

CHAPTER ONE

INTRODUCTION

Ghana over the past decade has embarked on far-reaching service delivery reforms in the local government landscape. In the water sector, such reforms have been more hard felt than in any other sector. Management of the water sector is protected by strategies that demand responsiveness, decentralisation, a sector-wide approach to planning, sustainable, financial viability, coordination and collaboration, institutional reforms and private sector participation. Despite all these reforms and strategies, the management of water supply to the Kasoa community in Accra Metropolis remains a critical concern. This increasing concern is premised on the realisation that a total safe water supply cannot be guaranteed only through new reforms or strategies within a community that does not have water system structures in place. More effective would be the establishment of water supply systems within the community and adopting new management systems for such a service. Effective management of water supply systems is therefore, a key factor for ensuring long-term sustainability of water supply to Kasoa community.

The research focused on the management of water supply in Kasoa community in Ghana. It commenced by providing an understanding of water supply and management at global, continental, regional levels and in Ghana at national level with special reference to Kasoa community. Water supply in developing countries and Ghana in particular, remains one of the major challenges in the implementation of policies and developmental projects. One of the water developmental programmes was the construction of Weija dam in 1974 for the supply of portable drinking water to the Accra Metropolis. The Ghana government established this dam as part of the water policies to supply clean drinking water to the metropolis, to allow part of it as irrigation for both subsistence and commercial farming for food and water production in the metropolis .This is the responsibility of the Ministry of

Water, Housing and Natural Resources and under the management of Ghana Water Company.

However, the programme has been marred by incidence of corruption on the part of revenue collectors, land encroachment, mismanagement, leakages in the distribution system, lack of maintenance, and the expansion of facilities- specifically a treatment plant which has posed serious water shortages in the Accra Metropolis, particularly in the Kasoa community.

1.1 BACKGROUND TO THE STUDY

1.1.1 Water and Human Development

Water has been identified as a basic need of mankind since creation. It is indeed a necessity for man in all aspects of life: For consumption, agricultural purposes, eg.livestock and plants, domestic and industrial purposes, sanitation and rural-urban water supply. This precious commodity is in its natural state across the globe. However due to the activities of man that are hostile to the environment, such as land degradation, climate change, desertification, chemical development for industrial activities and its pollution, population growth, rural urban shift in population and the intensification of increased demand of water, poses danger for the usage of it, in its raw state and calls for management of production, distribution and access to it in the form of portable drinking water.

1.1.2 Global Water Supply and Management

Due to the fast pace of increasing global warming, nuclear weapon development, industrialisation and the quest for new development the water bodies that supply clean drinking water to mankind have been polluted. This phenomenon has raised world concerns as to the best way of managing portable drinking water to the fast growing global population. According to the World Water Council (www.unesco.org) water should be recognised as a major priority which focuses mainly on the objectives of increased awareness of water issues. Decision-makers at all levels should be implicated in this to ensure good management of water supply to communities. One objective of the Millennium Development Goals is to reduce the proportion of people without sustainable

access to safe drinking water, and sanitation by 2015. To achieve this, several measures should be taken which include the guarantee of access to water, decentralizing the responsibility for water, and developing know-how at local level, (www.worldwatercouncil.org).

1.1.3 Water Management on the Africa Continent

The semiarid and arid regions of Africa suffers severely and battles with the rapid waste of water resources. Water management across Africa is increasingly becoming a public – private partnership for the production, distribution, and collection of revenue as an efficient way of ensuring access to portable drinking water is managed for sustainability and development.

According to Falkenmark (1989) preserving urban Africa's scarce water supplies requires recognition of urban–rural water cycle linkages and holistic approach, coordinated, and equitable regional policies and practices that support ecosystem function. Rached, Rathgeber, and Brooks, (1996) state that, water crisis is looming in Africa, and the annual renewable freshwater available per person has declined by half since 1950. This will continue to decline, unless specific attention is placed on water conservation, through strategies to manage water in Africa water will be neither sustainable nor equitable in the years to come.

1.1.4 Regional - West Africa Water Supply

West Africa sister nationals for the past decades have been implementing water policies that will allow access to portable drinking water for their people. The International Conference on Water and the Environment (ICWE) held in Dublin in January 1992, called for new fundamental approaches to the assessment, development and management of freshwater resource, (www.afriqueavenir.org).

Water bodies' regulation is a means to ensure the free flow of fresh water, and the privatization of water producing companies. This strategy will give the poor access to water as part of the acts of the Economic Community of West Africa States (ECOWAS). Water as a basic commodity for life and production is an on-going exercise in the sub-region of Africa.

1.1.5 Water Management in Ghana

The Ghana government over the past decades implemented far-reaching reforms in the system of government and that of service delivery to the people in particular. The twin policies of decentralization and privatization have been the major forces that have characterised Ghana's economy and social sector. In the water sector, these changes have possibly been more pronounced than elsewhere. The Local Government Act (1992), the National Water Policy (2006) and the water statute all provide for the decentralization of the responsibilities for water service provision to local government and for a key role to be played by the private sector and the user. The Ghana Water sector is currently built on a set of strategies that include demand responsiveness, decentralization, a sector wide approach to planning, sustainability, financial viability, coordination and collaboration, institutional reforms and private sector participation.

The (1992) Constitution of Ghana provides for the entitlement to consumption of clean drinking water for every citizen. In the Ghana Water Policy of 2006, Ghanaian government enacted a new water law namely the Water Resource Commission Act, 522 of 1996. This came about as a result of considerable donor- pressure to privatize the urban water supply system. This Act laid the foundation for the creation of new water bureaucracies and the promotion of integrated water resource management (IWRM) in Ghana, (Government of Ghana, 1996).

According to the Water Use Regulations, L.I-1692, of 2001, existing water rights were abolished and a basis for the allocation and taxation of water use rights was created. . The challenge of water supply in the form of portable drinking water is a topical issue in Ghana. More specifically consumers and stakeholders in the Kasoa district are concerned that leaders and government officials -especially those from the local government and the Ministry of Housing and Water Resource -are not doing what is required to address the problem. Access to portable drinking water in Ghana remains one of the major challenges and is affecting the implementation of policies and the implementation of development projects in other sectors. These developments are part of a worldwide change in thinking about water service delivery, with the consequence that water should be treated as an

economic good. Therefore the government of Ghana recognizes safe drinking water as one of the priority needs of the population and its links to poverty.

1.1.5.1 Water Management in Kasoa community

Kasoa community is in the Awutu Afutu Senya district of the Central region of Ghana. It has a population size of approximately 10, 000, as at 2011, and is situated on the Accra Cape Coast road which is about 36 kilometers from Ghana's main airport -Kotoka International Airport. It has a large well- organised market which is patronised bi-weekly by villages dwellers within and without the district, (Community Action Global Impact; 2009).

This community is the most rapidly expanding community in the Accra Metropolis and is adjacent to the Ghana Water Company, but has inadequate portable drinking water which poses serious health and economic hazards to the wellbeing of the people and environmental challenges to government. Water provision in the community has been used as a political ingredient by politicians who wish to gain votes, through using water provision in Kasoa as a campaigning tool, despite failing to fulfill what they had promised the community, thus the community has fallen victim to political lies and propaganda. The politicization of these services to Kasoa community, may also present a serious challenge to community interests, demands or direct attention from the government of Ghana to this basic service challenge.

The local government and the Ghana Water Company which is adjacent to the Kasoa community may have some impact on the formation of a water supply policy to these communities. However, water supply to the community may have some political dynamics as to the level where politicians in Ghana can represent the interest of this community, using a public service which is essential for their wellbeing. The relationship between the local governments, and management of the Ghana Waters Company and its leadership personnel- responsible for the implementation of water policies, to this community,- is essential to ensure that policies of government address the issues of equity, social justice and a fair society. Therefore, the research focuses on the management of water supply to Kasoa community in Ghana.

1.1.5.2 The Political History of Ghana

Ghana was a British protectorate and became independent from colonial rule on 6 March 1957. After independence, the political leadership, having realised that Ghana was an agro-based economy, with Cocoa, at the forest belt and maize as its staple food for the northern part, inculcated in people a spirit of working hard on their farms. This development, coupled with sound water policies resulted in Ghana becoming one of the few countries in Africa to preserve its natural and vast water bodies for irrigation, and industrial and domestic consumption purposes.

Since the 1990s, implementation of reforms in the water sector was reviewed with the aim of changing the sufficiency of the production and utilisation of water. The National Water Policy is underpinned by the principles enunciated in the Ghana Poverty Reduction Strategy (GPRS), The Millennium Development Goals (MDGs), and the "Africa Water Vision" of the New Partnership for Africa's Development (NEPAD).

Water is essential to the existence of human beings and all living things. Hence it is important to understand it as a cross-cutting element for growth and poverty reduction strategy of the people of the Republic of Ghana.

1.1.5.3 The Ghana Water Company

In pursuit of the above constitutional provision, the Ghana government enacted the Public Water Supply Act 564 in December 1998 with the mandate to facilitate the provision of safe drinking water.

The Ghana Water Company (GWCL) mandate is to ensure the management and the operations of the Ghana Urban Water Supply, (GUWS). In the year 2006, the government of Ghana contracted Aqua Vitens Rand Limited to manage the Urban Water Operations to help GWCL find a solution to the country's water supply. The Company steers towards the development of the water sector in the country. This includes in particular, measures for examining the water practices and procedures of preserving water bodies in order to facilitate

the harvesting, production and distribution of safe drinking water to both urban and rural communities for domestic usage, (Ghana Water Provision Act, 1998 as amended in 2006).

In addition, the Water Company plays an advisory role to public and private bodies on ways and means of preventing water contamination related diseases and on changes in methods of water usage by community members.

From a Water provision point of view, Ghana Water Company is mandated to:

- (a) To ensure the management and the operations of the Ghana Urban Water Supply.
- (b) Formulate measures for examining the water practices and procedures of preserving water bodies, in order to facilitate the harvesting, production and distribution of safe drinking water to both urban and rural centers.

1.1.5.4 The Supply of Portable Drinking Water Programme (Weija Dam)

One of the water developmental programmes undertaken was the construction of Weija dam for the supply of portable drinking water to the Accra Metropolis in 1974. The Ghana government established this dam as part of the water policies to supply clean drinking water to the metropolis, to allow part of it as irrigation for both subsistence and commercial farming for food and water production in the metropolis. This is the responsibility of the Ministry of Water, Housing and Natural Resource and under the management of Ghana Water Company.

The initial plan for the dam was that 65 percent of water held will be for irrigation and 35 percent will be treated for the supply of clean drinking water to the metropolis. The dam holds water for these dual purposes but due to land encroachment, estate development programmes coupled with expansion of the city and population growth, the dam is now incapacitated for these purposes. The dam was built with an initial capacity of 150 million gallons per day water supply to the metropolis, but can only deliver 90 million per day. The Weija dam programme is all about water treatment and quality assurance.

The dam has a treatment plant, reservoir, administration blocks, and the dam site. This is located on the Densu River at Weija on the way to the sea at Botianor district in the Accra Metropolis. This is where water is captured for treatment, production, distribution and supply to the metropolis specifically Kasoa community.

Water Production and Supply to the Accra Metropolis (from 2006-2011)

Table 1:

years	2006	2007	2008	2009	2010	2011
Demand in m ³ /day	405 000	450 000	495 00	544 500	598 950	658 845
Supply in m ³ /day	272 655	373 500	400 950	397 483	437 234	480 957
Shortage in m ³ /day	132 345	76 500	94 050	147 017	161 716	177 888

Source: Ghana Water Company, 2011

The above table indicates the challenge related to water supply in the Accra metropolis is that demand of water is higher than supply. In 2007, water production was approximately 81 percent of water demanded which is estimated between 450 000m³- 500 000m³/day. This is due to population and economic growth of one million and 2 400.00m³/day. This is an indication that demands the system capacity to be increased.

Non-revenue water in the Ghana Water Company system is very high and in 2007 accounted for about 60 percent of the amount produced. This is due to physical losses of about 27 percent of the amount of water produced, and economic losses of about 33 percent of the water produced. Physical losses occur because of the distribution infrastructure, coupled with the limited leakages detection system: lack of maintenance, replacement, and rehabilitation.

1.1.6 An Overview of Kasoa Community

This section seeks to provide an overview of Kasoa district which is used as a case study, with a brief discussion of its history, demographics and socio- economic activities. The aim of this section is to sketch a historical background of Kasoa district and major developments that have taken place to date.

Kasoa which is part of the Awutu Afutu Senya in the Central Region of Ghana has emerged from the Accra Metropolis of the Greater Accra Region, the capital city of Ghana. This is because Kasoa borders Accra on the west, with their capital city Cape Coast which was first discovered by Europeans. The Ghana government in 1877 announced its decision to move the capital city to Accra 80 years before Ghana's independence in 1957.

Ghana is divided into ten administrative regions; the Northern, Upper West, Upper East, B-Ahafo, Ashanti, Western, Central, Greater Accra and the Volta Region. Kasoa in the Awutu Afutu Senya District is one of the prominent communities in the central region due to its strategic location to Accra. It has rich fishing waters along the coast and the famous Buduburam Camp which hosts Liberian Refugees since the civil war in the 1990s. The main ethnic groups are the Guans and the Fantes coupled with diverse Muslim groupings and Ewes co-habiting.

Kasoa and the central region is the second most densely populated community in the country, with a population density of 162 per square kilometer of which 20 to 37 percent of the population are migrants. About 50 percent of the households in the community occupy a single room the remaining households live in full houses. The main occupation is agriculture, self-employment, private informal sector and sales workers. It is famous for its market and commerce.

Kasoa district has a dry equatorial zone with moist climate and mean annual temperatures of 24.0 to 30.0 Degrees Celsius. Its lowest temperatures in the months of May to June range from 21 to 22 degrees Celsius. The highest temperatures occur in December to February, sometimes rising to 37 degrees Celsius. The rainy season is usually from May to June with an

average annual rainfall of 600 mm to 800 mm which is suitable for most crops, such as maize and certain vegetables. Rainfall distribution is influenced by aerographic effects in such a way that windward slopes receive more rainfall than the leeward side of hills and mountains (Kasoa District Socio- Economic Profile, 2011).

Figure1---- Map of Ghana



Source: www.nationsonline.org/oneworld/map/Ghana.

1.1.6.1 Administrative structures in Kasoa

(a) Kasoa District Assembly

According to the Ghana Local Government Act (1992), the District Assembly is comprised of members of Local Assembly, District Chief Executive, Elders and Traditional Leaders.

- (i) Policymakers, coordination and supervision of development programmes and projects in the district, such as water implementation projects
- (ii) Reviews, approves, or rejects projects identified by the community with assistance from the District Chief Executive(DCE) on water supply
- (iii) Makes resolutions regarding implementation of management functions of the secretariat on preservation of water bodies
- (iv) Approves By laws that govern the operations of the Assembly and other stakeholders that are engaged in water management.

Figure 2: Map of Kasoa District showing Traditional Authorities



Kasoa in the Awutu Afutu Senya District of Ghana (Accra metropolitan Area)

(b)The District Executive Committee (DEC)

The Kasoa District Executive Committee is one of the most crucial technical committees in the district and comprises 25 members drawn from different government line ministries, statutory corporations, non-governmental organisations (NGOs) and faith based organisations (FBOs) that are working in the district. Its membership is diverse and its responsibility of providing technical advice to District Assembly transcends the public- private divide with the view to formulate and harness policies such as water, so that they resonate with the needs of the communities in the district and with priorities of the central government. The department of Housing, Water and Natural Resources for water policies has a seat in the District Executive Committee.

(c) Area Water Development Committee (AWDC)

The Area Water Development Committee is an umbrella body for all Water and Sanitation Development Committees under the jurisdiction of the Traditional Authority. Kasoa district has 12 traditional authorities which linearly translates to 12 Area Water Development Committees. All the Area Water Development Committees in Kasoa district are comprised of Ward Councilors from the Traditional Authority's area of influence, youth and women groups, the business community and representatives of religious organisations. The Area Water Development Committee has an Area Executive Committee as a technical advisory committee. It is comprised of all extension workers from government line ministries, non-governmental organisations, and statutory corporations working within the jurisdiction of the Traditional Authority.

(d) Water Sanitation Development Committee (WSDC)

The Water Sanitation Development Committee (WSDC) is a representative body of experts or group of community health personnel. The WSDC is an important committee in planning and development as it is an integral part of the people at the grassroots. Every community has a representative in the WSDC while other members are Ward Councilors, Extension Workers and two women nominated by people within the Water Sanitation Development Committee.

1.1.7. Socio-Economic Activities

Due to its development, the Kasoa district is divided into two aspects of life and administrative areas; Kasoa rural and Kasoa urban. The main objective is to ease administrative responsibilities since the two economic blocks engage in two different types of socio-economic activities. The Kasoa urban employment structures show a heavy

dependence on commercial activities and small scale construction which is a reflection of its status and rapid development. Although banking, commerce and manufacturing have recently increased, these sectors still remain at relatively low proportions of overall employment.

This is contrary to Kasoa rural which is predominantly agro-based with maize and cassava as the staple food and fishing activities as a cash generating venture. The economic activity is centralized at the central business district of Kasoa urban. Out of the total area covering the district, most of the lands is under agricultural, estate housing and private home developments and the opening up of schools and banks. To this extent 354 237 hectares is arable land for small holders with an average land holding of 1.15 hectares per land owner and 18 765 hectares is under estate development with diverse owners in the Kasoa district (Kasoa District Socio- Economic Profile, 2011).

The erratic supply of portable drinking water to such a community is linked to poverty. Poverty is a term that is defined in many ways but what is central in the debates is the concept of “lack of basic needs”. According to Alkire (2002) the basic needs are the minimum standards for the poorest groups in society and include nutrition, education, clothing, shelter, water, sanitation and hygiene. Households are categorised as poor if they do not have food, clothing, shelter and other fundamental needs for development such as water. The Millennium Development Goals of the United Nations, especially goal number one, is cognizant of the fact that lack of water is tantamount to under development (United Nations, 2002).

The introduction of the water supply programme to Kasoa using the water meter system brought high hopes to the people of Kasoa urban as far as poverty reduction is concerned. Under the programme, each household and property owners can have water supplied to their homes or property by applying for a water meter. Through this the water company can bill water users for the cost which will also show the user the amount utilised monthly.

1.1.8 Complaints Regarding of Inadequate Water Supply to Kasoa

The Ghana government and the Ghana Water Company have for the past six (6) years received a large number of complaints from the Kasoa Community regarding inadequate water supply to the area. This is a case where Ghanaians and residents of Kasoa are aware of this chronic challenge. The following is a tabulation of complaints received by the Ghana Water Company alone from the Kasoa community from 2006/7 to 2010/11 regarding inadequate supply of portable drinking water to the community.

Table 2: Complaints from Kasoa district from 2006 to 2011 about Water provision

GWCL OFFICE Kasoa	2006/7	2007/8	2008/9	2009/10	2010/11	TOTAL
Complaints from users	150	287	390	507	876	2210

Source: GWCL database, 2011

This issue of inadequate supply of portable and clean drinking water to Kasoa community has been on national television, has been parliamentarians, radio programmes on water and sanitation, and government of Ghana Annual Budget to Parliament report by sector Minister (Ghana budget statement, 2011).

1.2 Problem Statement

Kasoa community is faced with the problem of inadequate access to potable drinking water, despite it being the most populated, fast growing, political stronghold and in close proximity to the Water Company. Much research has been done on urban water supply in the Accra metropolis and great importance has been attached to the operation, maintenance and management of water supply systems. However, little is known about the management of water supply to Kasoa community and why the problem of scarce water supply continues to exist, despite changes and reforms pursued by government.

Although Kasoa community is adjacent to the Ghana Water Company which is the sole provider of water throughout Ghana, Kasoa community is faced with inadequate access to portable drinking water. The reality is that, Kasoa community is concerned about this continuous infringement of its human right to a basic need such as water. The situation is a matter of concern and calls for investigations to identify solutions to the problem of scarce water supply, to give the community access to portable drinking water.

1.3 Purpose Statement

The purpose of this research was to investigate the problem of scarce water supply to Kasoa community and establish reasons that contribute to the perpetuation of the problem. In addition, the study sought to explore ways of overcoming this problem.

1.4 Research Questions

- (a) What are the factors contributing to the poor water supply to Kasoa community?
- (b) What are the trends in the management of water supply to Kasoa community?
- (c) What are the strategies for the management of water supply to Kasoa community?

(d) What measures can be put in place to remedy the problem?

1.5 Structure of the research

The research report comprises of 6 chapters

Chapter one: Introduction

This section provides the background to the study, research problem, the purpose of the research and research questions. The following is a brief outline of the remaining chapters:

Chapter two: Literature Review

This chapter outlines a literature review around the issue of water management in the implementation of water development projects. It further reveals the debate on the management of water supply to communities as a manifestation of weak institutions especially in developing countries. The literature review harnesses the academic theoretical assertions and concepts with empirical evidence. The concept of water and human development; forms of water supply; service delivery; privatization; decentralization and the theories of water management are discussed. This section concludes by analysing the different approaches to the management of water supply to communities and their advantages and disadvantages.

Chapter Three: Research Methods and Design

This section outlines the methodological background of the research as well as the research approach and design. The research methodological paradigm is informed by the research questions. The data collection strategy, techniques and procedures are discussed and justified. In addition, the section presents the limitations as well as the significance of the study. A conclusion is drawn relating the problem statement and the chosen research methodology.

Chapter Four: Data Presentation

This section reflects on the research questions to identify plausible solutions to the problem, also focuses on the water supply to the Kasoa community. The purpose of this chapter is to reflect on the main objectives of the Ghana Water Company to supply portable drinking water to the Accra Metropolis and specifically to Kasoa community. Data collection on the research is used to verify the distribution and the management of water to the Kasoa community.

Chapter Five: Data Analysis

This chapter outlines data analysis of the study. Data is first of all presented and analysis follows. This is where raw data collected during the research through semi- structured interviews and document analysis is analysed. It presents the findings of the research. This section focuses on making meaning out of raw data.

Chapter Six: Conclusions and Recommendations

This section outlines those areas that require further research, making some recommendations to close gaps in the leakages, illegal connections ,waste in the collection of revenue for the water company and the corruption in the management of the water company that emerge from the findings of the research. The basis of the conclusion flows from the debates on different viewpoints, both theoretical and in practice, embodied in the research and based on findings as identified in the analysis of the research.

1.6 Conclusion

This chapter introduces the research topic and background information by presenting the political history of Ghana, water supply policy and programme to Kasoa community an overview of Kasoa district; and the inadequacy of water supply to Kasoa district.

The problem statement, purpose statement and research question were presented to give direction to the core issue of the research. The conclusion included the structure of the research. It is in this context that chapter one could make a deduction that the Kasoa water supply programme by the Ghana Water Company was introduced with the aim of providing portable drinking water to overcome health and sanitation problems which will eventually uplift the socio – economic activities of the community. Although government intervention in the form of privatization, foreign donor support and subsidy has not yet boasted the supply of water to the Kasoa community, research reveals that the impact of the extension of water supply to Kasoa and the intensification of ensuring that the community has access to portable drinking water is mostly wasted. Reasons include illegal connections and corrupt officials, access to water for revenue collection, the cost of treating unused pipes to ensure supply of clean drinking water to the community.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review section will position the research within the existing body of knowledge unearthed by different scholars and relate it to the research problem being addressed. Literature around issues of water supply, policy and policy implementation, weak institutions and development, decentralization and service delivery, privatization, management theories for water supply will be discussed to conceptualize and draw a theoretical framework for the research.

A wide range of salient issues will be reviewed with emphasis on service delivery management systems and monitoring and evaluation procedures. Specific focus will be on water and human development, institutions, water and water provision in service delivery in the public-private partnership as points of discussion.

The literature concludes by looking at the relationship between local government capacity and quality of service delivery and detailed analysis of the use of elitism in water service provision in targeted communities.

2.2 Water and Human Development

The basic foundation for human development is the availability of adequate drinking water which greatly contributes to long life expectancy and for the proper functioning of human metabolism. Most developing and developed countries educate their citizens on the need for

sufficient water intake per day and to wash the body of toxic waste. Human kidneys functions better with sufficient, clean water intake, and could result in a healthier body functioning. This is needed for economic activities which generate jobs, income for households, and other intelligence activities of individuals.

Basic education is one of the variables of human development. Illiteracy and poverty which includes lack of water are mutually reinforcing in the sense that if people are poor they cannot afford to go to school to access education hence remain illiterate. On the other hand, if people are illiterate they cannot use the available stock of knowledge to improve their lives hence remain in the vicious poverty cycle.

Miller and Johnson (1984) call for an interrelated strategy in the agriculture sector which improves nutrition to the population in one dimension while it fosters the broader growth process in the other dimension. This call is a direct link to the provision of water supply for agricultural use in the form of irrigation. The man- power needed to drive the agricultural tools requires clean drinking water in order to stay healthy and for sanitation purposes. This strategy should increase disposable income to the population, and creates employment which generally contributes to the overall growth of the economy. This approach calls for a major role of government in strategic design and programme based approach to implementation, a role that is in sharp contrast with the free market approach or trajectory for development.

Water in economic terms gives one of the main economic functions of the government which is to allocate resources to various programmes such as the provision of portable drinking water to citizens. Countries that believe in the role of the market to distribute resources, closely watch the efficiency of the market. According to Mohr and Fourier (1995) markets sometimes fail to equitably distribute resources. If governments do not take decisive steps to intervene, there could be colossal ramifications to its socio-economic development agenda of which the inadequate water supply to Kasoa community is an example. Much as equal distribution of income by markets systems is unattainable, they do tend to produce socially unacceptable income distribution.

The major constraint limiting water development was identified as lack of sound water policies that could have induced technical and institutional innovations. As a result, the gap widened between the potential and the actual productive capabilities.

2.3 Water Supply

The World Bank (2011) suggests that, reliable and safe water supply and sanitation services can contribute significantly to income generation, health, and education. Water services provide dignity and reduce the environmental squalor that directly impacts people globally.

The WHO/UNICEF (2000) states that, one of the goals of the international community stated in the United Nations Millennium Declaration is to reduce by half the population with no access to safe water by 2015 given that 1.1 billion people lack access to improved water supply. Engel, Iskandarani and Useche (2005) posit that, due to population growth and rapid urbanization this number will likely rise rapidly in the coming years unless serious measures are undertaken to stem the tide.

There is growing recognition that water should no longer be seen as a public good only, but also as an economic good because of its economic value emanating from budget constraints, low revenues, and shortfalls in operation and maintenance. These have resulted in insufficient expansion of the system and simultaneously, gradual degradation of service when water demands increased and scarcity worsened, (Engel et al: 2005).

There is a bulk of literature on the issue of decentralization, privatization, government reforms and other related topics for water supply, (Philips: 2003). However; much of this literature remains largely normative. In a sense, it prescribes or recommends what should be done and how it should be done in order to achieve a better structuring and interaction between different actors. It is promotional in that it attempts, largely using a theoretical basis, to market the reforms as the most appropriate way of overcoming past problems. Mumvuma, Kombe and Ndubiwa (2006) claim that, writers on the approach have based their arguments on theoretical rather than empirical grounds.

Thus, little in the literature has been directed to documenting experiences with reforms, in terms of local government strategies, especially in Ghana. The few studies that have attempted this, eg. Whitfield (2006, 425-448) have not been sufficiently thorough in capturing the complexities surrounding the strategy question. While others have been too general, the

examples cited in the literature concentrate on portraying a negative picture of failed government enactment. The literature review below highlights some of these limitations. However it also raises useful contributions for the proposed study. The need for reforms in water management, a government of Ghana water strategy for achieving this, private sector and NGOs participation, are all measures to ensure that water reach the people.

2.4 Conceptual Framework

2.4.1 The concept of Policy and Policy Implementation

Governments provide goods and services to their citizens by way of policies which are implemented through programmes and projects. De Coning and Fick, (1995) however, argue that there is no universally agreed definition of public policy. Hughes (1998) points out that it is not possible to define public policy in any precise way. Definitions of public policy found in literature range from “ declarations of intent, a programme of goals and rules covering future behavior to important government decisions, a selection line or course of action, the consequences of inaction” (Hughes, 1998).

However, Dye (1987) defines public policy as whatever government chooses to do or not to do. Public policies are formulated by using various models and their aim is to solve certain problems that have been identified in a society or a country. Policy analysts use models with a cluster of assumptions and categories to simplify the analysis of information, before announcing claims that would assist policy makers in formulating policies.

There are almost as many models of the policy process as there are policy theorists. However what underpins the differences is the involvement of stakeholders in policy formulation. In policy process models, there are five important stages of policy formulation namely: problem identification, agenda setting, policy formulation, policy adaption, implementation and evaluation (Anderson: 1984:19). Agreed and legitimized public policies are implemented through programmes and projects by departments that have the legal mandate over those policies.

Public policies are revised after encountering certain challenges by street level bureaucrats or implementers during implementation. According to De Coning (1995:36) one of the

proponents of the incremental model argues that “incremental change is more expedient than comprehensive, revolutionary or radical change in the sense that conflict potentials is considerably lower and that incremental adaption contributes to a redefinition of policy on a continuous basis”.

According to Dunn (1994), the methodological core of policy analysis today can be broadly characterised as a form of critical multiples or triangulation where policy analysts employ multiple perspectives, methods, measures and data sources in order to improve knowledge claims. However, De Coning (1995) argues that rational and comprehensive change is difficult to realize, inter alia, because of vested interest and the impossibility of obtaining comprehensive data on all aspects of policy.

2.4.2 Monitoring the water distribution processes

According to Allen, (1995) monitoring can be defined as the periodic measurement of appropriate parameter to determine the effects of particular management strategies or policies, and the response of systems to change in the wider environment. The results of these assessments can be quantitative in the form of data and information or alternatively qualitative, based on subjective observation. This will depend on the methodology being used for the monitoring programme.

Monitoring therefore contributes to the adaption of more sustainable resource management practices. It is an ongoing process within the context of adaptive water management.

2.4.3 Evaluation of the Water Supply Process

Evaluations are analysed assessments addressing results of public policies, organisations or programmes that emphasise reliability and usefulness of findings. It is in this context that Boyle, Richard (1997) states that, evaluation is meant to improve information and reduce uncertainty; and rely rigorously on methods of judgment.

Policy and policy process of water implementation, through its design, resource devotion, to the execution, validity of its causal theory and the policy model outcomes all needs to be

evaluated. This is to ensure the desired and preferred outcomes for water supply provision to communities such as Kasoa community.

2.5 Service Delivery

In recent time's developing countries like Ghana have been experiencing protests on government service delivery because of its inadequacy and nonpublic value derived from the service.

Mumvuma et al. (2006) state that, private sector feature on the service delivery platform with the need to improve on provision and delivery of urban basic services. Karanja and Okoth (2006) observe that in contracting, - a finite-term contract is awarded to a private firm for delivery of services while franchising involves the award by government of finite-term zonal monopoly to a firm or a number of firms to undertake the supply of a service such as in the case of Kasoa community for the supply of portable drinking water.

The quality, speed, and the public value derived from the provision of water supply by the Ghana Water Company depends on capacity building; which calls for rationalising man power based on industry standards. The restructuring of the Commercial Department of the Company and building its capacity is a matter of urgency at district levels in particular; and instituting capacity building in a holistic manner to cover organization and systems and not only staff training, especially for private service partnership.

There is increasing importance being attached to operation, maintenance and management of water supply systems. This increasing attention is based on the realisation that totally safe water coverage cannot be guaranteed only by new investment, but more importantly through maintenance of existing supplies. Effective management of water supply systems is therefore, a key factor for ensuring long- term sustainability.

2.6 Privatization

Private sector involvement in the provision of water services is dominated by a small number of transnational corporations, expanding rapidly during the 1990s. Multilateral donor agencies have promoted water privatizations through the channeling of aid, arguing it would improve performance and efficiency. Simultaneously, global protest networks have emerged, advocating community-public partnerships for water provision to ensure transparency and accountability.

Growing empirical evidence shows that water privatization has often produced negative consequences (Whitfield, 2006 p.425-448). Cointreau (1984) states that, privatization can take various forms such as contracting, concession, franchise and open competition. Karanja and Okoth (2006) in contracting, a finite-term contract is awarded to a private firm for delivery of services while franchising involves the award by government of finite-term zonal monopoly to a firm or a number of them to undertake the supply of a service. Mumvuma et al (2006) state that, the private sector features on the service delivery platform with the need to improve on provision and delivery of urban basic services.

This need may occur spontaneously for example in cases where the public body charged with the responsibility of public works proves to be effective. However effective privatisation requires comprehensive, adequately implemented and effectively enforced legislation, (Karanja and Okoth: 2006). Helmsing (2000) supports this by saying that greater incentives should be provided especially to the private sector by removing the restrictive legislation and bureaucratic controls of central government, the so called market enablement. Mumvuma et al. (2006) believe that this enables the private sector to achieve the necessary goals of efficiency and thus take over delivery or supply of services on behalf of government.

2.7 Decentralization and Corruption in Revenue Collection.

The concept of decentralization has been defined in many ways with the earlier literature on federalism focusing on regional or provincial governments, one step below the national government. Contemporary views on decentralization in developing countries are largely

concerned with the empowerment of lower level governments at the municipal or village level on three key issues.

- (i) Authority:
Authority over legislation or implementation of regulations, composition of government spending and delivery of public goods
- (ii) Finances:
Setting and collecting taxes, borrowing from higher level government or markets and allocating expenditure on local services.
- (iii) Democracy:

Local government officials are elected by the local residents or appointed by higher level governments (Bardhan and Mookherjee, 2006).

In the early 1990s waves of decentralizations occurred in many developing countries around the world following the demise of development paradigm in which centralized states played a leading role. The decentralization concept was motivated by disenchantment with the centralized modes of governance, especially in the sense that monolithic governments cause increases in rentals, corruption and a lack of transparency and accountability by government officials (Bardhan and Mookherjee, 2006).

Contemporary policy analysts have debated on the effect of decentralization in developing countries. The point of discussion and the pertinent question that hovers on the minds of analysts is whether decentralization can be useful for the reforms of institutions to reduce corruption at local level.

Rose and Ackerman (2006) argue that decentralization results in replacement of bribery by central government officials with the elite's taken over local governments. The so called elites influence the design of policies and application of the laws in their self-interests. This type of corruption is not only nemesis to socio- economic development but also discriminatory in the sense that it excludes the masses from policy debates, defeating the very essence of empowerment embodied in decentralization.

There are various conceptualisations of the term of decentralisation. The term has involved some kind of shift in the balance of resources and responsibilities between central and local

government, (Conyers, 1985). This shift has taken a number of forms, as Mubvami and Nhekairo (2006) have observed and these are almost synonymous with the autonomy of the local government. These are: DE concentration, delegation, devolution and privatization. DE concentration involves the shifting of the location of certain government activities to lower spatial units, which were originally served from the centre. It simply entails the reduction in the workload of the centre with the latter still taking decisions. Delegation is seen by Mubvami and Nhekairo (2006) as the transfer of managerial responsibility for specifically defined functions to parastatal organisations outside their regular bureaucratic structure.

Mumvuma et al. (2006) view devolution as autonomous units being set up with authority to make decisions without much reference to the centre. Under devolution local units of government are autonomous, independent and perceived as separate levels of government over which central government exercises little control. Mubvami and Nhekairo (2006) suggest that privatisation occurs when institutions previously run by the state are permitted to operate as private entities; where government previously had a role to play in the activities under privatisation the interests of government go only as far as its dividends are concerned.

2.8 Management Theories for Water Management in Ghana

Management theories fall into two broad categories, i.e. the historical (Scientific management and Bureaucratic theories) and the contemporary management theories (Contingency theory, Systems theory and the Chaos theory).

The Systems theory has impacted greatly on management science and organisational understanding. It begins by scrutinising and understanding what a system is, if one part of the system is removed then the nature of the system is changed as well. This interpretation has brought about a paradigm shift in the way management understands and approaches organizations.

Only recently, with tremendous changes facing organizations and how they operate, have educators and managers come to face this new way of perceiving things. However, the theory has opened up new perspectives for managers to read patterns and events in the workplace

and recognise the various parts of the system and organisation and the interrelatedness of the parts (<http://managementhelp.org/management/theories.htm>).

This research uses the Systems theory of management for the following reasons, it helps in understanding the organisation, in this case the local government in Kasoa in terms of the inputs, processes, outputs and outcome, the theory has opened up new perspectives for managers to read patterns and events in the workplace and recognise the various parts of the system and organisation and the interrelatedness of the parts e.g. coordination of central administration and its programmes and the theory has sufficient input on management science and organisational understanding.

2.8.1 The Need for Reforms in Water Management

In its 1994 World Development Report where it focused on infrastructure provision, the World Bank pointed to inefficiencies and waste in infrastructure provision and called for interventions to tackle these problems. The problems identified in the report typically constitute part of what has been the critique of the past approaches to service delivery, mainly designed along the basic needs approach and implemented through government water departments.

During the 1990s, a global consensus was reached by water and sanitation professionals that the only way forward was to treat water as an economic good and to deliver it using demand-based approaches (UNDP-World Bank, 1996:6-7). Thus many of the publications produced by both international aid agencies as well as local researchers during the early 1990s have focused on the need for reforms and its justification.

The precedence to the above is a shift from a basic needs approach by which governments tried to assure a minimum level of services to as many people as possible, to a demand driven approach in which consumers are expected to express effective demand for services (Kleemeir, 1995).

However, reforms in the water sector must also be seen in the wider context of public sector reforms in general. These reforms are generally based on experiences with failed governments. The characteristics of bad government are documented to include: public officials pursuing their own private interests rather than those of the public good; governments over-extending themselves, both in spending and hiring staff; rampant

favouritism to certain clients; workers being trained; and indulging in illegal practices such as bribery and influence peddling (Tendler, 1997). These issues have formed the basis for neo-liberal thinking and its strong belief in the market mechanism as an alternative to a non-performing state bureaucracy.

2.8.2 Government of Ghana Commitment

The government of Ghana recently embarked on a water and sanitation sector reforms process, the objective of which is:

- (a) To ensure that services are provided and managed with increased performance and cost effectiveness.
- (b) To decrease government burden while maintaining the government's commitment to equitable and sustainable domestic water and sanitation services.

In view of the above, the strategies for achieving this are envisaged in the central government moving away from project implementation and instead taken responsibility for policy formulation, resource mobilization, sector co-ordination, monitoring and quality assurance. Local government should become responsible for planning and financing water and sanitation sub projects, through conditional grants; and enhanced private sector and NGO participation in the provision of water and sanitation.

This sector scenario presents a challenge to government, private sector operators and civil society organisations alike. At present there is inadequate capacity collaboration among all three of these institutions and intensive capacity strengthening measures are needed if the sector goals are to be achieved.

Considering that the policy situation is fairly new, the local private sector is still developing and does not have sufficient capacity (both technical and financial) to meet the challenge. Private sector operators tend to target the more profitable areas and do therefore not necessarily contribute to the Poverty Reduction Strategy Plan of the people of Ghana. To meet the MDGs, Government has also set targets among them, to provide safe water to the urban population by the year 2015.

2.9 Institutions and Development

Strong institutions need to be in place for the successful implementation of policies through programmes and projects. The term ‘institution’ is a complex concept in development and is understood differently by scholars; but what underpins the varying thoughts is the availability of rules and their effective enforcement mechanism. According to the World Bank (2000:22), the term institution is defined as “a set of formal and informal rules governing the actions of individuals and organizations and the interaction of participants in the development process”.

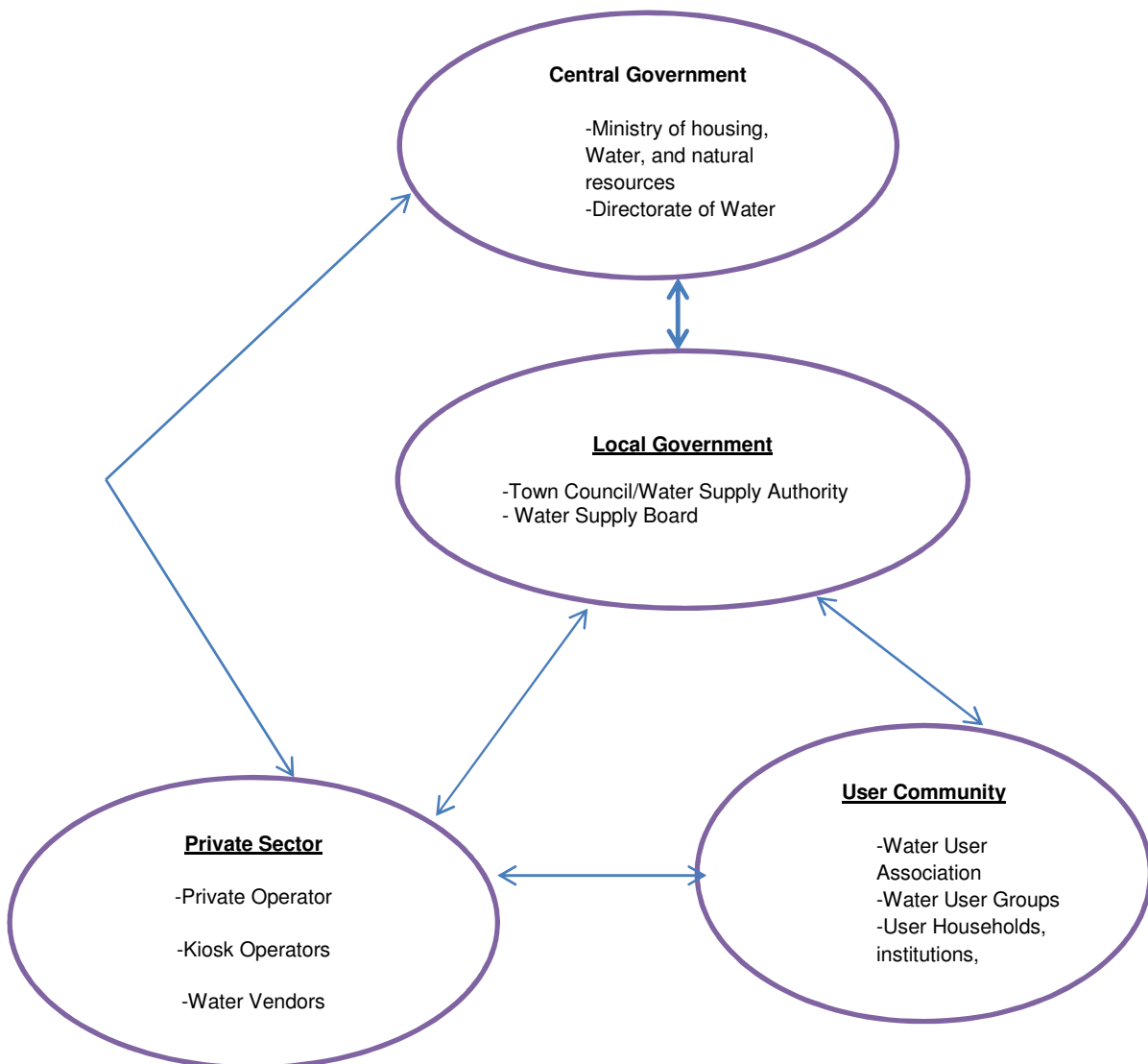
Kumssa and Mbechi (2004:841) argue that the term “institutions” refers to government and non-government social systems and their underlying values, rules, norms of behavior and traditions that govern social relations. One of the most important institutions in a society is the government. The government through its legislature, executive and judicial branches; sets out the formal rules and enforces them through its various coercive systems such as the police, army, and the court, to create a stable society which is a necessary framework for a flourishing economy.

Institutions play a pivotal role in implementation of developmental projects. Kumssa and Mbechi (2004:843) contend that “the experience of many unsuccessful or marginally effective developmental projects in Africa has shown that long term sustainability is attributable not only to economic or technological factors but to institutional and organizational factors as well”. Strong institutions reduce uncertainties in a society and through rules, determine what is acceptable and not acceptable; thereby reducing incidences of corruption practices. According to Evans (1998) effective states are those that deliver rule-governed environments which strengthen and increase the efficiency of local organisations and institutions.

World Bank (2002) asserts that the term institutions, governance and institutional quality are sometimes used interchangeably even by modern scholars. Governance encapsulates rules, enforcement mechanism and availability of organisations that have a legal and professional mandate to ensure transparency and accountability. Meaningful development has its foundation on sound institutions or governance which helps create conducive environments through enforceable regulatory frameworks.

Africa and other developing countries should learn some lessons from the four tigers of East Asia (South Korea, Hong Kong, Singapore and Taiwan) which established well-functioning institutions that promoted economic growth and reduced poverty within a short period of time. They created a conducive environment for developmental projects to be implemented effectively thereby making a contribution to socio- economic development.

Figure 3: Key institutions and Actors



Source: Mumvuma, et al. (2006; 208)

Central government in this case consists of ministries, mainly the Ministry of Housing, Water and Natural Resources. The Ministry operates through its water directorate of Ghana Water Company which is responsible for water supplies in urban as well as rural areas in all the ten regions of Ghana. Town councils are the political authorities responsible for the towns under their jurisdiction. According to the local government Act (2006), they have the responsibility for providing safe water and sanitation services, among other services in their areas of jurisdiction. Water Boards are appointed by the Sector Ministry to supervise the operations of the water system's on the latter's behalf.

Water User Associations were initiated as a mechanism for building users ownership and management of water schemes. Water users are the target of improved water services. Water users are organized as water user groups or simply as households, institutional or individual consumers. In a Water User Association management system, the chairperson of the group is a councillor in the Water User Association. Under a private operator managed system, the user's interests are supposedly represented by Town Council through the Water Board. In all instances, users are expected to pay for the water consumed.

Water vendors exist as a segment of the informal private sector in the Kasoa community. They fetch water from either the kiosk or from the springs and boreholes and sell or deliver to users at a profit or for a payment for their work. Kiosk operators in Kasoa community were previous employees of the Water User Association and remit any funds to the private operator as per their meter readings, and retail the water for profit. Their major concern is to sell more water since the demand is higher.

2.11 Conclusion

Under this section a number of critical issues have been discussed. Firstly, the issue of water and human development, public policy, policy implementation and the role of institutions in development with a particular focus on developing countries in Africa. The effectiveness of governance system and accountability procedures that are used to render services to public depends on the strength of existing institutions. Water supply system and service provision for water delivery to communities is an example of systems whose effectiveness depends on

the strength of institutions and accountability measures that promotes and upheld principles of good governance.

The problem of scarce water supply to Kasoa community is a manifestation of weak institutions and lack of accountability mechanism. Furthermore, the section has discussed weak institutions from an academic point of view and how they can act as fertile grounds for corrupt practices. This was followed by a detailed discussion on management practices and the link between decentralization and financial practices, service delivery, privatization, monitoring and evaluation procedures.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology used to carry out the study. Generally, it describes the nature of the research, its design, data collection methods and analysis.

The purpose of the research is to investigate the problem of scarce water supply to Kasoa district and establishes the reason underlying the inadequate water supply in the community. It was also aimed at finding measures that would help strengthen the distribution system by introducing accountability measures, efficient management practices that will help the Weija dam water supply programme to benefit the intended users.

The research attempted to find solutions to the following questions:

- (1) What are the factors leading to the scarce water supply to Kasoa Community?
- (2) What are the trends in the management of water supply to Kasoa?
- (3) What are the strategies for the management of water supply to Kasoa?
- (4) What measures can be taken to remedy the problem?

Data analysis strategy including ongoing analysis, description analysis and interpretation analysis are presented in this chapter. The following section discusses the research approach and design.

3.2 Research Approach

The nature of the research in a way penetrates a wide range of salient but related disciplines of policy and policy implementation, management systems, monitoring and evaluation, accountability measures, governance systems and of service delivery.

This research has adopted an interpretative social science (ISS) approach which place emphasis on meaningful social actions, socially constructed meanings, and value relativism as its construct. This approach has been chosen because it gives deeper meaning to the case under study since the purpose of the research is not solely to learn about the social environment but to also understand day to day life and experiences, or the social life of the people of Kasoa in terms of lack of basic needs such as water. This is the understanding of the social life of the people in historical settings (Creswell, 2007). This approach is different from the positivism school of thought which emphasises discovery of causal laws, careful empirical observations and a value- free research approach. (Newman, 2006:81).

This study has fundamentally adapted the qualitative research paradigm in order to analyse and understand the social dynamics surrounding the problem of scarce water supply to Kasoa community. This however resembles a minute quantitative method in terms of the presentation of data and its analysis. Qualitative research is an umbrella concept of covering several forms of inquiry which includes in-depth interviews. Denzin and Lincoln (1994) argue that the field of qualitative research is far from a unified set of principles promulgated by the networked group of scholars. This has numerous variations which depend on the researcher and the matter under investigation.

According to Newman (2006:87), interpretative social science is related to hermeneutics, a theory of meaning that originates in the 19th century. This theory is premised on in-depth inquiry into text which could refer to a conversation, written words or pictures and relating its parts to the whole can reveal deeper meanings.

In terms of definitions of qualitative research, what underpins the varying definitions is the naturalistic approach to its subject matter. Danzin and Lincoln (1994) defines qualitative research approach as multi- methods in focus, involving an interpretative, natural approach to the issue under investigation in the case of scarce water supply to Kasoa community. This means that qualitative research takes place in their natural settings, attempting to make sense of it or interpret the phenomena in terms of the meanings and explanations made available to them by the people.

Creswell (2003) argues that qualitative researchers enquire involvement of their participants in data collection and seeks to build rapport and credibility with individuals in the study.

Hence methods of data collection are traditionally based on open ended observations, interviews and documents analysis. In this research, the qualitative data collected was preferred as it was useful through interviews with the management of Ghana Water Company, documents analysis on the annual reports of the company, and government of Ghana reports on water provisions through which rich and in-depth information in the field was gathered.

According to Locke, Spirduso and Siloverman (1987), the qualitative research paradigm is the intent to understand a particular social situation, event, role or interaction. It is largely an investigative process where the researcher gradually makes sense of a social phenomenon by contrasting, comparing, replicating, cataloguing and classifying the object of study.

Strauss and Corbin (1990:17) argues that qualitative research, broadly defined, means any kind of research that produces findings that are not arrived at by means of statistical procedures or other means of quantification. Where qualitative researchers seek causal determination, predictions and the generalization of findings, qualitative researchers seek illumination, understanding and extrapolation to similar situations.

Creswell (1998) was of the view that, qualitative research is an inquiry process of understanding social dimensions based on distinct methodological tradition of inquiry that explores a social or human problem. This researcher builds a complex, holistic picture around the issue, analyses words, details views of informants and conducts the study in a natural settings. This, in essence makes reference to the complex narratives that takes the reader into multiple dimensions of the problem or the issue and displays it in all of its complexity.

3.3 Research Design

In this qualitative research project, the case study methods have been chosen to understand the social dynamics of the problem of scarce water supply to Kasoa district. There are many forms definitions of case studies but the interception point of the definitions is the unit of analysis around which there are boundaries.

Merriam (1998) defines a case study as an intensive, holistic description and analysis of a single instance, phenomenon, or social unit. A case study can be individuals, groups, neighbourhood, programmes, organisation, cultures, regions or nation-states. By

concentrating on a single phenomenon or entity (which is the case), the researcher aims to uncover the interaction of specific factors, a characteristic of the phenomenon. Becker (1968:233) states that, the purpose of a case study is two-fold; to arrive at a comprehensive understanding of groups under study, (which is the case of Kasoa community), and to develop general theoretical statements about regularities in social structure and process.

Patton (2002) argues that a case study is expected to reveal the complexity of a single case. It is the study of the particular complexity of a single case, coming to understand its activity within circumstances. According to Yin (1994), a case study is chosen 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 has a clearly defined boundary of existence (Merriam, 2002). Cases are bound by time and an activity where researchers collect detailed information using a variety of data collection procedures over a sustainable period of time. A case study intensively investigates something and draws conclusions on only the focus group, in that specific context (Creswell, 1998).

In this case study of the Kasoa community, specifically at the Ghana Water Company, a descriptive study was used to gain an in-depth understanding of how water management and officials in the company are able to produce water and distribute water meters, but are not able to collect the needed revenue, while the ones collected are significantly used for their personal benefit. Descriptive study means that the end product of a case study is rich, and the thick description of the phenomenon under study. The term “thick” description originates from anthropology and means a complete, literal description of an incident or entity being investigated (Merriam, 1998:28).

3.4 Data Collection Strategy

Data collection is an important component of a research project. In this research, the data collection methods used were semi-structured interviews with purposively selected key stakeholders from the management of the Ghana Water Company. Data collection also involved the analysis of documents in the form of annual reports, documents pertaining to policy decisions and design of the water meter distribution system of the Water Company, and the Government of Ghana reports on water provision.

In this study, data collection, data presentation and analysis have been separated but during data collection attention was given to patterns in the early stages of the data collection. In qualitative research, researchers look for patterns or relationships early in a research project, while they are still collecting data. In quantitative research, researchers do not begin data analysis until all data has been collected and condensed into numbers. They then manipulate the numbers in order to reorganise patterns or relationships (Newman, 2006:458-459).

Creswell (2003) explains that qualitative researchers use multiple procedures for data collection that are interactive and humanistic. The methods of data collection are growing and they increasingly involve active participation by participants and sensitivity to the participants in the study. According to Strauss and Corbin (1990:42), theoretical sensitivity of a researcher is of paramount importance in qualitative research as it emphasises the personal quality of a researcher. In data collection, this entails the attribute of insight, ability to give meaning to data, capacity to understand data and capability to sieve what is pertinent from what is not.

The main methods of collecting data were face to face interviews using an interview guide and documents analysis. An unstructured interview guide solely designed to address issues raised in the purpose statement and research questions was used throughout the face to face interviews with all selected key stakeholders.

The documents analysis exercise was two -fold; firstly it intrinsically focused on the available stock of knowledge and debates around the issue of the importance of water in human development, public policy and its implementation, management, role of institutions and service delivery. Secondly, it dwelt on the design of the water meter distribution system as a

discussion topic and the Weija dam water distribution programme to transform the lives of the beneficiaries and the entire population of Kasoa district through the distribution of safe drinking water to the community.

According to Ragin (1987) a key difference between qualitative and quantitative research is that, quantitative researchers work with a few variables and many cases whereas qualitative researchers work with a few cases and many variables. At the centre of this research was the problem of scarce water supply to Kasoa community as articulated in the purpose statement. However, the research also examined a broad spectrum of social factors or issues around the water distribution initiative in the Accra Metropolis in the form of Weija dam treatment plant, water supply to Kasoa district from 2006/07 to 2010/11 and compared it with the actual production during those years.

3.4.1 Primary Data

Primary data is one that is directly obtained from the source through interviews, focus group discussions, observations and explanations. The type of data collected is influenced by the nature of the research topic, availability of time and financial resources. In this research, primary data was collected through semi- structured interviews with the Management of Ghana Water Company at the Weija treatment plant and as well as key stakeholders in the ministry of water resources.

(a) Semi-Structured Interviews

An interview is a two-way process of obtaining information where interviewers mostly ask questions and interviewees provide responses. Newman (2006:305) argues that in research, the role of an interviewer is a challenging one since she is supposed to be nonjudgmental and does not in any way try to change a respondent's opinion or beliefs.

An interviewer develops a guide which is a list of questions or general topics or themes that the interviewer wishes to explore during the interviews. In the semi-structured interviews the interviewer firstly builds rapport and then asks open -ended questions on a particular theme to obtain broad spectrum answers and may probe for more information on specific issues. Interview guides help interviewers to focus and ask all the interviewees similar questions. An

interview guide can be modified depending on the interviewee and areas that the interviewer wishes to focus on.

In this research, semi-structured interviews were used to collect data from a total of five stakeholders responsible for the production at the water company of the Weija dam site and, distribution and revenue collection of portable drinking water to the Kasoa community which is the case under study; one technical evaluation officer, quality assurance manager, revenue collection officer, cashier and water meter distribution officer.

The rationale behind the selection of the above stakeholders is detailed below:

- (1) The identification of beneficiaries' homes and distribution of water meter to water users in Ghana is decentralized. The district office of the water company is responsible for this.
- (2) The technical evaluation officers are the main players in the identification process of meter beneficiaries. They examined all the technicalities involved in processing applications for water meter.
- (3) Beneficiaries are the target group of the programme (water users). Once identified, they have the legitimate expectation of receiving water meters from the Ghana Water Company for water supply to their homes and properties.
- (4) Revenue collectors or water bill distributors are the people who represent the company at grassroots. They ensure water bills are distributed timeously for prompt payment as this is revenue for the company to manage the circle of production.

3.4.2 Secondary Data

Secondary data is data that is not collected directly by the researcher or any other user and in this study includes government reports on water and sanitation programmes, civil society reports on water and sanitation among others. Secondary data may be from internal source as it may have been collected and published by the same organisations. Secondary data is however, important in research as it contains rich information and is more available than primary data.

The study used the following secondary data: Kasoa district water reports from the water company, Government of Ghana reports on water provision to the Accra Metropolis, library books, internet site for journals and newspaper articles on water supply provisions.

3.4.3 Sampling

According to Newman (2006:219) a sample is a small collection of units from which a larger collection of population, such as the researchers can study the smaller group and produce accurate generalizations about the larger group. In qualitative research, sampling is based on mathematical theories of probability.

However, qualitative and quantitative researchers approach sampling differently. Qualitative researchers focus less on the sample being representative but rather on how it illuminates social life. In qualitative research, purposive sampling which is also referred to as non-probability sampling is the commonly used method of selecting a sample as it focuses on unique cases that are especially informative (Teddlie and Yu, 2007).

In qualitative research, sites or individuals are purposively selected for the proposed study. The data behind qualitative research is to purposively select participants or documents or visual materials that will best help the researcher understand the problem and the research questions (Creswell, 2003:185).

Miles and Huberman (1994) clearly discuss sites and participants in qualitative research and group them into four types namely:

- (i) Settings: This is where the research will take place
- (ii) The Actors: Who will be observed or interviewed in the research
- (iii) Events: What the actors will be observed on or interviewed on.
- (iv) The process: The evolving nature of events undertaken by the actors within the setting.

In this study, five participants interviewed and documents analysed were purposively selected to better understand the problem of inadequate water supply to Kasoa community.

3.5 Data Analysis

Data analysis is a complex and multi-methodical process of making sense out of the raw data from the field .At the early stages of data analysis; it is advisable to organize data into folders, Index cards or computer files. According to Creswell (1998:143) there is no consensus on the mode of analysis of qualitative data. Qualitative analysis of data, which in most cases is voluminous, requires some ingenuity or intuition since the challenge is to organise raw data into logical, meaningful categories. This is so that it is examined in a holistic way and simultaneously explained to others in a meaningful way .Merriam (1998:162) argues that without ongoing analysis, data can be unfocused repetitious and overwhelming in the volume of the material that needs to be processed.

Data analysis begins with reading the transcript from the field in its entirety several times to allow the researcher to fully understand the details of the research and trying to make sense of the interviews as a whole before categorizing it into themes or key concepts. At this stage the researcher should continuously reflect on the broader picture presented by the raw data and then form categories which are supported by evidence. The identification of themes or categories is referred to as “open coded”. In qualitative research, the formation of categories represents the heart of data analysis (Creswell, 1998:144).

Miles and Huberman (1994:10-12) explain that in qualitative data analysis there are the following three important flows of activities to be executed concurrently in a continuous process throughout the research exercise bearing in mind the nature and volume of data that is collected.

(a) Data Reduction

Not all data that is collected in the field using field notes or whichever technique is used in qualitative research. Data reduction is the process of selecting, focusing, simplifying, and

sieving observations into meaningful data that can be contextualized, interpreted and communicated to readers. In this study, at the end of every interview with the five key stakeholders, summaries were made on a separate sheet and coded accordingly.

(b) Data Display

Data is displayed using graphics, tables, association matrices, charts and network diagrams. Logical frameworks where the responses of interviewees are charted on the same questions to identify patterns and differences are also used. It is organised in such a way that readers can draw conclusions (Miles and Huberman, 1994).

(C) Conclusion Drawing

From the beginning of data collection the researcher observed patterns, regulations, explanations, possible explanations, propositions and casual flows. A seasoned and competent researcher notes these conclusion with caution as it is too early to draw concrete conclusions. However, they provide a basis or reference point as the researcher progresses

Qualitative study usually relies on inductive reasoning processes to interpret and structure the meaning that is derived from data. Generally, inductive reasoning uses data to generate ideas (hypothesis generating) while deductive reasoning begins with an idea and uses data to confirm or negate the idea (hypothesis testing). In this study, data was collected through interviews with the management of the Ghana Water Company and stakeholders of the Kasoa District, and through document analysis on the government of Ghana water supply program to Kasoa Awutu Afutu Senya District which was grouped and coded according to emerging patterns.

3.6 Validity and Reliability

According to Newman (2006:188) validity and reliability are salient issues in measurement since they are both concerned with connecting measures to constructs. Validity and reliability are central issues in research because constructs are often ambiguous, diffuse and not directly

observable. Reliability means consistency of results over time if the results of the study can be reproduced under similar methodology.

In qualitative research reliability is grouped into three categories namely:

- (v) Measurement reliability: The dependability or consistency of the measure of a variable.
- (vi) Stability reliability: This is measurement reliability over time. A measure that yields consistent results at different time points assuming what is being measured does not itself change.
- (vii) Representative reliability: Refers to measurement reliability across groups. It is a measurement that yields consistent results across various social groups (Newman, 2006:189).

Validity is seen as strength of qualitative research as it is used to determine whether the findings are accurate from the standpoint of the researcher, the participant or the reader of an account (Creswell and Miller, 2000).

In this research, the following strategies were used to check the accuracy and credibility of the findings.

(a) Triangulation

Triangulation is a concept that emanates from the idea that looking at something from multiple points of view improves accuracy. It is an important concept in both quantitative and qualitative social research. It is also used in a number of disciplines including policy analysis and policy formulation. When this concept is applied to social research, it means that it is better to look at something from several angles than in one way.

There are several types of triangulation but the most common type is triangulation of measures, where researchers take multiple measures of the same phenomena in more than one way. This makes researchers more likely to see all aspects of it (Newman, 2007:149).

In this research, data was obtained from different sources i.e. officials from the Ghana Water Company, community leaders, civil society, and stakeholders that are directly involved in

monitoring the implementation of water policies to ensure the supply of water reaches the people of Kasoa. Particular attention was paid to patterns that emerged from these various sources during interviews. In addition, data from analysis of documents such as civil society reports and government reports on the effectiveness of the management of water to Kasoa community was compared with data and patterns that emerged from interviews with different stakeholders.

(b) Peer Debriefing

In order to enhance the accuracy of the account, a peer debriefer was identified who reviewed the account and asked questions to clear any bias to ensure that the account resonates with the people and not the researcher. The person who peer debriefed the account is someone who is familiar with and has knowledge of the problem of scarce water supply to Kasoa community.

3.7 Significance of the study

The study is significant in the sense that efforts aimed at addressing challenges of scarce water supply to Kasoa community can be overcome in order to uplift the living standards of the people. Every human being has the right to water and the assurance that the factors leading to a scarce water supply are removed. This is in full support of the spirit and the letter behind the Universal Bill of Rights promulgated by the United Nations.

3.8 Limitations of the study

The study limited itself to the examination of factors that contribute to the scarce water supply to Kasoa community. The study takes into account the facts that information from stakeholders and the management of Ghana Water Company that were interviewed could be subjective and not representative the state of affairs on the ground. The study planned to interview five people from the Ghana Water Company and civil society in the Kasoa community.

3.9 Conclusion

This chapter covered an overview of the nature of the problem and the challenges it poses. The main aim was to highlight the research questions which are critical to the understanding of the research problem. In addition, this chapter has presented an overview of the research methodology followed to conduct research. It has contextualized the research approach and design by explaining data collection methods. The chapter presented an overview of the significance of the study followed by its limitations.

CHAPTER FOUR

DATA PRESENTATION

4.1 Introduction

This study focused on the analysis of the water meter distribution system which forms part of the implementation strategy of the water supply programme in Accra Metropolis, specifically Kasoa community. In particular, the analysis examined accountability measures in distribution systems. As stated in the methodology section; in-depth interviews were conducted with informants from the Ghana Water Company and other stakeholders at the district level. In addition, documents concerning the water supply programme were collected from stakeholders subsequently and analysed. The presentation of data uses the following symbols: A, B1, B2, C, and T1 to represent informants in order to maintain anonymity. However, the quality control manager was informed of the details of informants and agreed to this arrangement for purposes of anonymity. Symbols for informants are explained below:

A Represents an informant from the Management of Ghana Water Company;

B1 Represents an informant from the technical evaluation division of the Ghana Water Company.

B2 Represents a district water meter distribution manager.

C Represent a member of the Revenue collection division in the Kasoa community branch of GWCL.

T1 Represent an informant who was a cash collection officer in the Kasoa community.

This analysis is premised on the three research questions. The data collected from different informants and from the analysis of documents has been categorized into the following three themes: Flaws in the revenue collection; key challenges in the distribution of water to the

metropolis, specifically to Kasoa community; and suggested interventions to overcome and improve revenue collection and the distribution of portable drinking water to the community.

Therefore, this chapter will focus on outlining the findings on how beneficiaries of the water supply programme are identified, the accountability measures in the meter distribution system and how challenges in the meter system have affected the water supply programme in the Accra metropolitan specifically Kasoa district followed by a conclusion. The following section introduces the documents analysis followed by interviews with informants.

4.2 Water Supply by Ghana Water Company

4.2.1 Overview

In the year 1968, the government of Ghana constructed the Weija dam as part of the introduction of safe drinking water to the Accra Metropolis. The dam collapsed and was refurbished in 1974. The overarching objective of the programme is to provide portable drinking water to the metropolis for human consumption and the safety of sanitation and health matters. (Ghana Water Company, 2011)

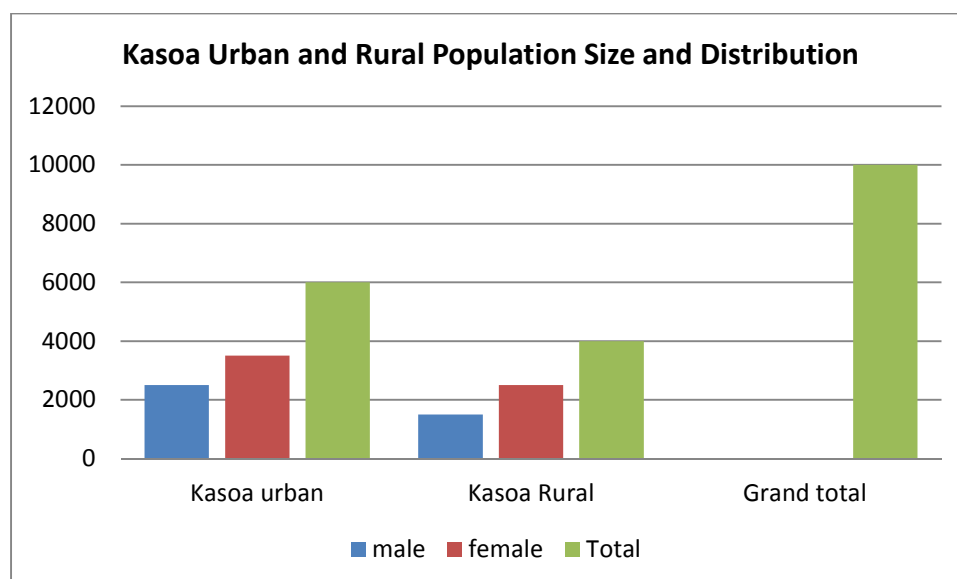
Of particular importance in the water supply programme is the treatment plant and the creation of Ghana Water Company to make use of the bridge waters at the dam for the treatment and the distribution of safe drinking water to the metropolis. The number of beneficiaries of the water supply programme by the Ghana Water Company has progressively increased since the programme commenced due to population growth and urbanization. With a few hundreds of thousands targeted population in the 1970s, the population of Accra and its inhabitants rose to 2.7 million inhabitants by the year 2000 and attained an outstanding mark of 3.4 million inhabitants as at 2007 which has shown approximately about 25 percent increase in population within a period of seven years. Under the water supply programme, each house hold is entitled to safe drinking water and in return pays for the utility.

In terms of the management of the Weija dam and the water company activities, the Ministry of Housing and Water Resource (MHWR) appointed water development board (WDB) to oversee the activities of the company. The metropolitan area is divided into districts and constituencies. It is estimated that the Ghana Water Company produces 365,000m³ per day which is about 99 percent of all the water produced. This production only assures 51percent of the population direct access to the water supply service and distribution system of the water company. Kasoa community is located in the Awutu Afutu District of the central region of Ghana and due to its strategic location, and urban drift; access to land for housing has caused the community to become the fastest growing community in the Metropolis. The water company from the Weija dam therefore, extends its services to the community to overcome the deficiency of the water supply, which was to be done by the Central region branch.

4.2.2 Population Size and Distribution

The Kasoa district has a population of about 10,000 people with their major activities being trade and commerce. The city is in latitude, 5 degrees 31 ‘60 N, longitude 0 degrees 25 ‘0 W. The time zone is GMT O’ (Greenwich Mean Time).The graph below shows the distribution of population by area and gender.

Figure 4: Kasoa population size and distribution



The graph above shows that 4,000 people representing 40 percent of the total population in Kasoa district live in rural out of which 62.5 percent are females and 37.5 percent are males. On the other hand, 6000 people representing 60 percent of the total population in Kasoa live in Kasoa city, out of which 63.3 percent are females and 36.7 percent are males (population Census, 2011).

4.2.3 Identifiable Homes

The city as in most African towns, is an unplanned one with it's pattern as Accra city, mainly at the coast has a high density indigenous area and high poorer communities income population area mainly centered on the metropolitan area. The middle class and the low density areas are located in eastern parts of the metropolis. The majority of the population live in compound houses which are mainly rented per household, single rooms, chamber and a hall, rather than building their own houses. However, the availability of land has caused the migration of both the lower and the middle income classes to resettle in this community. This has created the problem of pressure on utility services as the city was unplanned and some use the services illegally. This is partly a result of homes that cannot be identified in terms of house numbers, and a proper address billing system for the water user. Few homes are therefore identified for all utility services.

4.2.4 Land Holding Size and Water Supply in Kasoa

The total land coverage of the community is about 200,345 hectares with a total of 198,324 inhabitants. The population size puts a lot of pressure on water and sanitation facilities as it is one of the most congested and heavily populated communities in the Accra metropolis due to availability of land and also affordability. (Kasoa district assembly profile 2010).

4.2.5 Impact of the Water Supply Programme in Kasoa Community

A proper assessment of the impact or progress of any policy or project has its roots in the availability of scientific or empirical baseline information. In this study, 2000 and 2007 is the base year since the Ghana Water Company received a minor refurbishment on the treatment

plant and storage facilities in 2007 since its establishment. Data presented below and the subsequent analysis is as a result of tracking water supply to Kasoa from 2007 to 2010 , and water production by the company from the treatment plant within this period. The analysis mainly compared three sets of data in order to understand the effective distribution of water meters to household beneficiaries in the Kasoa community.

4.2.5.1 Water Production from 2007 to 2010

Water is an essential commodity for all human beings. As a result, every family strives to secure sufficient water in a reservoir, or directly from flowing water pipes or connections to their homes. The Ghana government embarked on a water campaign to create awareness on the need for safe drinking water in communities, because of communicable diseases caused by unsafe drinking water. It is essential to ensure the protection of water bodies, for agricultural purposes and domestic usage. Water remains a nightmare for the Kasoa community despite all the efforts by the community residents. The table below indicates production of water by the company and the supply of water to the community.

Table 4: water production 2007-2010

years	2007	2008	2009	2010
Weija	504m/gallons	504	504	504
Oblogo	504m/gallons	504	504	504
Bortianor	504m/gallons	504	504	504
Kasoa	504m/gallons	504m/gallons	504m/gallons	504m/gallons

According to the Ghana water company, water production to Weija Township, Oblogo, Bortianor and Kasoa corridor relies on 6 million gallons per day. This scenario complicates quantification of water supplied to Kasoa alone. Many areas in Kasoa are denied access to this precious commodity that is threatened. Kasoa is a densely populated area and inadequate water supplies have been critical. Supply for one year will be 1.5million gallons per day,

multiply by 7 days by 4 weeks and twelve months, with a total of 504 gallons supplied to Kasoa alone per year. This is insufficient for a population of approximately 10,000 inhabitants.

4.2.5.2 New Homes versus Water Situation in Kasoa Community

The implementation of the water supply initiative in Kasoa district entailed installation of water meters for connections to users. Water meters are installed in the homes of targeted population to access portable drinking water in designated water distribution pipes or infrastructure systems at main line points in the Kasoa district. In this manner the district office of the Ghana Water Company were responsible for the distribution of water meters to beneficiaries.

New homes owners are expected to provide a land title or site plan of the property they intend connecting the water pipeline to .It is often difficult for land and property owners to obtain this document since in Ghana access to such documents in a newly developing community is regarded as an issue for traditional land owners of the village or city. It could take a while since double sales could be the order of the day. This is one of the issues that confront water demand to new homes due to documentation required by the water company and which new users cannot produce.

The above section highlighted important issues from the analysis of various documents from the Ghana water company, including annual reports and the Government of Ghana reports on water and sanitation in the Accra metropolis, specifically Kasoa community. The following section contextualizes salient features on data collection through in-depth interviews. The table below shows verbatim responses to certain key in-depth interview questions from five respondents:

RESPONSES OF INFORMANTS “A” AND “BI” TO CERTAIN KEY IN DEPTH INTERVIEW QUESTIONS

No	Interview questions	Responses	
		A	BI
1	What contributes to the inadequate water supply to Kasoa community?	For now it has been identified as population growth, not able to expand the treatment plant, it had initially capacity of 150 million gallons per day, but at the moment supplies 90 million per day.	Kasoa water supply was to be done by central region, but due to its proximity to the Accra city, the Water Company diverts water that is meant for the Accra Metropolis to Kasoa.
2	Has the dam gotten the needed water for production and supply?	The dam has enough water for supply. 35% of the dam is meant for water supply and 65% is reserved for irrigation. And 60 million gallons of water is supplied out of this.	The dam has enough water but due to silting at the feet of the river Densu before it's captured at the dam, poses serious challenges to the quality of water which cost to purified using imported chemicals and raising the cost of production.
3	The issue of capacity to expand, what have been the major issues?	These issues have been identified by the company as the issue of investment from all sectors such as private, non-governmental organisations, philanthropic, government support and especially the Dutch government in this case has been of a major assistance to the company in various forms.	What should be done on the capacity issue is the expansion of the treatment plant, the existing facilities, structures of the water company and investment from the private sector. This I think will serve as a solution to the scarce water supply to various communities that we have in the metropolis such as Kasoa.
4	In Your own view as a water provider, how does the Kasoa community have water for use, since You admit there is inadequacy?	Yes the situation at Kasoa is really a challenge for the community but we are trying since we have to divert water from our system to Kasoa. The	The community manages water in a way that is somehow business oriented. Private or individuals have Polly tanks in

		various forms for the community water provision are: pipe lines water supply from us; water tankers that fetch from our system and sell to the community; bore –holes within the communities and homes.	their homes and stores water in the night and sell during the day. Water tankers also provide water sales in the morning and in the evenings. A bucket of water cost about 1GHS. People has boreholes in their homes which gives them access to water.
5	What are the management problems in supplying water to the Kasoa community?	The management of the Ghana Water Company faces problems such as: an illegal connection which goes on in the community aided by local plumbers. Even though everyone in Ghana knows there is a problem no attempt is made to solve it in the communities. Salaries of workers not competitive.	When there is no water through the pipe lines, it produces spirogyras which are expensive to clean. Cost of chemicals at the international market. Treatment materials are imported. Lack of facilities for both offices and residential purposes.
6	What do you think the community should know about your efforts in ensuring water gets to them?	The community should understand that the situation is a rapid challenging one. Efforts are being made to reclaim the available lands that have been encroached into due to its affordability for housing, which poses threat to the dam water supply programme .Kasoa is congested and illegal communities (those that build underground) should be demolished.	There is a big problem in the community but we cannot sacrifice water quality by ignoring the processing just to get them water. Land encroachment and the purification of water pipelines are the issues that confront the company in its quest to supply clean drinking water to the community.
7	How are the beneficiaries for the water supply programme in Kasoa district identified?	Beneficiaries are our target population. All water users are given water through the provision or the availability of water meters. This is identified by application through the district offices.	District Mangers write the names of all applicants which are submitted to the supply department.
8	What is the role of the district manager in the user meter application process?	The district manager ensures the requirements are met. Land title, site plan, etc. and application	In the past the meter readers and the district managers were jointly responsible for

		form filled is correct. Field officials were abusing their responsibility by receiving bribes and selling meters to non-applicants.	identifying beneficiaries. In 2007 the company changed procedures and introduced the application through district offices by the provision of owner title deeds.
9	What happens after water users have been identified?	According to the procedures, names of applicants at the district level are compiled and forwarded to the supply department. Depending on the meter available, the department then sends back to the district for the user to get it through the hands delivery of the water official in charge of the area for connections to be made on the premises of the user.	Two to three weeks are given for time to process the application through the distribution department. The applicants get it as soon as it gets back to the district; date is fixed and informs the user to be at home for the meter connection. This is done by water readers and in charge of the area.
10			

No	Interview questions	Responses	
		B2	C
1	How are beneficiaries for the water supply programme identified in Kasoa district?	It is the responsibility of the district manager and the water officials at the district to compile all the names of applicants and process them for meter allocation purposes.	They are supposed to be identified at an open and transparent manner but officials circumvent procedures. They delegate to field or meter reading officials to write names of people who are willing to pay higher for the meters at the expense of the applicants. Every applicant is a beneficiary.
2	What is the role of district managers in the water meter application process?	District managers do not come to the clients which are water users, but our bill	With the new system, district managers are the ones that interview

		distribution officers who sometimes apply for the client.	the applicants for the meters. Beneficiaries are supposed to be identified per their application documents. The listed applications are sent to distribution department.
3	What happens after a water meter user has been identified?	When names of applicants have been forwarded to distribution department; they wait for meters to come. Sometimes it takes too long for meters to come to the district which affects the client too. The district office only commences receiving meters after the final list of applicants is sent to them.	Their names are forwarded to the GWC distribution department for approval. The company looks at the number and approves a certain number at a time. This information is communicated to officials at the district level who organize re-selection to match with approve number. This is supposed to be done in a transparent manner.
4	Where do you get meters for water supply programme?	Meters are imported into the country. They sometimes come from China or India.	The meters are imported from overseas. Before it was coming from places like Britain, or Germany but due to the pound and Euro exchange rate, it is expensive to import from them. Now they comes from China
5	How are the identified water meter applicants notified about the availability of meter?	They are notified through their area water official responsible for water bills.	The water officials who are communicated to by the district managers.
6	How is the distribution process arranged?	When meters are ready, we are informed by our superior and stock is received for the district. We then arranged it through water billing officials to come and connect to the user's home.	The district manager and the field officials who are responsible for the area who arranged with the clients That is where the drama starts. We have heard rumors that managers and these billing officials divert meters for hording, and private sales which has

			led to secondary market. They take advantage of high illiteracy levels in Kasoa and the fact that people are not empowered to obtain accountability or even complain to relevant authorities when things go wrong.
7	What accountability measure is put in place to ensure that meters intended for the community have been given to them? Do beneficiaries sign for the meters?	There are registers and records but sometimes information on clients cannot be traced. This is due to the nature of streets and housing number challenge.	There are registers where beneficiaries sign for their meters. However it is difficult to differentiate peoples thumb prints by the face. This is difficult whether they are signed by the applicant themselves or not. Sometimes one signature appears on all names of applicants.
8	Have there been complaints on how meters are distributed in Kasoa community? If yes how did your organization deal with these complaints?	We do a follow up by investigating the matter. If the client paid for the meter, we ensure that the meter is delivered even though it may take time.	As for complaints we get almost every day .some are saying they applied through the field officer, others say it has taken time. But in all of these we sometimes experiences delays since we import them.
9	Why is it that the distribution of meters has increased despite shortage of water in the community?	People who get the meters used them for private water provision business. You would expect bumper sales but the poor are still without meters.	We have information that well to do people buy the meters from beneficiaries of water officials. This user produce pure water sachet in Kasoa. The survey should go beyond that point and look at water supply from the GWCL programme not just looking at sales of meter.

		Responses
No	Interview questions	T
1	In your own view, what are the loopholes in the meter distribution system which perpetuates the secondary market for the meters?	The district office is supposed to perform all management functions and operation and maintenance functions including: meter reading and billing; revenue collection; are all highly dependent on the meter. So it creates demand and supply process, breeds corruption which makes people abuse the application process. In this way people offer more money to officials to get quick meter service.
2	Why do you think the things you have mentioned are loopholes?	Is loopholes because salaries are low and workers are humans, so they have a way of abusing the system to create black market for the meters. Clients want it and are willing to pay for it.
3	How can the loophole you have mentioned be covered so that we have an effective meter system?	Official's salaries should be increased, meters must be cheap to buy, and they shouldn't delay the client too long in waiting for meters. The requirement is not easy to meet.eg, land documents. Because most people don't have those documents, but have homes.
4	How should meters be distributed so that they best serve the targeted population?	ID cards must be issued .customers must come to the office, fill a form and provide Id details. When the meters come, they must come here in the office to collect themselves. Not like our field men deliver to the customer's home.
5	Where do water users pay for their bills?	Bills are paid in all designated cash collecting joint in the district. Or the district offices.
6	What happens at the billing point after user receives a meter?	We distribute water through the system to the client house or property by the meter. water production and pumping; water distribution; billing and collection of revenue; maintenance of the distribution system; making new connections; paying for production

		related cost for example chemicals and electricity charges. Remuneration of staff and maintenance of equipment. These to make water supply possible.
7	How do you receive cash from customers?	On the bill paper, the customer has an accounts number which is then quoted, and the due amount paid. Cash is collected and receipt issued to the customer. Customers can also make payments to designated banks for payments. All cash for the day are sent to office.
8	What is the role of district manager in the water distribution process?	The manager does the interview for new applicants. He keeps a ledger for all customers, setting of tariffs, and other charges, jointly operates special water accounts with private operator, monitoring operations of the private user. Printing invoices and receipts.
9	Why is revenue collection a problem?	Water distribution is irregular sometimes forcing the user reluctant to pay. Since they use the money on private water provision such as water tankers, boreholes, and require the services of dependency on Polly tank storage provisions. Most of them are also illegally connected without a meter hence making it impossible to bill them. These users steal the water without payments.

4.3 Key Challenges of the Water Distribution System

Presentation of data from in-depth interviews on key challenges of the water distribution system has been divided into three as follows:

- (a)** Physical losses of the amount of water produced for distribution due to Illegal connections to the main lines by non-water beneficiaries and leakages in the main stream community infrastructure
- (b)** High cost of cleaning the pipelines which serve as distribution lines when idle for a period of time without water passing through
- (C)** Challenges in revenue collection from metered water users and non-revenue water users is very high.

4.3.1 Identification of Beneficiaries 2007/8 to 2008/09 Water Meter

The year 2007/08 saw an increase in the supply of meters through the identification of beneficiaries of safe drinking water. This was done through the branches of the Ghana Water Company by applicants who complete forms for identification purposes. Water officials, after processing applications for meter, personally examine the beneficiary's home to establish a date of connection to the main distributive pipeline. Sometimes this is a lengthy process resulting in illegal connections because applicants become impatient.

These illegal connections are effected by local plumbers who are experienced in joining new pipelines to the main water infrastructure. They collect money from the user who faces the danger of being caught. What is interesting is that the plumbers may inform water officials because they serve as agents and informants to the water company.

4.3.2 Distribution of Water User Bill by Water Officials

All meters allocated for distribution were sent to Water Company offices for distribution to applicants who had met the requirements, such as title deeds of the land or house; it is in that context that meters were allocated with numbers for billing purposes. The officials install the meters themselves to ensure the preferred standards of the Ghana Water Company are met. In certain instances these processes proved difficult to prevent favoritism in the distribution exercise. The officials read the meters to establish water consumption and give these to the office for billing and printing purposes. Users are billed for payment through the distributive system of the water officials. However, some respondents argue that this process breeds corrupt practices between the officers and the users, due to the power vested in the officer to disconnect the supply for non-payments. The decision to allow for continued usage despite nonpayment rests on the officer at that particular moment. This may force the user to pay money to these officers that could have been used for the settlement of the utility bill. Certain officers took advantage of the weak billing procedures to enrich themselves rather than pay the revenue due the company.

4.3.3 Change of Procedures of Identifying Water Supply Beneficiaries

In 2007 to 08 refurbishment of the treatment plant by donor funding, saw certain changed procedures of identifying beneficiaries by introducing tamper proof meters to the metropolis for proper billing of water. All applicants are required to visit the offices of Ghana Water Company for interviews on why the need exist for the meter and their responsibility if assigned a meter. The changes resulted because of queries and allegations from different stakeholders that water officers were selling the meters to non-deserving middlemen. These middle men inflated the prices so that meters become too expensive for users to buy. The allegations were substantiated by the subsequent arrest and convictions by courts of some water officers on charges of corruption in the form of selling water meters.

4.3.3.1 Meter Numbers for Identifying Water User

The meter system serves as a point of contact and is a crucial device in the revenue collection for the water company since it calculates the amount of water consumed by the user. Each

meter has a number as a way of locating a user with detailed information of the water user and the location of usage. This information is needed for the meter-reading officers and billing purposes.

4.3.3.2 Informant from Local Plumbers

On -site where the infrastructure of the water system is laid are local plumbers who work and facilitate the joining of burst pipes and old ones so that they are in good working order. The local plumbers have contact with the water revenue officers in charge of residential locations, and serve as agents who report on any illegal connections done in the area to these officers. Informants say, that these plumbers share money that come from corrupt practices of the officers and aid the illegal connection exercise, since they know where each line of distribution passes in the area network infrastructure of the Ghana Water Company.

4.3.3.3 Actual Identification of Water Beneficiaries

According to the new procedures, the actual selection or approval of beneficiaries of the water meter is done at an open forum on specific dates and in the branch offices of the water company for interviews and procedures. Officials from the Ghana Water Company and the area meter reader with their aids should be present to witness the requirement process and identification of beneficiaries. Using the selection criteria stated above, water users identify each other as landlords and house owners eligible for the meter. This list is then compiled for the allocation of the meters. This could take a time for others because wealthy landlords make back -door additional payments to bribe water officials, to facilitate the process. Hence these corrupt persons get their meter sooner than those who wait patiently as per the waiting period required. This is possible because no communication is given as to the approved number of weeks applicants have to wait. These processes encourage back door business between management and revenue officers, house owners and business properties who are known receive the water services first.

4.3.4 Distribution of Meter by Water Officers

The selected beneficiaries are asked to wait in their homes or compound for the water officers to come and install the meters on their premises. The situation sometimes calls for the

demand of money from these beneficiaries by the water officers, and if the beneficiary does not have it the installation could be delayed with excuses of time constraints. In the year 2007/08, the Ghana Water Company changed the mode of distribution of meters from applying through water billing officers to involving the branch management in the entire processes of documenting the customer profile at registration and distribution stages to avoid fraudulent activities. Under the new procedure, once meters for the Kasoa community have been approved, they are sent to the relevant Ghana Water Company Branch Office (GWCBO). This was not the case when water officers were responsible for distribution of water meters. All the meters have serial numbers and are packed according to Ghana Standards Board (GSB) specification, before they are distributed to beneficiaries. The branch manager conducts and organises a verification exercise to ascertain the serial numbers written on the meter for each client's allocation. After the new procedure, some respondents said that since the branch management took over the distribution of meters exercise, they connive with meter reading officers to corrupt the system to benefit and enrich themselves. These officials take advantage of the high illiteracy rate in the Kasoa community. Lack of empowerment causes social ills that are re-enforced in social life. Comparatively, respondents argued that it was better when the meters were acquired through the meter reading officers since they knew the people face to face and have a social bond with land and property owners.

4.3.5 Creation of Secondary Distribution of Water Meters

On the question of a secondary market for water meters; most respondents attributed the problem to systemic corruption involving officers responsible for selling the water meter especially those from the commercial department of the Ghana Water Company (CDGWC).

Money is demanded from the new applicants to buy meters at a subsidised price. They create so-called shortages of water meters in order to have it sold to water users who cannot wait long for it. This is what creates secondary market for the sought after product. In certain instances; CDBWC officials hoard meters with the view of selling it to commercial users, such as for industrial purposes and wealthy people who buy them above the normal price. Certain respondents accused the management of the water company and the government officials of not doing enough to stop malpractices despite numerous reports on the issue.

4.3.6 .Disconnection of Meters

Water officials doing monthly routine checks on defaulters of water utility bills disconnect the supply from the meter joint. Often the issue of who you know and your status in the society determines whether you are disconnected or not. Officials endeavour to do the right thing, but do collect moneys after persistent pleas from users to restore the meter. This phenomenon encourages corrupt practices at the expense of the water company. Most of the losses on revenue collection arise from situations like this.

4.4 Flaws in the Identification of Water Meter Beneficiaries

Result from the in-depth interviews with five stakeholders show that the water supply programme in the Accra Metropolis, specifically Kasoa has had some impact in improving the lives of the community as far as water supply is concerned. However, the identification of water meter beneficiaries has been marred by incidences of abuse of officers by management. Officials and local plumbers place their interest on top of the list for financial gains by creating artificial shortages, secondary market and who you know services. These officials circumvent the existing procedures on selecting and approving the final application of the applicant meter user. The documentation and requirements of meter applicants are tiresome and facilitate corruption of the system of the water company.

4.5 Key Challenge in Water Distribution

Outcomes of the in-depth interviews with key stakeholders of the Weija dam water supply programme indicated that challenges of the meter and billing system can be categorized into two, namely:

(a) Lack of Accountability Measures

When the water distribution department was mandated to distribute water meters to all users, the meter system lacked accountability measures. The Ghana Water Company operated on a system through the district branch offices within which the branch offices syndicates are formed to who you know, secondary market, and interdependency- and this was a serious and

disastrous loophole in the design of the meter distribution system. For without a meter, water cannot be connected to a house or property. The system was premised and indeed grounded on the understanding that management at various district levels were responsible individuals, due to their perceived high moral standing in the company and the communities. It was further assumed that they had the welfare of their organisation and people at heart and the impetus to drive socio-economic development such as the supply of clean drinking water to their communities.

The system presented fertile grounds for corruption since the allocation of meters to interest groups and wealthier homes for higher amounts within their area of jurisdiction was dictated by the whims of district managers and water officials based on the demand by users and the difficulty in meeting the requirements such as land title or site plan for their properties or homes. When water officials were responsible as registers for the acquisition and distribution of water meters, they diverted some to their personal contacts who offered higher prices. However, reports submitted to the Water board at the sector ministry indicated that all meters allocated to Kasoa district were distributed to applicants. This is a manifestation of lack of proper accountability measures in the system.

(b) Ineffective Monitoring and Evaluation resulted in Creation of Illegal Connections

When the District water officials were given the responsibility to distribute meters, the issues of shortages surfaced. Water officials at grassroots level were conniving with field officials and local plumbers to create shortages that brought about a list of applications to create the perception that meters were in short supply. The Ghana Water Company does not have automated systems that would identify such trends of artificial shortages, but rely solely on the reports of district management. Some meters found their way to local plumbers with the aid of bill distributors who connects them illegally to the water infrastructure. The water meter distribution system lacked effective monitoring and evaluation mechanisms which would have identified the artificial shortages and the role of the middle man in good time and called water officials to accounts.

4.6 Suggested Interventions to Improve the Water Billing System

From the interviews conducted, there are two issues that needed to be addressed to improve the meter distribution system so that the intended target group or the population of Kasoa, benefit from the water supply programme.

(a) Identifiable Homes

First and foremost, Ghanaians should have properly authenticated property or house numbers indicated on their premises. This should be done through a national or a metropolitan registration process where Ghanaian properties or homes, specifically Kasoa community are registered and given house numbers on their premises. When water meter applicants are registered for water supply, their names, registration card number, property card number and photographs should be taken and a water meter card designed with meter number as bar code. All beneficiaries from the district offices should have their data with them as indicated on the card. Robust monitoring and evaluation mechanisms should be an integral part of the implementation strategy to ensure compliance. The national house registration exercise will undoubtedly be a solution not only to problems encountered during implementation of the water supply programme which form a major part of the government of Ghana poverty eradication strategy, but also to sanitation concerns.

(b) Develop a Database for Water User Homes

The Kasoa District Assembly in close consultation with the Ministry of Housing, Water and Natural resources should develop a database for all the housing in the community and demolish inappropriate settlements for proper infrastructure layout of utilities such as water pipes. A database of all users in all the district offices of the water company should be pursued diligently. Proper management of the database will deter water officials from creating artificial shortages of meters because at any given point the system will tag them. Those who attempt to create such a scenario should be prosecuted by law.

(c) Civil Society Organisations should Empower Communities

Thirdly, Civil Society Organisations form a cadre of opinion leaders at grassroots and ostensibly an enormous task in the implementation of the water supply programme in the Kasoa district. They should take deliberate steps to initiate a well-orchestrated programme-based approach to educate the masses, especially the marginalized poor on their constitutional rights and obligations as citizens of Ghana and those that place obligations on public officials to be accountable. These organisations should mainstream into their advocacy programmes, issues of holding public officials accountable for their actions and decisions that they make. It is also recommended that Civil Society Organizations, especially water and sanitation agencies should play a part in the water connection process.

Civil Society Organisations should make concerted efforts to lobby Parliament and other stakeholders to pass laws on access to information that will empower the media and different interest groups in the public realm, to demand accountability from players in the implementation of the water supply programme.

4.7 Conclusion

In this chapter data was presented based on three emergent themes from data collection namely; flaws in the revenue collection; key challenges in the distribution of water to the metropolis; and suggested interventions to improve revenue collection and the distribution of portable drinking water to the Kasoa community.

The main findings on flaws in awarding of water meters to beneficiaries are non-adherence to laid down procedures of given meters to applicants at the district offices of the Ghana Water Company to ensure transparency, and creation of secondary markets. Water officials- instead of registering users in an open and transparent -manner delegate this functions to their subordinates and local plumbers to create shortages.

Similarly, on a key challenge of the meter distribution exercise, the findings are two -folds: firstly, when field officials were responsible for the distribution of meters, there were no registers for applicants to sign acknowledging receipt of the meters. This created fertile ground for corruption as it was difficult to trace who had received the meter given to the field man for the user, the property or house hold. Secondly when the Ghana Water Company

changed the mode of distribution, District managers connived with field officials to divert meters intended for beneficiaries to interest groups and wealthier people who could pay for higher prices for personal benefit. The meter distribution system does not have effective accountability measures and this; coupled with lack of empowerment of water beneficiaries at grassroots, creates room for abuse.

CHAPTER FIVE

ANALYSIS OF THE RESEARCH

5.1 Introduction

Chapter four presented the data using themes that emerged during interviews with the Management of Ghana Water Company and from document analysis. This section presents an analysis of the key findings of the research and assesses to what extent the findings address the research questions. It also focuses on the voice of data collected through interviews and its link with the available stock of knowledge and the researchers opinion on the issue .As outlined in chapter one, the purpose was to investigate the problem of the scarce supply of portable drinking water to Kasoa community and establish possible ways that would restrict this scarce supply.

The research sought to address the following specific research questions:

- 1 What are the factors leading to the scarce water supply to Kasoa community?
- 2 What are the trends in the management of water supply to Kasoa community?
- 3 What are the strategies in the management of water supply to Kasoa community?

The data to be analysed was collected from five people, one management team member of the Ghana Water Company, one member from the technical evaluation division of the same company, one from the revenue collection team, one from district management team and one from the cash collecting group. The Kasoa District Assembly, civil society organization in the Accra Metropolis, residence of the Kasoa community were sought after conversation interests. It was also obtained by analysing documents on the Kasoa water rehabilitation program from the Ghana Water Company such as the annual reports, and Ghana Water supply program by the ministry of Housing, Water and Resources.

Analysis of the research findings will border on the theoretical and empirical concepts discussed in chapter two. Data analysis and interpretation has been classified into the following three main emergent themes aimed at addressing the research questions:

- (a) Flaws in the revenue collection;
- (b) Key challenges in the distribution of water to the metropolis;
- (c) Suggested interventions to improve revenue collection and the distribution of portable drinking water.

5.2 Flaws in the Revenue Collection

This theme which emerged from the research process and is aimed at highlighting challenges in the process of revenues collection, constrained the Ghana Water Company from embarking on increased salaries for workers, motivation, and the expansion of the treatment plant to produce enough water for the community.

Successful revenue collection implementation requires strong institutions and systems, properly coordinated institutional framework which ensures predictability of outcomes. It is evident from the interviews conducted at the Ghana Water Company that despite the company using cash revenue collection points, there was lack of accountability on the part of officials. The silo mentality displayed by the institutions involved in the production of water, meter distribution to ensure the connection and supply of water to the community created a loophole in the system. A proper coordinated interface between the two departments of the Ghana Water Company would have facilitated the verification of the authenticity of not only the water produced but water and meters supplied to the community. The creation of secondary market was a manifestation of the “missing link” between the Kasoa District Assembly and the Water Company at the district level.

The supply of portable drinking water is aimed at targeting to meet the needs of the people for poverty mitigation. Targeting requires some mechanisms to distinguish between the poor, so that they benefit and the non-poor so that they are prevented from getting the benefit. In order to identify the poor and the non-poor, the welfare of every individual in the population would have to be examined and verified. There are some administrative costs that are incurred in the process and in addition, targeting raises issues of political economy and patronage. In Kasoa district it was difficult to examine the economic welfare of every water user before identifying meter beneficiaries hence district managers of the water company used their own judgment on applications which was subject to abuse. There are no systems like tax returns that would help to determine annual income of a member the community to help categorize such a member accordingly.

In terms of the meter subsidies done by government or the production of water in the Accra Metropolis subsidized by government, it is a redistributive function of government whose objective revolves around socio-economic empowerment of the marginalized poor so that they improve their livelihood. According to studies done by La Porta (1999), redistributive activities are more vulnerable to corruption than other government functions so much so that there is a positive correlation between corruption and government transfers and in situations of utilities such as water supply subsidies. Individuals perceived to have the capacity to buy goods at the market value and those that are at the top of echelons of power, find ways to benefit from the initiative at the expense of the targeted group especially where systems and institutions are weak. In view of the clandestine and illicit nature of corruption, powerful corrupt individuals can divert huge amount of resources and amass spectacular wealth in an environment where institutions are weak. In Kasoa district, those who could afford to buy water meters at the expense of the target community by bribing officials responsible for selling subsidized meters.

The other challenge highlighted in the previous chapter is the non-adherence to laid down procedures when giving out water meters which serves as a critical point for billing and readings of water consumed. Meters are given to people who can pay a higher price for private water businesses instead of following the list on top of the applications received. Instead, those that have paid bribes get the services and in turn sell water to the community at cash and carry rate. This money is supposed to be paid to Ghana Water Company in return for water provision to the community. Piped water is a type of service characterized by economics of scale, whereby the provider, would reduce the unit cost by serving a bigger number of users. In Kasoa district the majority of water users don't have access to water meters which accounts for the loss of water revenue to the company. Measures for secure verification of collections should be put in place. The payments of bribes to field officials who are assigned to penalized offenders of non-payments of water user bills squarely fits within the Tarkowski (1999) school of thought on corruption. He argues that corruption is any activity of a person who, motivated by his direct interest, violates the binding rules of distribution for whose observance and application he is responsible. The water that goes on accounted for are all a loss to the company through illegal connections done by local plumbers.

Similarly, Revenue collection officials circumvent laid down procedures in the collection of revenue for the company. This is attributed to lack of effective monitoring and evaluation mechanisms. This development also elucidates and brings to the fore leadership challenges in the implementation of the water supply programme to Kasoa community. The above is corroborated by Dorward (2009) who argues that implementation of programmes in Africa is characterised by weaknesses in design and lack of emphasis on improving programme effectiveness and efficiency. The effectiveness of any policy implementation draws its foundation from sound monitoring and evaluation techniques to check unintended consequences.

Yanow (1996) argues that policies and procedures are as a result of compromises among stakeholders and the implication is that they carry unresolved and conflicting meanings. Street level bureaucrats or implementers of policies often interpret policy designs to suit the situation on the ground and in most cases the interpretation is through the lens of their histories, cultures, and perception which shape implementation. The absence of effective monitoring and evaluation in the revenue collection by water officials allowed cash collectors and bill distributors to circumvent crucial steps in the revenue collection system of the Ghana Water Company. This is a recipe for disaster as it renders the various systems and design in the water supply programme to abuse and gross mismanagement.

Quantifying the amount of water supplied to the community cannot be done for analysis since a 6 million fixed water plant supplies four communities including Kasoa. This is a paradox because the amount of water produced should be pegged to the revenue collected to be able to declare loss or gain. What is even more astonishing is the fact that Kasoa keeps expanding than the rest of the combined communities that share 6 million gallons of water a day. The only plausible explanation to this paradox is that the water company management had reflected on the quota system as a major loophole to distribute water and the collection of revenue. As explained by the respondents the availability of water to the people of the community can be attributed to private operators who bought meters from the district offices at secondary market prices used it for business in their homes in the district. The above is confirmed by Rose –Ackerman (2006) a renowned scholar in the economics of corruption who states that official's corruption occurs within a framework where laws and regulations are in place, and implementing officials seize upon opportunities to benefit personally.

It is in the view of the researcher that the supply of water by the Ghana Water Company has been fairly successful but more needs to be done in terms of institutional capacity to deal with the challenges of revenue collection that the company faces. Ghana being a developing country with relatively weak institutions; is vulnerable to abuse of its resources by unscrupulous individuals. Institutional building and the proper monitoring and evaluation of processes for revenue collection at the Ghana Water Company is imperative and should include the computerization of all service clients to ensure that the revenue that is due to the company is accounted for so that no official pockets the revenue.

5.3 Key Challenges in the Distribution of Water to the Metropolis

From the in -depth interviews conducted with informants and stakeholders, it is clear that the water distribution system to the metropolis lacks effective accountability measures. Kaufman and Kraay (2008) define accountability as being answerable to another authority such as parliament on actions and decisions that have been made. Illegal connections of pipe lines by individuals aided by the officials who collect revenue and distribute water bills to homes and institutions connive with clients by aiding them to enjoy access to water with no record of it. This makes it difficult for the company to receive the returns of revenue due for this an illegal water connection. This results from the system of distribution lacking sufficient accountability measures and an ineffective monitoring and evaluation system.

The above is consistent with the World Bank (1997), observation that one of the challenges to implement development projects in Africa is lack of capacity of institutions to design effective policies with implementation systems that are accountable, and have rules that check arbitrary action by state actions and combat rampant corruption. The sentiments above are confirmed by Migdal (1994) who argues that in gauging the appropriateness of strong state or weak state imageries, the question of who makes and enforces the rules looms large. It leads to the examination of core and critical elements of the state's domestic capabilities on whether it can get people to do what its laws and rules prescribe and whether its policies have the intended effect on people's behavior. Ineffective institutions in Africa and the states inability to enforce laws and rules, leads to corruption and mismanagement. Consequently, the culmination of this situation has increased the cost of business.

North (1989) agrees with Migdal (1994) and further states that the degree to which individuals believe in rules, contracts, property rights of a society, will determine their willingness to forgo opportunities to cheat, steal, or engage in opportunistic behavior. It is evident from the findings that the Ghana Water Company should re-position itself on the rule law that govern the institution and in addition, draw effective enforcement strategies that will make water users and revenue collectors abide by the laws of the land which in this instance is the Utility regulatory board.

5.4 Suggested Interventions to Improve Revenue Collection and the Distribution of Portable Drinking Water

The purpose of this theme is to identify strategies or interventions that could help to improve revenue collection and the distribution of water supply to the Kasoa community.

The informants suggested that if the programme of water supply to Kasoa community is to benefit the intended users and solve the problem of inadequate water supply to the community, the system of revenue collection and water distribution should be strengthened by holding both revenue collectors and management accountable.

It is recommended that a data base of all water users in the metropolis specifically Kasoa should be developed and linked to the Ghana Water Company, and a new computerised system designed for revenue collection and distribution of bills for effective management purposes.

5.5 Conclusion

In conclusion, this chapter presented the findings of the research especially during data collection. Data collection consisted of primary data from informant, management of Ghana Water Company were interviewed and secondary data from document analysis. The analysis of both primary and secondary data has been presented in this chapter. The analysis highlighted flaws in the collection of revenue and key challenges in the distribution of water to the metropolis.

What stands out from the analysis is the fact that water distribution in the Kasoa community has not been as successful as people expected. The issue of scattered housing, leakage in revenue collection, and lack of payments on the parts of the water users, corruption on the

part of revenue officials, idle water pipes, and cost of treatment of water by the water company took centre stage. Strengthening the operational system will ensure that revenue that is due to the company is realised and the necessary production of water supply to the community is distributed to overcome the shortage of water supply which is been experienced by the Kasoa community. The review of the available stock of knowledge reveals that state should build their capacity and capability to successfully implement water redistributive programmes since these are prone to abuse. On the basis of the analysis, the next chapter makes recommendations on the implementation of the water supply programme in the Kasoa community.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATION

6.1 Introduction

As outlined in chapter one, the purpose of the research was to investigate the problem of the scarce water supply to Kasoa community and establish possible ways that would make water available to the community.

The research attempted to address the following specific research questions:

1. What are the factors leading to the scarce water supply to Kasoa community?
2. What are the trends in the management of water supply to Kasoa community?
3. What are the strategies in the management of water supply to Kasoa community?
4. Make recommendations on how the problem of erratic water supply can be improved.

The following three themes emerged from the data collected:

- (a) Flaws in the revenue collection
- (b) Key challenges in the distribution of water in the Accra Metropolis.
- (c) Suggested interventions to improve revenue collection and the distribution of portable drinking water.

6.2 Conclusion

6.2.1 Lack of Effective Accountability Measures in the Implementation Strategy

The absence of critical accountability measures in the implementation strategy of the water supply programme to Kasoa community coupled with ineffective formative and summative

evaluation tools, does not only threaten the success of the water supply programme to Kasoa but the very essence of ensuring service delivery in public policy. Understanding the social context of the society needs facilitative efforts and this, in principle, sidetracks elitism and brings participatory approaches into strategy formulation.

Notwithstanding the above, there is room for policy makers and strategists to improve the implementation plan by involving all stakeholders. This is empirically grounded on the fact that the water supply policy has since inception adopted an incremental approach to policy formulation.

6.2.2 Lack of the Expansion of the Treatment Plant

Lack of expansion of the treatment plant by the Ghana Water Company poses a great threat to the success of the water supply programme to Kasoa community. The initial capacity of the treatment plant was to supply 150 million gallons per day, but now supply 90 million gallons per day. The Weija dam has sufficient water supply. Approximately 35 percent of the water in the dam is meant for water supply and about 65 percent is meant for irrigation as well. The irrigation plan as part of the construction of the Weija dam is not functioning due to the encroachment of the land by the traditional land owners who are selling for residential purposes. Is the lack of the treatment plant by the water company that is holding water supply to the community since there is 65 percent water being hold by the dam for treatment. Even the 35 percent which is meant for water supply can only produce 60 million gallons due to the incapacity of the treatment plant.

The issue of capacity to expand:

1. Investment by the private sector
2. Government initiative in the water treatment plant expansion
3. Dutch Government support

6.2.3 Lack of Facilities and Structures

The the enthusiasm of workers dwindles since there are not sufficient facilities for their accommodation, administration blocks, research units, and room for the modernization of the entire operations of Ghana Water Company. The water structures in the Kasoa community

need to be re-engineered and the existing ones upgraded to carry the load from the treatment plant to the Centre of the community for water distribution at its best.

6.2.4 Lack of Investment from the Private Sector

Since water is seen as a cheap commodity in Africa and specifically Ghana, the water sector is perceived as one sector that does not attract private investment but is for public good that needs government intervention. On the part of investors in the water privatization programmes it is made difficult for operations of water service providers to supply water to communities, from which Kasoa is not exempted.

6.2.5 Motivation of Revenue Collectors

The lack of motivation of revenue collectors for the water utility bills, operations and maintenance unit of the water company and those that are involved in the implementation of the water supply programme to Kasoa community is one major contributing factor of corruption in the entire operation of the Ghana Water Company. A proper analysis of the situation and a comprehensive study of motivation theories should be done to devise the type of incentives that should be given to the workers and officials of the company.

6.2.6 Involvement of Civil Society Organizations

The non-involvement of Civil Society Organisations in the implementation of the water supply programme to the Kasoa community is a serious design oversight. The need exist to initiate and cultivate synergistic relations between Civil Society Organisations and officials of the Ghana Water Company at district level for the successful implementation of a water supply programme to Kasoa community. In the short term, the integration of Civil Society Organisations such as Non-governmental Organizations (NGOs) into the supply of water especially those that are of the field of service delivery- will make a difference.

6.3 Recommendations

The analysis of data collected in this research has inspired me to make the following suggestions for future research.

6.3.1 Conduct Systems Audit for Revenue Collection

From the above analysis, it is arguable imperative to recommend a Business Process Re-engineering of the water supply programme to Kasoa community with a particular focus on the revenue system. All key stakeholders including the management of the Ghana Water Company should be involved in the systems review in order to get diverse but constructive views that will harness and strengthen the revenue collection system. The aim of the audit should be to identify loopholes in the system and suggest practical alternatives. Research should be done on how the system audit can help improve the revenue collection system.

6.3.2 Upgrade of the Treatment Plant and the Expansion of Existing Facilities

The success of the entire water supply programme depends on the treatment plant which serves as a production unit for the supply of water to the metropolis. The capacity of the treatment plant determines the amount of gallons of water to be supplied to the Accra Metropolis hence Kasoa community. The government and the Civil Society Organisations should be an integral part of the Kasoa Water Project implementation strategy and in addition should take deliberate steps to empower people in communities to demand accountability from the management of the water company. Effective monitoring and evaluation procedures should be adhered to, to ensure the maintenance and renewal of underground pipes to uproot illegal connections to overcome waste. Research should be done on how this can help improve the system.

6.3.3 West Africa Water Provision Improvement

The existence of alternative sources, which compete with the piped water in most West African States, means that the operator of piped water only serves a fraction of the population in the sub region, and collects little revenue against certain fixed cost. This is because piped water is a type of service characterized by economics of scale, where by the provider would reduce the unit cost by serving a bigger number of users. Hence there has to be alternative sources of managing water supply such as spring's water, instead of the normal captured river for production and distribution.

6.3.4 Continental Africa Water Management and Supply Improvement

The challenge of most African water provision is the need for the replacement of old existing piped infrastructure, extension and capacity building. It is recommended that capacity building efforts by governments will enhance efficient delivery of water supply on the continent. This is because building efforts are affected by loss of capacity. This happens when staff change jobs, or politicians leave office. This is a more important reason why capacity building initiatives should be built into the working system of local governments on the continent, rather than simply targeting individual staff or leaders through sensitizations. Sensitizations and workshops are an important initial activity for capacity building but never a sufficient action by themselves.

6.3.5 Global Water Provision Improvement

Water on the globe has been identified as one of the priority sectors for poverty reduction. It is therefore expected that whatever changes or actions that take place in the water sector at the United Nations, they should contribute to the overriding goal of poverty reduction through improved access to safe water. The need for the United Nations Policy on water to treat it as economic good by all governments should be an agenda that should be pursued with all efforts. While at the same time achieving the social objectives of poverty alleviation they should ensure some form of guarantee the interest of the user , as most water operations are private public partnership cannot give a good price thus not guarantee the protection of consumers worldwide. Water bodies should be preserved by given punitive sanctions on nations that pollute them with chemicals.

LIST OF REFERENCES

Alkire, S. (2002): The Millennium Development Goals (MDGs): Multidimensionality and Interconnection;

Anderman, H. (2002): Water subsidies as a Social Net; Effectiveness and challenges- World Bank Institution (Social Protection):

Afrique Avenir (2011). ECOWAS Commission reviews water policy. Accessed 7 November 2011 from <http://www.afriqueavenir.org/en/2011/03/18/ecowas-commission-reviews-water-policy/>

Allen, W.J. (1995). Co – learning our way to sustainability: Integrating local and scientific knowledge through an evolutionary approach to DSS design.

Bardhan, P. and Mookherjee, D. (2006): Decentralization Corruption and Government Accountability;

Bialy. (1994). Methods of social research. New York. The Free Press.

BOYLE, Richard (1997), Evaluating Public Expenditure Programmes. A role for Programme Review, Discussion Paper Number 1, Committee for Public Management Research, Institute of Public Administration, Dublin.

Creswell, W.J. (1998). Qualitative Inquiry and Research Design. Choosing among five traditions. Thousand Oaks, CA: Sage.

Creswell J. W. (2003): Research Design; Qualitative, Quantitative and Mixed Methods Approaches, 2nd Edition: Sage Publications.

Community Action Global Impact (2009). Community-Based Waste Management To Prevent Open Burning And Release Of Persistent Organic Pollutants And Promotion Of Pesticide Management Among Vegetable Producers In Kasoa.

Cointreau, S. (1984). Integrated Resource Recovery. Recycling from Municipal Refuse. WB Technical Paper No. 30, WB, Washington DC.

Crook, R., and Booth, D. (2011). 'Conclusion: Rethinking African Governance and Development.' IDS Bulletin, vol. 42, no. 2, pp. 97-101

Conyers, D. (2001). Paper Presented at UNCDF Workshop on Decentralisation and Local Governance in Africa. Cape Town 26-30 March 2001.

De Coning and Fick (1995): Development Perspective and Policy Management.

Darword, A. (2009): Rethinking Water Input Subsidy Programme In a Changing World. Paper Presented for the Trade and Markets Division Water and Agriculture Organization of the United Nations.

Denzin, N. K. and Lincoln, Y. S. (1994): Handbook of Qualitative Research: Thousands Oak, CA: Sage Publications.

Dye (2002): Understanding Public Policy; Framework and Instrument for Action.

Evans, P. (1996): Government Action, Social Capital and Development: Reviewing the Evidence of Synergy; World Development Vol.24, No.6pp, 1119-1132.

Engel, S., Iskandarani, M. and Maria del Pilar Useche (2005). Improved Water Supply in the Ghanaian Volta Basin, Who uses it and Who Participates in Community Decision-Making. EPT Discussion Paper 129. International Food Policy Research Institute (IFPRI).

Falkenmark, M. (1989). The Massive Water Scarcity Now Threatening Africa: Why Isn't It Being Addressed? Page 112 of 112-118.

Ghana: World Bank turns US\$103 million Ghana Urban Water credit to grant', World Bank press release, 6 January 2005.

Ghana Budget Statement (2011): Budget Statement Delivered in Parliament by
the Minister of Finance

Ghana Water Provision Act (1998 as amended in 2006);

Ghana Water Company Database, (2011): Statistic on Complaints and Cases.

Ghana Local Government Act (1992): Republic of Ghana Constitutional Provision;

Ghana National Population Census, (2011);

Hughes, O .E. (1998): Public Management and Administration an Introduction to Public Policy and Policy Analysis;

Helmsing, A. H. J. (2000). Decentralisation and Enablement: Issues in Local Governance Debate, Inaugural Lecture. Holland, Utrecht University

Historical and Contemporary Theories of Management. Retrieved on 5 November 2011 from <http://managementhelp.org/management/theories.htm>

Internal World Bank document on the water restructuring in Ghana, February 2003. PSP in Water Ebbed', The Statesman (Ghana), 2 May 2003

Johnston, M. (1986): Political Consequences of Corruption: A Reassessment: Comparative Politics, July 1986.

Kasoa District Socio-Economic Profile, 2010

Kasoa District Socio-Economic Profile, 2011

Kumssa and Mbechi (2004): The Role of Institutions in the Development Process of Africa Countries. Institutional Journal of Social Economics Vol.31, No 9, 2004 from WWW.emeraldinsight.com/0306-8293.htm

Kaufman and Kraay (2008): World Bank Research Observer, Vol.23 NO.1 (Spring) 2008: World Bank Government Indicators: [http:// www.info.worldbank.org/governance-indicators](http://www.info.worldbank.org/governance-indicators).

Karanja, A. and Okoth, R. (2006). The Role of Public Private Partnership in Enhancing Local Government Service Delivery; the Case of Solid Waste Management (SWM) in Nairobi.

La Porta R.et al (1999): The Quality of Government .Journal of Law Economics and Organization 15(1)222-279.

Mumvuma, T., Kombe, W. J. And Ndubiwa, M. (2006). Enhancing Local Government Capacity for effective Service Delivery and Poverty Reduction in Africa: Challenges and Opportunities. Municipal Development Partnership-Eastern and Southern Africa. Harare, Sable Press.

Kate, B. (2002). **Showers World Development** Volume 30, Issue 4, Boston University, MA, USA, April 2002, Pages 621-648.

Merriam, S.B. (1998): Qualitative Research and Case Studies Application in Education San Francisco: Jossey- Bass Publications

Merriam, B. S. and Associates. (2002). Qualitative Research in Practice: Examples for discussion and analysis, John Wiley & Sons, Inc.

Migdal, J. (1994):” Strong STATES, Weak States: Power and Accommodation” Understanding Political Development, Waveland Press 1994, pp.391-434

Miles, M.B. and Huberman, A.M. (1994): Qualitative Data Analysis: As Source book of New Methods (2nd Ed.) Newbury Park, CA: sage Publications

Mohr P. and Fourie L. (1995): Economics for South African Students: Van Schaik Academic.

Mubvami, T. and Nhekairo, A. (2006). Feasibility of the Decentralisation Thrust of Central Ministry Functions to Urban Local Authorities. A case of Marondera Municipality and the Transfer of the Functions of the Department of Social Welfare. In Mumvuma, T., Kombe, W. J. And Ndubiwa, M. (2006). Enhancing Local Government Capacity for effective Service Delivery and Poverty Reduction in Africa: Challenges and Opportunities. Municipal Development Partnership-Eastern and Southern Africa. Harare, Sable Press.

Mumvuma, T., Kombe, W. J. And Ndubiwa, M. (2006). Enhancing Local Government Capacity for effective Service Delivery and Poverty Reduction in Africa: Challenges and Opportunities. Municipal Development Partnership-Eastern and Southern Africa. Harare, Sable Press.

Neuman W. L. (2006). Social Research Methods, Qualitative and Quantitative Approaches. 6th Ed. Pearson International

North, C, (1990): Institutions, Institutional Change and Economic Performance; Cambridge University Press.

Ragin (1987): The Comparative Methods: Moving Beyond Qualitative and Quantitative Strategies. Berkeley, University of CA Press.

Rached, E., Rathgeber, E. and Brooks, D. B. (1996). Water Management in Africa and the Middle East; Challenges and Opportunities.

Strauss, A. & Corbin, J. (1990): Basics of Qualitative Research: Grounded Theory Techniques. Newbury Park, CA: Sage Publications, Inc.

Southwold. S. and Schipper, R. (2007). Methods, Techniques and Data Analysis for field research. Rural development Sociology & Development Economic. Wageningen University

Tarkowski, T. (1999): A centralized System and Corruption: The Case Study of Poland. Retrieved on 21 January 2012 On www.google.com

Teddlie, Cand Yu, F. (2007): Mixed Sampling: A Typology with Examples. Journal of Mixed Methods Research No.1 Vol.77 sage Publications

Tellis, W. (1997). Application of a case study methodology. The Qualitative Report.3 (3).Pp1-17.

Tellis, W. (1997). Introduction to case study. Retrieved on 2011/10/17 from <http://www.nova.edu/ssw/QR/QR3-2/tellis1.htm>

Thomas, A.B. (2004) Research Skills for management. Routledge Taylor & Francis Group

Tuinamuana, K., (2007). Writing the thesis research proposal. Retrieved on 2011/10/16 from <http://www.eastchance.com/howto/res-prop.asp>

United Nations, (2002): Millennium Development Goals.

World Bank, (1997): The World Bank World Development Report: The State in a Changing World, Oxford University Press, Vol.66 No.1

Whitfield, L. (2006), 'The politics of urban water reform in Ghana' Review of African Political Economy, no.109, pp. 425-448.

World Bank Wonders About Utility Privatizations', M. Phillips, Wall Street Journal, 21 July 2003; World Bank's 2004 World Development Report, 'Making Services Work for Poor People'.

WHO/UNICEF. (2000): Global Water Supply and Sanitation Assessment 2000 Report. New York, Geneva: Joint Monitoring Programme for Water Supply and Sanitation (JMP).

World Bank (2011), Sanitation and Water Supply: Improving Services for the Poor. International Development Association, IDA at Work. Accessed on 22 October 2011 from <http://siteresources.worldbank.org/IDA/Resources/IDA-Sanitation-WaterSupply.pdf>

Internet sources:

Yanow, D. (1996) *How does a Policy Mean ?*

Yin, R.K. (1994) : *Case Study Research : Design and Methods* : Sage Publications Thousands Oaks London New Delhi.

APPENDIX 1 RESEARCH QUESTIONS AND IN-DEPTH INTERVIEW
QUESTIONS WITH RESPONDENTS

RESEACRH QUESTION ONE: What are the factors leading to the scares water supply to Kasoa district?

RESEARCH QUESTION TWO: What are the trends in the management of water supply to Kasoa Community?

THEME ONE: Identification of water users in the Kasoa community

- 1 What contributes to the inadequate water supply to Kasoa community?
- 2 Has the Weija dam gotten the needed water supply for production and supply?
- 3 The issue of capacity to expand, what have been the major issues?
- 4 In your own view as a water provider, how does the Kasoa community have water for use, since you admit there is inadequacy?
- 5 What are the management problems in supplying water to Kasoa community?
- 6 What do you think the community should know about your efforts in ensuring that water gets to them?

THEME TWO: Distribution of water supply meters

- 1 How are the beneficiaries of the water supply programme in Kasoa district identified?
- 2 What is the role of the district manager in the user meter application?
- 3 What happens after water users have been identified?
- 4 How are beneficiaries for the water supply programme identified in Kasoa district?

- 5 What is the role of district managers in the water meter application process?
- 6 What happens after water meter user has been identified?
- 7 What do you get meters for water supply programme?
- 8 How are the identified water meter applicants notified about of meters?
- 9 How is the distribution process arranged?
- 10 What accountability measures are put in place to ensure that meters intended for the communities have been given to them? Do beneficiaries Sign for the meters?
- 11 Have there been complaints on how meters are distributed in Kasoa community? If yes how did your outfit deal with these complaints?
- 12 Why is it that the distribution of meters has increased despite shortage of water in the community?

RESEACRH QUESTION THREE: What are the strategies for the management of water supply to Kasoa community?

Meter System

- 1 In your view what are the loopholes in the meter distribution system which Perpetuates the secondary market for the meters?
- 2 Why do you think the things you have mention are loopholes?
- 3 How can the loopholes you have mentioned be covered so that we have an effective meter system?
- 4 How should meters be distributed so that they best serve the targeted?

- 5 Where do water users pay for their bills?
- 6 What happens at the billing point after user received a meter?
- 7 How do you receive cash from customers?
- 8 What is the role of District Manager in water distribution process?
- 9 Why is revenue collection a problem?