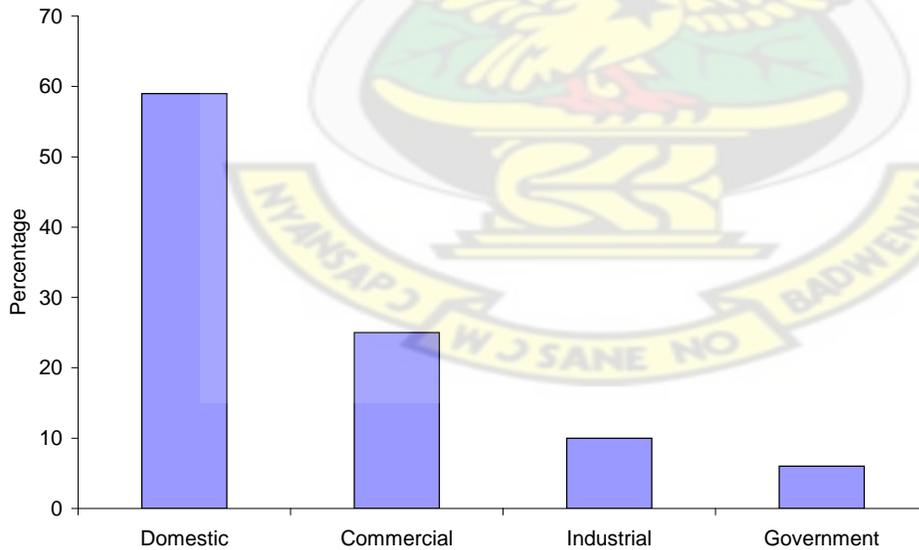
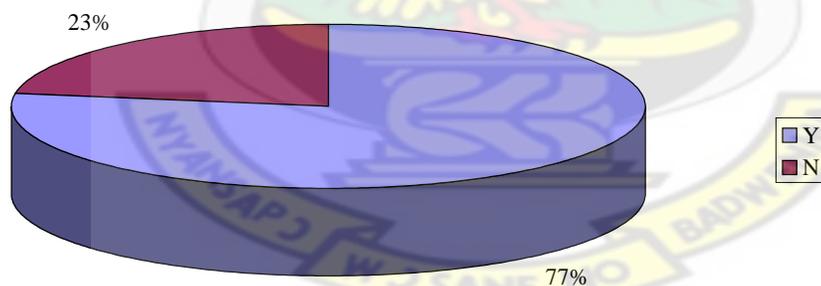


Figure 4.4 Classification of water users

Source: Field Survey, 2011

The basic and dominant source of water for most clients was identified to be the GWCL water supplies 80% whereas 20% access water supplies from other alternatives such as commercial sales and domestic hand dug wells/boreholes. The general unfavorable time of flow of water within the communities has generally led to the petty business of water sales such that poly tanks are filled and water sold out to consumers who do not have sufficient water storage facilities and or are absent from home when water is flows mostly within working hours. Alternative sources of water in the absence of GWCL water supplies was indicated to be from wells and from private water suppliers.

Sufficiency of water for general household requirement and use was investigated. It revealed 62.8 respondents considered water they fetched sufficient while 37.2 considered water fetched insufficient. These were more of the commercial users.



**Figure 4.5** Is your water supply connected to GWCL?

**Source:** Field Survey, 2011

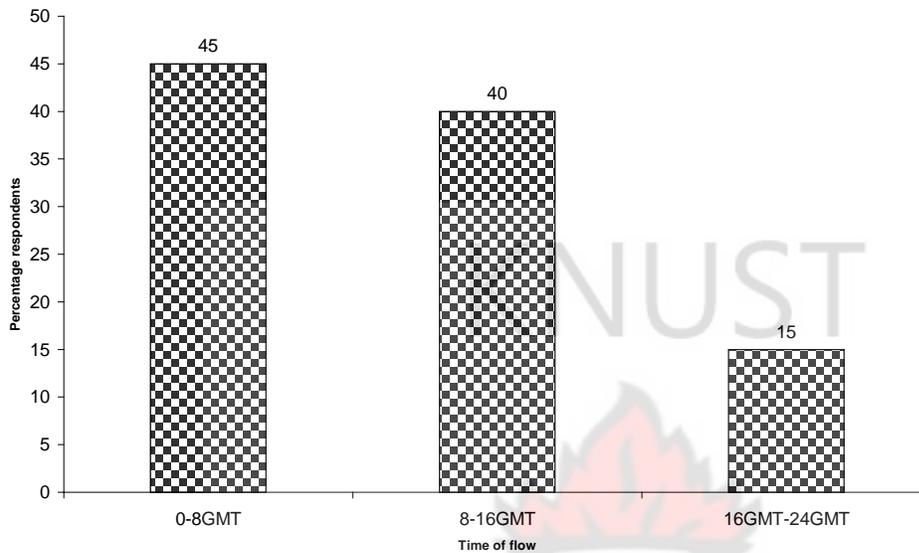
This leads to commercial sales of water and adaptation strategies to cope include use of water from wells and the private/commercialized water from boreholes or water collected at odd hours when water flows into storage facilities as a business.

Increasing population plus illegal connections place demand on GWCL. Some of these houses and settlements are not even metered at all. 70% of respondents indicated that their houses had been metered whereas 30 percent have no meters at all. This implies that there could be lots of water that is not paid for adding to shortages that are not accounted for nor paid for since these settlements may have fixed or estimated bills. Some other homes and neighbors may also be dependent on and fetching water from these homes who do not live in the same compound. Household Units dominating were above 9 household members implying a higher consumption of water that will indicate a likely monthly exceeding of the range of domestic consumption quota charges thereby increasing the unit price of water charged.

**Objective 2** – customers perception on the status quo of water flow

This part wanted to assess customers' perception of their satisfaction of the current water flow situation. Consumers were also asked to identify with the commonest time of flow of water in their homes as shown in figure 4.6. Naturally, 16Hrs-24Hrs GMT is the most convenient time range to fetch water if water should be rationed since many are generally presumed have returned from work and school to access flowing water. This notwithstanding, it is evident from figure 4.6 that flowing water is least available between 16Hrs-24Hrs GMT (15%). Many more people rather have to access water within peak working hours (08Hrs-16Hrs GMT). The greatest

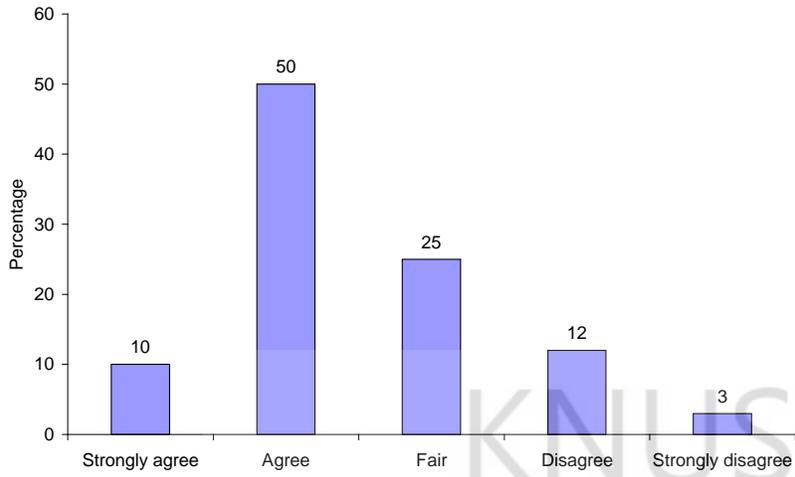
percentage is seen to access water flow within the most odd hours of the day (0Hrs-08 Hrs GMT).



**Figure 4.6** An assessment of water flow reliability (hours of flow)

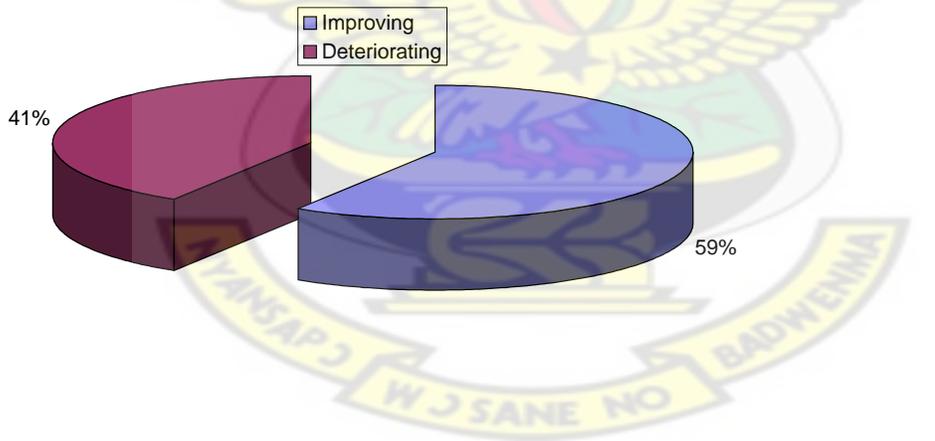
**Source:** Field Survey, 2011

GWCL/AVRL consumers were asked questions “How will you rate the current level of flow satisfaction of water supply” in a 5 point grading system (e.g., “1. Strongly agree”, “2. Agree”, 3. Fair, “4. Disagree”, 5. Strongly disagree”). This was to assess if the effect/impact of the GWCL/AVRL partnership ( Figure 4.7). the experience of water shortage could be attributed to this also because water is available but does not flow at the time it is generally conveniently accessible to the public



**Figure 4.7** There is satisfaction with the Current Flow of water

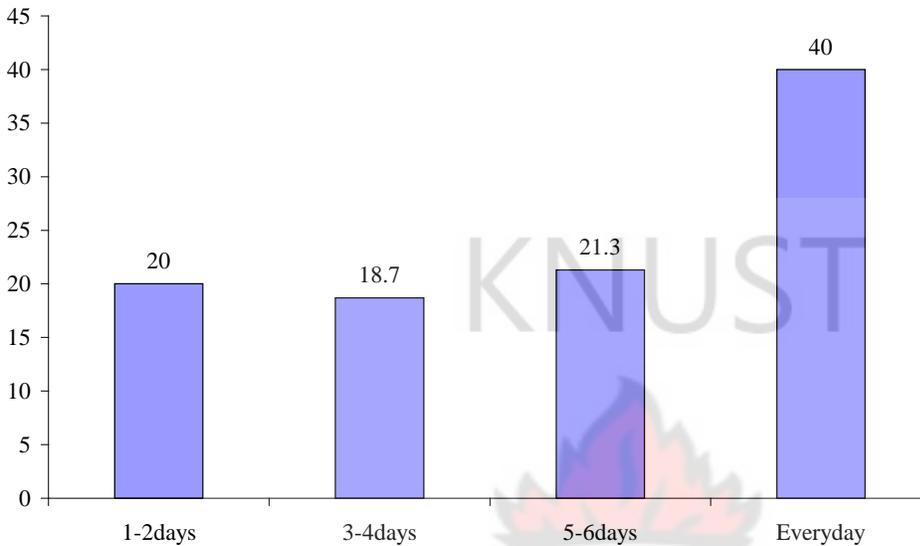
**Source:** Field Survey, 2011



**Figure 4.8** Rating of current GWCL/AVRL water flow service

**Source:** Field Survey, 2011

Comparatively, more of the customers (59%) of the consumers were of the opinion that GWCL/AVRL water service delivery is improving as shown in Figure 4.8 above.



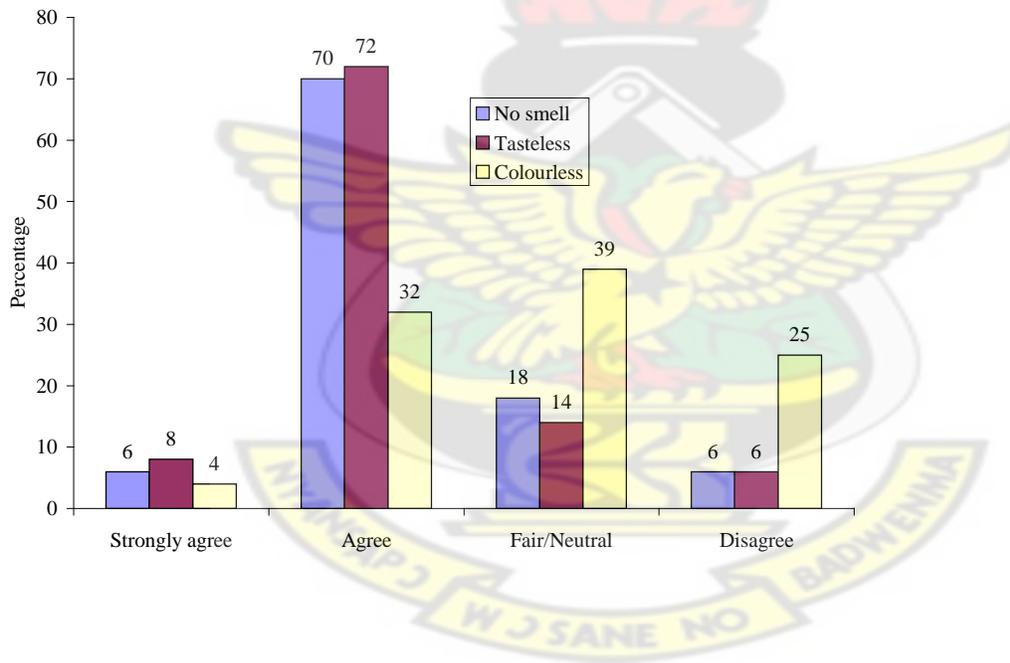
**Figure 4.9** Range of days within the week that water flows.

**Source:** Field Survey, 2011

### **Objective 3** - general perception on the quality of water delivered to consumers

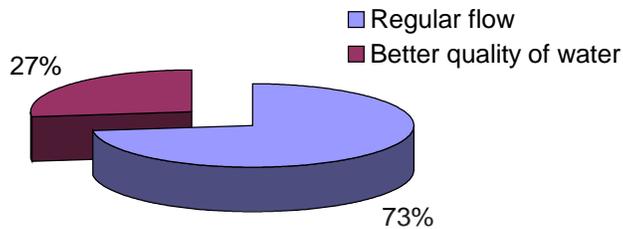
Customers seem to be generally satisfied with the physical features or properties of water supplied including the taste, colour and smell which were rated as Very good, Good, fair, poor and very poor which are shown in figure 4.10. Customers indicated that the water colour is often greatly affected after any form of service interruption. Also, the colour of the water looked brownish with instances where tiny particles are seen in the water making most consumers store the water and allowing it to settle before usage. This factor affects the general satisfaction about physical quality of water was low.

The GWCL/AVRL main distribution pipes are old metal pipes that have received little or no replacement since the construction of the whole water supply system in Sunyani. Portions are only replaced if there is a major burst in the distribution network. For instance, as part of the rehabilitation and replacement works at Abesim, old metal pipes were located on site whose corrosion or rust of the main distribution pipes could have accounted for the brownish colour of the water and tiny particles in the water as witnessed by consumers. 72% agree with the statement that there is no taste of water supplied. 8%, Strongly agree, 6% address it as poor and 14% say it is fair. Generally, it is the expectation of the public that timing of water flow is regularized for general access and consumption of water paid for (figure 4.11).



**Figure 4.10** Quality rating of water supplied from GWCL.

**Source:** Field Survey, 2011



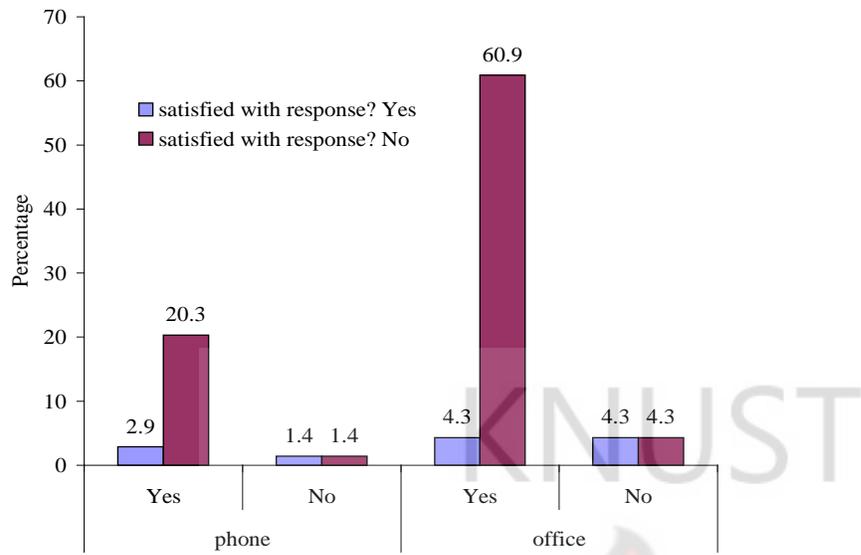
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**Figure 4.11** An indication of the expected improvement from GWCL

**Source:** Field Survey, 2011

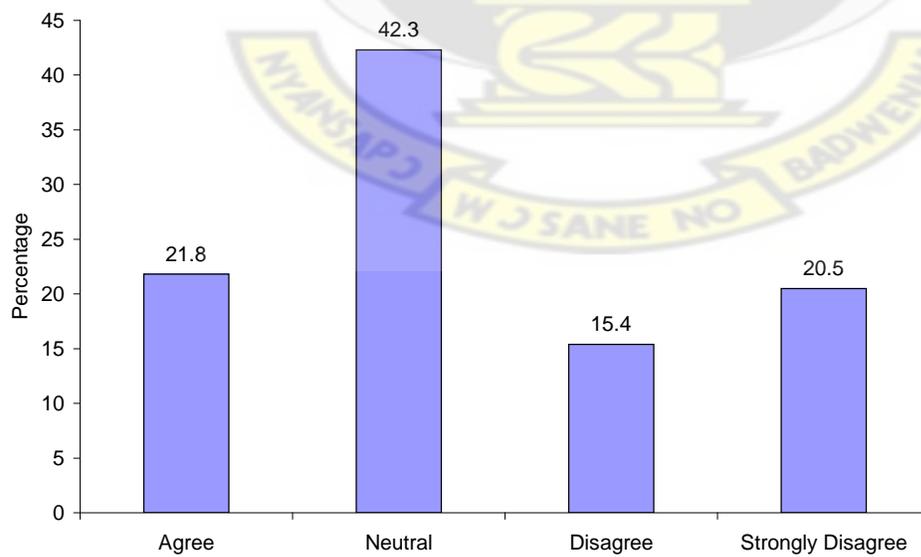
**Objective 4 -** Investigate the public perception of the GWCL Customer Care.

Customers of GWCL/AVRL may forward their complaints via phone, personal reports and the PURC. The research showed GWCL/AVRL customers reported complains through the GWCL/AVRL call center and personal visits to the regional district offices with personal visits dominating yet many customers are not satisfied with responses they get. Customers showed low patronage using phone option for complaints. Many mentioned they don't know the toll free number. The few that knew complained about late response and so preferred to rather report physically at the offices of GWCL.



**Figure 4. 12** Perception of customer satisfaction regarding complains

**Source:** Field Survey, 2011

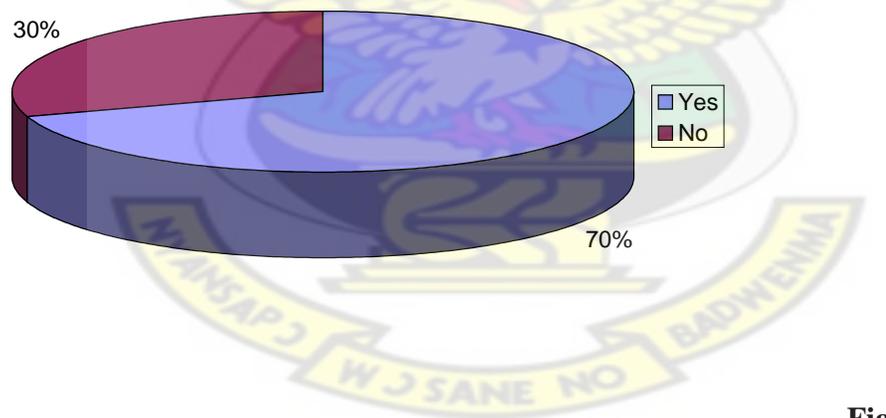


**Figure 4.13** Customers are alerted before service is interrupted.

**Source:** Field Survey, 2011

Generally, it was observed that customers know of service interpution before it takes place but the major complain was with the lapse of time between announcements and service interruption which is too short and puts consumers in a tight corner and pushing them to the wall with virtually no option but to purchase water from commercial vendors.

**Objective 5** – Assessing the performance of the water service delivery (technical, financial and customer satisfaction)



**Figure 4.14** An

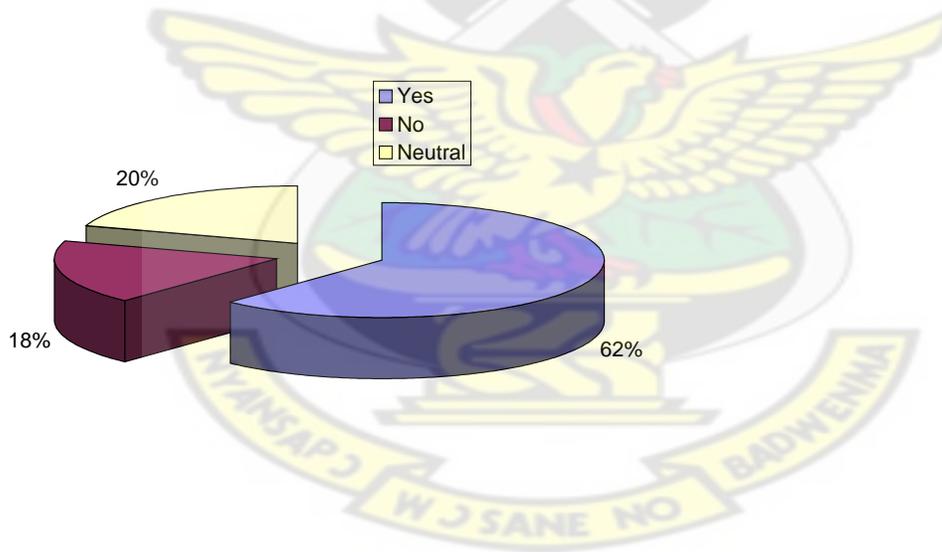
Indication of houses that have water accounts metered

**Source:** Field Survey, 2011

From all indications, not all settlements receiving water have meters. Further investigation to find out why some GWCL connected houses did not have meters revealed that either the houses had been robbed previously of their meters with the target (**bronze/brass**) or they have not ever received meters at all (Fig 4.14)

#### 4.2 Customer Assessment of Attitude of GWCL/AVRL Meter/Bill Staff

This assessed customer satisfaction with GWCL/AVRL personnel specifically the meter readers. Others include bill distributors, leakage detection unit, cashiers at pay point and repairs/maintenance division.. The view expressed by customers of the meter bill readers was generally positive indicating 62 percent satisfied. General complaints and comments from a few customers had to do with individual friction between staff and customers.



**Figure 4.15** Meter Readers have a positive attitude towards customers.

**Source: Field Survey, 2011**

Figure 4.15 shows consumers perception on the attitude of the meter/bill readers or staff.

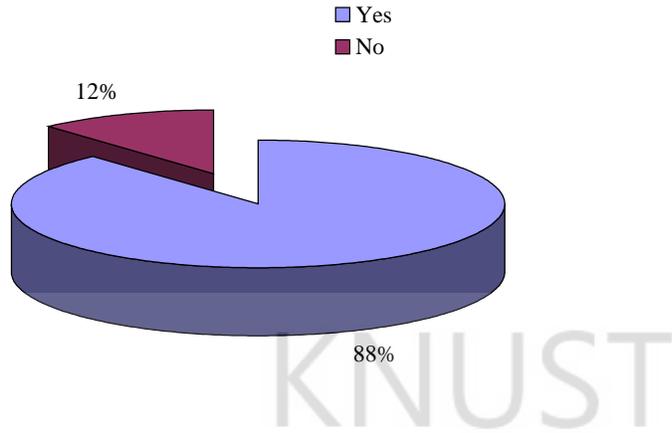


Figure 4. 16 GWCL bills are received regularly

Source: Field Survey, 2011

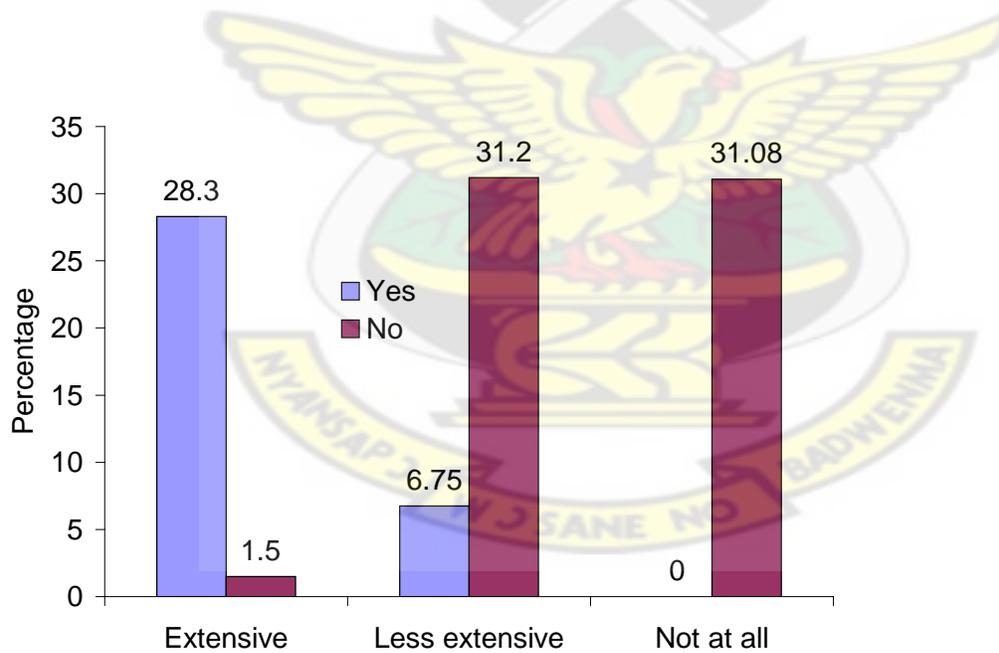
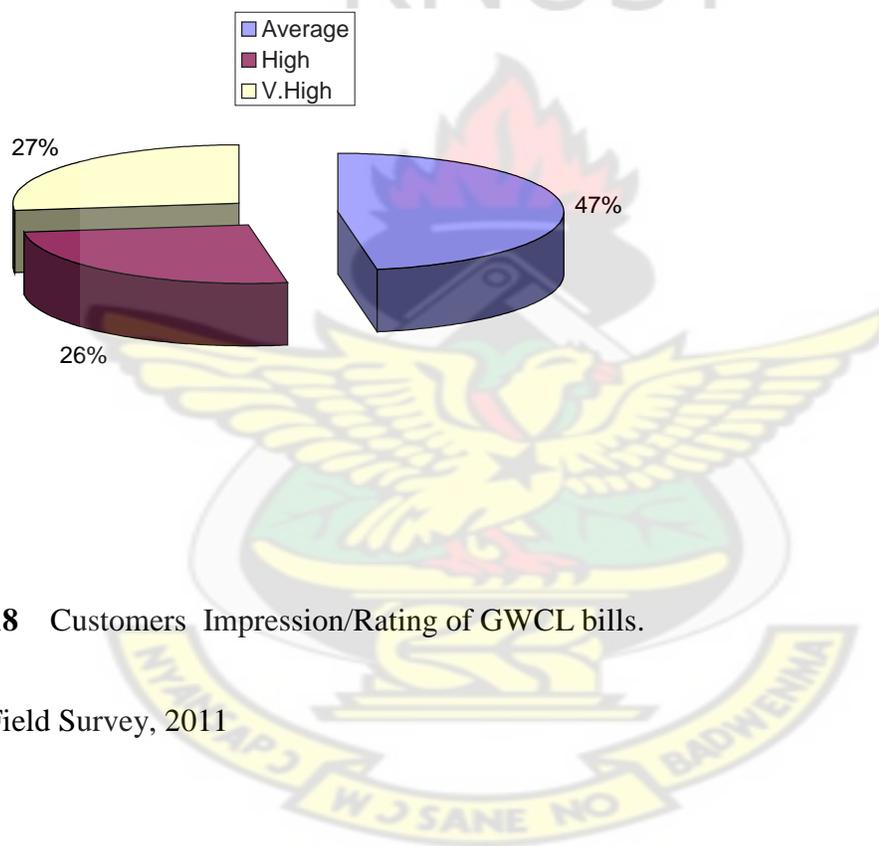


Figure 4.17 Degree of satisfaction with the GWCL Service

Source: Field Survey, 2011

### 4.3 Customer Assessment of the water bill

The study asked question about the impression about the cost of water with 3 point grading system (e.g., High, Average, and Low). The study used responses from customers to examine the fairness of water tariff since water pricing is an important criteria for ensuring financial sustainability of the service. Figure 4.14 shows an indication of customers' perception of the rating of GWCL bills.



**Figure 4.18** Customers Impression/Rating of GWCL bills.

**Source:** Field Survey, 2011

The GWCL/AVRL tariff is the lowest of all the water service providers. The existing lifeline tariff generally does not benefit the poor. High-income customers residing in single-family houses pay the lowest rate per meter cube (m<sup>3</sup>) of water and receive highest subsidy whilst

consuming the highest quantity per person which is clearly more than necessary for public health benefit. The lowest income customer residing in multi-occupancy houses pay the highest GWCL/AVRL rate per meter cube of water whilst consuming the lowest quantity per person, which is just sufficient for the public health benefits (Nyarko, 2007). This is reflects in the reason why customers consider bills to be on the higher side. The limit for domestic unit compounds is exceeded due to the multi-unit houses in one compound and hence higher charges are paid per extra units of water used (figure 4.18).

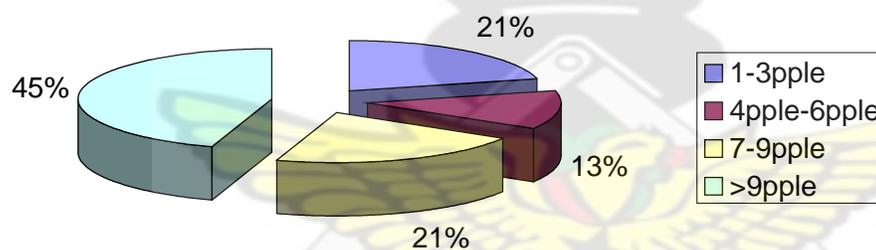
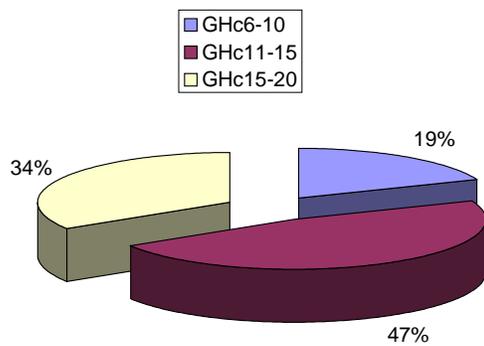


Figure 4.19 Unit household size water billing.

**Source:** Field Survey, 2011

6.0 percent of respondents were of the opinion that bills should not be increased (fig 4.21). This may be due to the fact that consumers may not be able to afford to pay when bills increase. Already bills are seen to be on the higher side figure (4.20).

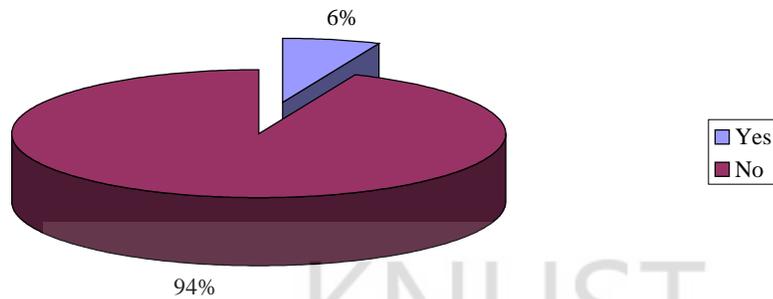


KNUST

Figure 4.20 Range of bills

**Source:** Field Survey, 2011

Brong Ahafo is the 4<sup>th</sup> poorest region in Ghana (CIDA, 1999) and so it is not surprising that they respond negatively to anticipated increase in water bills to help improve water supply services. However, some other clients expressed no objection to increase in water bills as long as it will improve services.



**Figure 4.21** Should bills be increased for better services?

**Source:** Field Survey, 2011

It is the view of 70 percent of staff /managers of GWCL that the amount charged for water bills is not encouraging at all. The current official rate according to the officials of the GWCL is not sufficient to recover costs such as operation, maintenance, energy and replacement activities of the water system, hence the inability of the company to improve much upon its services.

10% of the respondents noted water prices from water vendors as a severe problem (hence high). 40% consider it a minor problem while 50% regard it as no problem. Most importantly, the concern is the extra time and energy spent moving water to supply the home and commercial activities.

The challenge of consistent and sufficient water supply supplemented by commercial vendors of water comes along with many other problems including exposure of children and women to risks, increased stress and friendly fires.

To ensure that rural households are water secure, it necessary to evaluate the number, geographic location, yield, dependability, season and quality of the water sources (Kahinda, et al., 2007).

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## CHAPTER FIVE

### SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

#### 5.1 Summary

The following general conclusions were drawn from the analysis of the results:

The study showed that about 15% of the customers relied on water supply services within 16 - 24 GMT (night flows) in a day whilst 45% relied on water supply within 8 - 16 GMT (afternoon flows) and 40% relied on water supply services within 0 - 8 GMT (morning flows) in a day. The most convenient work however is the evening hours when most workers are home and also within the early morning hours before most workers leave for work. Generally flow of water is considered to have improved although there is concern regarding consistency of the supply of water.

Customers were satisfied with the quality of water supply delivery. Majority (77%) of the consumers had no problem with the smell of the water and 80% also indicated having no problem with the taste of the water supplied. However, the major complaint was with the colour of water which needs to be looked at. Majority of the consumers in the middle (81%) and low (68%) income groups expressed much concern of dissatisfaction with the colour of the water since they drink it.

Complaint were mostly made in person (86%) which when related to DALY (Disability Adjustment Life Years) could amount to several thousands of cedis lost in a year.

The attitude of GWCL/AVRL staff to complaint was very poor with 69% not satisfied with staffs' response to complaints. Meter readers were generally found to be customer friendly

Overall the customers perception on the price of water was relatively high (97%) and an increase in water tariff may cause a scare amongst consumers and may create problem.

## **5.2 Conclusion**

45% rely on water supply within 8 - 16 GMT (afternoon flows) and 40% relied on water supply services within 0 - 8 GMT (morning flows) in a day implying water flow is considerably reliable in Sunyani for a total of 55 percent people. There is concern for improvement.

The debate of water privatization has been very extensive. Some civil societies and NGOs objected to water privatization in Ghana, saying it would become economic good and be out of reach of the pockets of the poor because access to water will be determined by the market. Government however went ahead to privatize with a key objective that poor people would rather have constant access to water at affordable price.

Price wise, respondents were ok with the price of water.

The major causes of water shortage identified include

- non feasible times of water flow, illegal connections and high incidence of non metered residences connected to GWCL. These lead to poor estimation of water demand for any particular area.

Customers' perception of the quality of water is generally ok. Consumers perception of water taste and smell is satisfactory but there is concern for the colour of the water especially with options such as boreholes and wells. GWCL need to be on their toes regarding the quality (colour) of their services.

Customer perception of GWCL customer care is non satisfactory among GWCL staff. Customers indicate that a greater percentage report faults via personal visits to the GWCL office and yet do not receive prompt attention nor response.

Regarding the performance of GWCL, technically, most houses are metered. Twenty percent of GWCL connected respondents did not have metered accounts. Financially, the cost of water is generally perceived to be average. Despite this, customers expressed willingness to pay as long as quality is maintained and improved drastically.

There is perhaps overlap of services and so no one is exactly held responsible for anything in particular such that customers are tossed around regarding services.

### **5.3 Recommendations**

The following general recommendations were drawn from the analysis of the results:

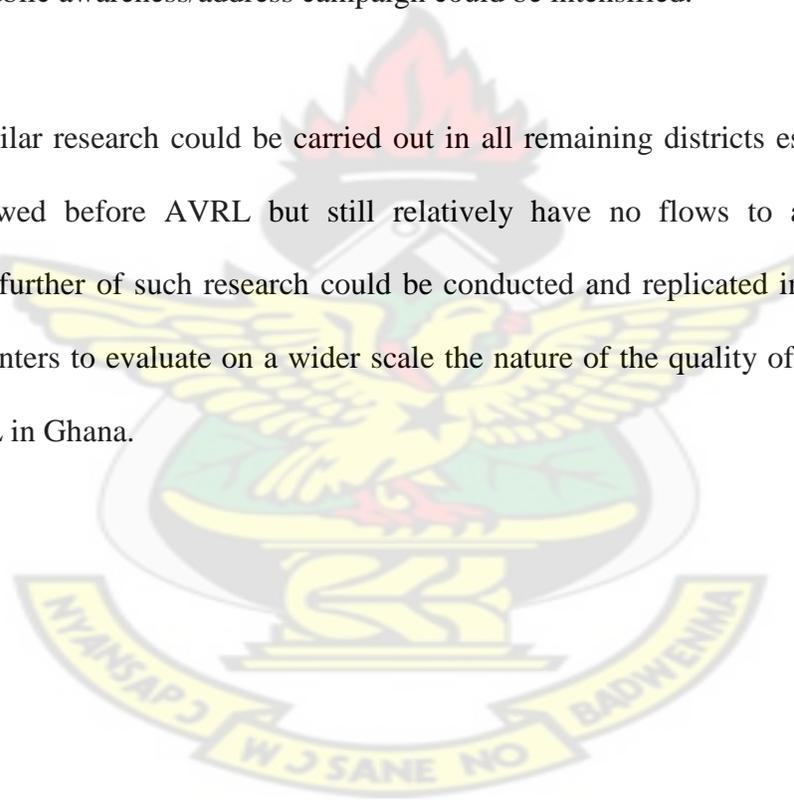
GWCL/AVRL should investigate in-depth and solve the problem leading to the very poor perception about the quality of water colour delivered especially for drinking water purposes.

GWCL/AVRL could through intensive media campaign/education create public awareness or issue flyers showing their toll free numbers to enable a change in the mode of complain to save cost. This same approach could also help regarding interruption of service.

There is the need to train staff and to create software that might be useful to address the delayed clients' time in several dimensions.

Generally, satisfaction interruption was much to be desired but greater room for improvement in GWCL/AVRL public awareness/address campaign could be intensified.

Additionally, similar research could be carried out in all remaining districts especially in areas where water flowed before AVRL but still relatively have no flows to also obtain their perception. Also further of such research could be conducted and replicated in the other major cities or urban centers to evaluate on a wider scale the nature of the quality of service rendered by GWCL/AVRL in Ghana.



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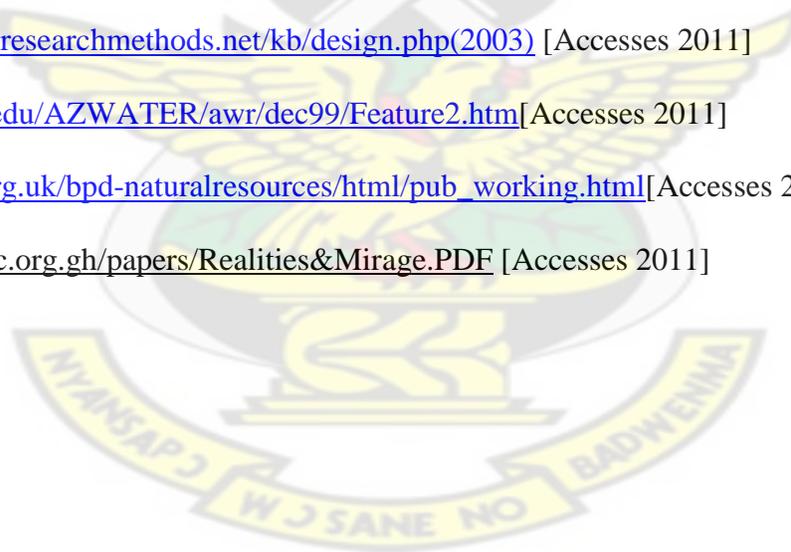
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**APPENDIX A**

**Commonwealth Executive Masters of Business Administration (CEMBA)**

**Of Kwame Nkrumah University of Science and Technology.**

**Master Thesis Topic: Assessing of the service delivery of GWCL: The case of Sunyani Municipality.**

All information provided will be treated as strictly confidential and for academic purpose only.

**QUESTIONNAIRE**

***RESIDENTS' SURVEY QUESTIONNAIRE***

**PUBLIC ASSESSMEN SURVEY**

Date: ..... Districts: ..... Area: .....

Water services delivery from GWCL *Service category*: (a) Domestic ( )

(b) Commercial( ) (c) Industrial( ) (d) Institutional( ) (e) Government ( )

Respondent Age: (a) Below 25 yrs ( ) (b) Between 25- 40 yrs ( ) (c) Above40 yrs ( )

Sex: Male Female. ( )

What is your highest level of education ? : (a) Basic (b) Secondary/tech. (c)University/Tertiary

(d) others ( ) please specify

Please underline where applicable.

1. Do you have access to water? (a)Yes ( ) (b) No ( )

2 What is your household size? (How many are you in your household ?

(a) 1-3 ( ) (b) 4-6 ( ) (c) 7-9 ( ) (d) 10 and above ( )

3. Is your household connected to GWCL network? (a) Yes ( ) (b) No ( )

4. Do you have any other source of water apart from GWCL? (a) Yes ( )

(b) No ( )

5. If yes, what is the source? (a) Well/Borehole ( ) (b) Rainwater( ) (c) Streams/Lake( ) (d)

Private providers ( ).

6. How many days in the week do you get water? (a) 1-2( ) (b) 3-4 ( )

(c)5-6( ) (d)1week( )

7. Is your water account metered? (a) Yes ( ) (b) No ( )

8. Is your meter read regularly? (a)Yes ( ) (b) No ( )

9. Are Bills received regularly? (a) Yes ( ) (b) No ( )

10. How many hours in a day do you receive water? (a) Less than 8 hrs ( ) (b) Between 8-16hrs ( ) (c) Between 16-24hrs ( )

11. Are you satisfied with GWCL water services? (a) Yes ( ) (b) No ( )

12. To what extent are you satisfied with the services of GWCL?

(a) Very extensive ( ) (b) Extensive ( ) (c) Less extensive ( )

(d) Not at all ( )

13. How will you grade the level of flow satisfaction now?

(a) 1-4(highest) (b) 5-8 (higher) (c) 8-11(high)

14. Are the water services gotten better lately ? (a) Yes( ) (b)No( )

15. How will you grade GWCL's response to a complaint?

(a) 1 ( ) (b) 2 ( ) (c) 3 ( ) (d) 4 ( )

16. What improvement do you expect? (a) Regular flow (b) Quality water
17. Have you ever made a complaint to GWCL? (a) Yes (b) No ( )
18. Did you get a satisfactory response? (a)Yes ( ) (b) No ( )
19. Are you notified before service is interrupted? (a) Yes ( ) (b) No ( )
20. GWCL's notifies customers when they interrupt service
- (a) Strongly agree (b) agree ( ) (c) Fair (d) disagree (e) strongly disagree
21. What is your impression about the physical water quality
- taste (a) 1-3( ) (b)4-6 ( ) (c) 7-9 ( ) (d) 10-13 ( )
- colour (a) 1-3( ) (b)4-6 ( ) (c) 7-9 ( ) (d) 10-13 ( )
- Smell - (a) 1-3( ) (b)4-6 ( ) (c) 7-9 ( ) (d) 10-13 ( )
22. On the average how many buckets (34 cm size/ 4 gallons) of water do you need for your household per day? (a)1 ( ) (b) 2 ( ) (c) 3( ) (d) 4( )
23. Is the water you fetch sufficient to meet your household requirements?
- (a) Yes ( ) (b) No ( )
24. If you have pipe connected to your home, how much do you pay (on the average) as water bill per month? (a)¢1-¢ 5( ) (b) ¢ 5-¢10( ) (c) ¢ 10- ¢15( ) (d) ¢15- ¢20
25. What is your impression about the Water Price/Bill? (a) Low ( ) (b) Average ( ) (c) High ( ) (d) Very high ( )
26. GWCL was in partnership with a private company? (a) Yes (b) No ( )

28. In your opinion, is the GWCL's flow services improving or deteriorating? (a) Improving ( )  
(b) Deteriorating ( )

29. What is your opinion on GWCL's meter/bill staff attitude to customers? (a) Excellent ( ) (b)  
Good ( ) (c) Fair ( ) (d) Poor ( )

30. Do you think water bills should be increased in order to improve water supply and delivery  
services? (a) Yes ( ) (b) No ( )

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**Commonwealth Executive Masters of Business Administration (CEMBA) Of Kwame Nkrumah University of Science and Technology.**

**Master Thesis Topic: Assessing of the service delivery of GWCL.**

**The case of Sunyani.**

All information provided will be treated as strictly confidential and for academic purpose only.

Questionnaire for Water suppliers (GWCL)

Name of Responding Officer

(1).....

Position in company

(1).....

**Section A:**

Q1. What is the current official tariff /price per bucket (four gallons) of water supply services in the urban of Sunyani? ₵.....

Q2. Is the current tariff/price sufficient to recover costs such as operation , maintenance energy and replacement costs? (1) Yes (2) No

Q3. Does the level of tariff / price discourage or encourage the GWCL in its efforts to improve services to the urban poor?

(1) Discourages (2) Encourages (3) Don't Know

Q4. How much do you think an average urban dweller in Sunyani should pay for one bucket? (34cm size/4 gallons)of water? (1)¢100 (2) ¢200 (3) ¢300 (4) ¢400 (5) ¢ 500 (6) ¢ 600 (7) ¢700 (8) ¢800 (9) other

**Section B:**

Q5. Would you say that there are problems with water supply and delivery services to the Sunyani? (1) Yes, there are problems (2) No, no problems

Q6. What will you say about the following issues of water supply and delivery in the Sunyani? Tick (√) as appropriate in the columns under: Severe problem, Minor problem, Not a problem and Don't know in the table below.

Water Issue	Severe problem	Minor problem	Not a problem	Don't Know
(1) Slowing down of domestic & commercial activities				
(2) High water prices from water vendors				
(3) Too much time is wasted in search of water				
(4) Long queues in fetching water, resulting in quarrels				
(5) Children usually are either late to or absent from school				
(6) Children risk their lives crossing roads in search of water				
(7) Prices of food items increase due to shortage of water				
(8) Risk in drinking of untreated water from open wells or				
(9) Other (specify)				

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