



ASHESI UNIVERSITY COLLEGE

**PROFITABILITY OF WATER POINTS
THROUGH MICRO FINANCING**

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I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in the University or elsewhere.

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I hereby declare the preparation and presentation of the dissertation were supervised in accordance with the guideline on supervision of dissertation laid down by Ashesi University College.

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I hereby take full responsibility for any errors that may be found on this work.

ABSTRACT

Developing countries generally have a major problem in making potable and clean water accessible to their people in both the urban and rural communities. There is the need for individuals, groups, institutions and the government to find ways to curb this situation which is affecting rural and urban communities in Ghana.

Micro financing is the “provision of small size loan and other financial services to low income household.” (Montgomery & Weiss, 2006,). It is important to note that the provision of micro credit through water points will help increase the confidence level of the poor by having small businesses of their own. It will also reduce poverty by bringing a significant improvement of their material lives.

This study will attempt to show how micro finance can help individuals, groups and organizations make water accessible to the majority of the urban population. This study also examines the profitability of water points to the urban population through micro financing. To be able address these problems, the project will address the financial and management of water

points in order to increase profits and also enhance sustainability of water points business.

The data analysis reveals that water points through micro financing are very profitable and sustainable to individuals, groups and financial institutions who will want to go into water business. The research also reveals that water can be more profitable when water is sold between 10 and 20 pesewas per standard unit. It also revealed that water points can be sustainable when effective and efficient management controls are put in place.

The importance of privatization in the water sector is that it will help everyone have access to potable water. It will also reduce water borne diseases such as river blindness and guinea worm, since water will be treated. It will also help meet the seventh Millennium Development Goal (MDG) by 2015. This in the long run will ensure more than half the population in the urban centers has access to safe drinking water.

Contents

ACKNOWLEDGEMENTS	III
ABSTRACT.....	IV
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 BACKGROUND TO THE STUDY.....	1
1.2 Problem Statement.....	3
1.3 Objectives.....	4
1.4 Importance of the study	4
1.5 ORGANIZATION OF THE REPORT	5
1.6 Limitations and Scope of research.....	6
1.7 History of Microfinance	6
1.8 Data collection	7
1.9 Microfinance in Ghana.....	8
CHAPTER TWO	11
LITERATURE REVIEW	11
2.1 Private versus Public Water	11
2.2 Importance of Micro financing	12
2.3 Theoretical framework	13
2.4 Definition and Importance of Water points.....	14
2.5 Approaches of Micro Finance Delivery	14
CHAPTER THREE	19
METHODOLOGY	19
3.1 Data Types and Sources	19
3.2 Data Collection Period	20
3.3 Sample Size	21
3.4 Sampling Techniques	21
3.5 Limitations.....	25
CHAPTER FOUR	27

DATA ANALYSIS	27
4.1 Demographic Profile/Summary	27
4.2 Findings	28
4.3 FINANCIAL PROJECTIONS	31
CHAPTER FIVE	33
FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	33
5.1 Models Analysis	33
5.2 Conclusions	34
5.3 Recommendations	35
BIBLIOGRAPHY	37
APPENDIX	38

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Developing countries have a very huge problem in making potable and clean water accessible to their people in both the urban and rural communities. In recent times, accessibility to water in the urban centers in Ghana has shown a decline. According to the World Bank's Urban Development and Economic Growth Report 2007, water accessibility has declined in urban areas from 85% in 1990 to 61% in 2004. There is therefore the need for individuals, groups, institutions and the government to find ways to ameliorate this situation which is affecting rural-urban communities in Ghana.

The statistics on Economic Growth report indicates that Ghana Water Company Limited (GWCL) a publicly owned company has been unable to improve the accessibility of water to the urban poor as well as improving efficacy in water management in its mandated areas. This scarcity of water has resulted in many people travelling long distances in search of potable water at high cost. In Ghana, the water sector was previously managed and operated by the Ghana Water and Sewage Corporation (GWSC) as a public entity. The corporation was made responsible for the provision, distribution and conservation of both the urban and rural water supplies in Ghana for public domestic and industrial purposes. However, it was later privatized and is currently managed and operated by the Ghana Water Company Limited and Aqua Vitens Rand Limited (GWCL-AVRL) with the government having greater shares. This change was made to ensure effective water supply to

meet the needs of the entire Ghanaian population over time. In actual fact, the situation has become worse for most consumers. In "February 2008 some communities within the Accra-Tema metropolis were served either once in a week, once in a fortnight or once in a month." (Water Aid, 2008)

According to Water Aid statistics, only 25% of the residents in Accra receive a continuous water supply, whereas approximately 30% of the residents are provided with 12 hours each day in five days a week. Another 35% were supplied for two days each week. The remaining 10% who mainly live on the outskirts of the capital are completely without access to pipe borne water. Women and children are adversely affected where they have to carry empty buckets and gallons in search of water. These activities are taking children out of the classroom, increase the workload of women in these areas by reducing their income and in the long run affect the growth and development of Ghana.

A "water point" can be defined as the "stationary vending structure, where water is stored and distributed in a container."(Meera, 2008). In the urban centers, individuals or groups have established their own water points, where they sell water to the public for profit. A survey conducted by Cooperative for Housing Foundation (CHF) International Ghana in 2008 showed how private individuals are making profit from the water point venture, but these are in the minority. Some of these communities are Agbogbloshie, New Town, Gamashie, Avenor and James Town. There is the need to look at how micro

financing can be used in making profits on water points and easy accessibility to everyone in Ghana.

Micro financing is the “provision of small size loan and other financial services to low income households.” (Montgomery & Weiss, 2006,). It is important to note that the provision of micro credit through water points will help increase the confidence level of the poor by having small businesses of their own. It will also reduce poverty by bringing a significant improvement of the lives the people who are predominantly women.

This study will attempt to show how micro finance can help individuals, groups and organizations to make water accessible to the majority of the urban population. This study also examines the profitability of water points in the urban population through micro financing.

1.2 Problem Statement

Research by the CHF International Ghana, shows that most micro financing institutions such as the Rural and Community Banks, Savings and Loans, Credit Unions, Financial NGOs (FNGOs), and Susu Collectors have different categories of loan facilities such as petty trading, agriculture, cottage and other businesses. However, most of these institutions have no loan facility for the provision of water points as compared to other countries like Bangladesh, Vietnam, India, and Ivory Coast. (Meera, 2008) In Ghana, the few financial institutions that reward water point micro financing are the Bofo Microfinance Ltd. and HFC Bank.

Secondly, most individuals, groups and private firms have really not seen the profitability in water points and how it can help reduce poverty through micro financing and also meeting the Millennium Development Goals (MDGs). The inability on government to supply water has been a problem for decades and the time has come for individuals and groups to help in solving the problem of declining trends obtained recently through micro financing.

1.3 Objectives

The research therefore seeks to;

1. To investigate the profitability of water points through micro financing.
2. Identify potential markets for water points through micro financing in urban centers.
3. Analyze financial projections and models to enhance sustainability.
4. To find evidence to advocate the water point venture as a poverty reduction strategy while a basic need is met

The focus of this research is to highlight importance and profitability of water points through micro financing.

1.4 Importance of the study

This study will be beneficial and informative to financial, educational, research institutions as well as students who would want to conduct further research. It would also be significant to individuals, groups and firms who would access water points business as a very profitable venture.

This research will also help governmental agencies such as the Ghana Water Company Limited (GWCL), Non Governmental agencies in development and policy makers to research further to provide urban centers with clean and accessible water.

In the long run, where people will have access to water, it will increase school attendance, reduce the workload of women, reduce water borne diseases and also to allow them generate more income and participate in other developmental community activities.

1.5 ORGANIZATION OF THE REPORT

The project is been arranged into five chapters as shown below.

- 1. Chapter One; *Introduction*:** this part of the work introduces the study of the project including background to the study, its importance, objectives, scope and limitations.
- 2. Chapter Two, *Literature Review*:** this section of the research reviews the relevant articles and other materials that have been written on water points through micro financing. It also shows what has been done and some limitations on water points.
- 3. Chapter Three, *Methodology*:** This chapter focuses more on the data types, questionnaire designs, data collection and preparations. It also indicates how data was collected on the field and the people who were interviewed.

4. Chapter Four, *Data analysis and Presentations*: this section analyses the data with some assumptions that will ensure water point profitability.

5. Chapter Five, *Results, Findings and Recommendations*: this sections of the work suggests recommendations on the findings and how best to sustain water points through micro finance sector.

1.6 Limitations and Scope of research

The research is about the profitability of water points through micro financing in the Ghanaian water industry. The research is only limited to the urban centers, with Accra New-Town and Avenor as a case study. It also focused only on water points, their importance to the provision of potable water and addressing the issue of inaccessibility of water in the urban centers. Due to limited time, financing and transportation problems. However the researcher focused on specific urban areas in Accra that frequently face acute water shortages, and also how easy information can be accessible to enhance effective and efficient work carried out. The sample was also limited to Avenor and Accra New-Town.

1.7 History of Microfinance

Modern microfinance began about 30 years ago (Boudreaux & Cowen, 2009), and one important personality and the *godfather of microcredit* in the name of Muhammad Yunus, the 2006 Nobel Price Winner, Yunus was originally an economics professor at the Chittagong University in Bangladesh. He began by lending \$27 to a group of 42 villagers, was very successful and founded the Grameen Bank, which currently is serving millions of people below the

poverty level. He also brought light to micro financing. Micro financing is one of the surest ways of reducing poverty among the productive poor. This awareness made the United Nations, (UN) led by the former Secretary General Kofi Annan declare 2005 the "International Year of Microcredit." His main target was the financing of women which he believes will help alleviate poverty in the world. It is estimated by the UN that about 76% of women make up micro credit customers around the world. (Boudreaux & Cowen, 2008) Some of the biggest microfinance institutions include Grameen Bank, ACCION International and Pro Mujer of Bolivia. It is also known that the average loan size varies according to the income levels of the home country. Some of the world's biggest challenges that the micro finance industry faces are interest rates and the refusal of financial institutions to lend for start-ups which are believed to be more risky to lend to.

1.8 Data collection

The data for this study was both primary and secondary. The primary data for the analysis include interviews, observation and administering of questionnaires to individuals and groups in the water business, private water vendors, Ghana Water Company Limited and some local and international NGOs. The secondary data included past and present information on water points from organizations such as Ghana Water Company limited, CHF International Ghana, Water Resource Commission and other local organizations that are in the water point business. The questionnaires were administered in Accra-New-town and Avenor, where water is very scarce and there is emergence of water point businesses within the locality. These

methods will seek to find what has already been done and what the actual conditions in the field are.

1.9 Microfinance in Ghana

The Microfinance sector in recent times has helped in accelerating growth and development in Ghana. It has not only given people access to credit but also reduced poverty among the productive poor as well (GHAMFIN, 2005). One of the main institutions in Ghana that has brought different organizations is the Ghana Microfinance Institutions Network (GHAMFIN). This institution ensures efficient and effective procedures to enhance the sustainability of microfinance.

From GHAMFIN's information, data and analysis, it is evident that microfinance is not new in Ghana. It is believed that traditionally, people were saving and taking loans from individuals and groups in order to self-help, start businesses or farming operations. They also believe that the first Credit Union in Africa was established in 1995 in the Northern Region of Ghana, by the Canadian missionaries. Susu was also believed to have originated from Nigeria and have since spread to Ghana in the early 1990s.

There are also various bodies in the microfinance industry which are ensuring that the productive poor have access to credit and also ensure sustainability. The Apex bodies are the Association of Rural Banks (ARB), Credit Union association (CUA), Susu Collectors Association (SUA) and the Association of Financial NGOs. In both the rural and urban areas of Ghana, the clients of microfinance are predominantly women. Some of the activities these women

are engaged in are farming, food processing and petty trading. Other micro finance institutions in Ghana are the Medium and Small Loans Committee (MASLOC) and the United Nations and Development Programme (UNDP) in promoting private sector.

In Ghana, the main objective of microfinance is to eliminate widespread poverty among the productive poor. The productive poor constitute the majority of the working population. Microfinance will also help the productive poor to have access to credit without the use of collaterals such as land and buildings. This in the long run brings significant improvement in the lives of the poor.

The common method used in Ghana is the Group Lending Method (GLM). The group lending method can be defined as the "process by which individuals form groups voluntarily to enable them access credit." In this method, group members are held responsible for the repayment of loans. (Morduch, 1999) observes that the group lending model is an effective way of managing credit risk. The advantage of this method is that; it eliminates the problem of documentation such as business plans, project financing and financial statements from micro clients.

In Ghana, training of groups is done a period of 4-6 weeks before loans are granted to clients. Repayments are weekly or bi-weekly in order to reduce loan defaults among clients. The duration of these loans are for a period of 6-8 months. Clients are graduated to various stages as their businesses

expand. In the group lending method, group savings are used as a form of collateral when a member defaults (GHAMFIN, 2005).

CHAPTER TWO

LITERATURE REVIEW

Access to clean, safe water is a basic necessity to mankind across the world, but this remains inadequate in many countries of the world. In Africa and Asia, access to safe water is lower, compared to Latin America and the Caribbean, with about 78% of their population obtaining pipe borne water directly through household connections. This has lead to many water borne diseases such as guinea worm, diarrhea, bilharzia, river blindness and elephantiasis in many parts of Africa (Meera, 2008).

2.1 Private versus Public Water

There are two schools of thought on the issue of water regarding whether it should be privatized or state-owned. International institutions such as African Action, World Bank, International Monetary Fund (IMF) and United States advocate for the privatization of water. This campaign to privatize was intense in the 1980s and 1990s, in order to combat the problems of inadequate financing, infrastructure and inefficiency in the provision of water and other public services.

The World Bank and IMF took prominent roles in introducing the private sector to reform state-based water management. It was later endorsed and developed in to a model called the "Washington Consensus."(African Action, 2001)This idea was built on free market and liberalization models.

The importance of privatization in the water sector is that it will help everyone have access to potable water. It will also reduce water borne diseases such as river blindness and guinea worm, since water will be

treated. It will also help meet the seventh Millennium Development Goal (MDG) by 2015. This in the long run will ensure more than half the population in the urban centers has access to safe drinking water.

The school of thought proposed by African Action, are those who are in favor of state controlling the water sector and not privatizing it. This view states that, water is a fundamental human right, essential to human life and to which everyone is entitled. Water is a common commodity, and also is a natural resource and part of our common heritage to be used judiciously.

They also argue that when water is state controlled, the poor will not have access to potable water at affordable prices. They will also pay exorbitant prices for water which in the long run will affect them. Although there are some advantages to the state ownership, there are some limitations. Since tariffs are kept low and do not reflect the real cost of water, the institutions managing the water sector lack the capacity and resource to improve and expand infrastructure. There is also a problem of low water treatment since funds provided by the public sector are inadequate.

2.2 Importance of Micro financing

Although some research has been done on water points through micro financing by CHF International Ghana, Bill & Gates Foundation, (Meera 2008), Grameen Bank and the United States Aid (USAID), less has been done across Africa in terms of pilot projects. Countries such as Bolivia, Bangladesh, Kenya, Ivory Coast and Cambodia are far advanced in water point micro financing. For example in Bangladesh, the Grameen Bank has

helped individuals and groups of women to set up water point businesses which are helping these women to improve their standard of living and also reduce poverty in Bangladesh.

2.3 Theoretical framework

This research considers water as a commodity where free market and liberalization models should be used in order to ensure everyone having access to clean and potable water at lesser price and not as a fundamental human right to mankind. This is because rapid growth in population has caused water facilities and resources inadequate and hence privatization will ensure effective and efficient running of the water sector. When water is seen as an economic good, it will in the long run lead to increased accessibility, efficient management of water and also effective treatment to provide clean water for all. This project tries to state that water should be privately owned and seen as commodity

In Ghana, the provision of water points through micro financing were rolled out on a pilot programme in Ayidiki, Nima and Ngresia in the Western Region. This was initiated by the Bill & Melinda Gates Foundation through CHF International and the Ministry of Works and Housing. There has been greater subsidization of water points to places where there is infrequent flow of water. Some of these communities under the pilot project are James-Town, Ayidiki, Avenor, Agbogbloshie and Kesimintim (Western Region) Women in groups and individuals contribute 30% of the loan and 70% is subsidized by donor partners such as USAID and CHF International.

2.4 Definition and Importance of Water points

Water points can be defined as the “stationary vending structure, where water is stored and distributed in a container.” (Meera, 2008). Water sold in these containers may come from pipe networks or from water vendors. Micro financing can be defined as “small size loans, projects and financial service.” (Montgomery, & Weiss, 2006). Some of these providers are the rural banks, credit unions/cooperatives and non-banking financial institutions.

Water points through micro financing will help create jobs for the women and the youth within the locality. Micro finance will help address the financing gap in water supply. It will also provide households without access to pipe water an alternative source of potable water supply with no up-front payment or connection fee. Water points can respond quickly to changes in demand among neighborhoods. Another advantage is that daily or weekly payment to water point attendants may be more manageable to low-income households as compared to a monthly water bill. If realistic pricing is used, per-unit charges encourage financial self-sufficiency which in the long run can help reduce poverty.

This research will help individuals and groups to understand and know the profitability of water points. It will also look at how water points can help make water accessible to people in the communities through water vendors and from Ghana Water Company Limited (GWCL).

2.5 Approaches of Micro Finance Delivery

In order to ensure profitability of water points through micro financing in the urban centers, there some effective and efficient approaches to this process.

According to Montgomery & Weiss (2006), there are three main approaches which financial services are delivered to the poor namely Credit Union, Non-Governmental and Banking. In terms of regulatory framework (Bank of Ghana, 2007), Rural and Community Banks are currently regulated under the Banking Act 2004 (Act 673), while the Savings and Loans Companies are currently regulated under the Non-Bank Financial Institutions (NBFI) Law 1993 (PNDCL 328). The regulatory frame work for credit unions is still being developed to reflect their dual nature as cooperatives and financial institutions.

2.5.1 Credit Union Approach

These unions are cooperative financial institutions owned and controlled by their members. Montgomery & Weiss (ibid) argue that credit unions are member owned non-profit institutions with no external stakeholders that usually provides savings and loans to the poor.

Governance and policies of the credit unions are usually controlled by volunteer Board of Directors who are elected by the membership. Montgomery Weiss (ibid) identify two kinds of Credit Unions, the closed-bond credit and opened-bond. The closed-bond credit membership is opened to only employees, the opened-bond is where the every member of the community are required to be registered and affiliate with a national apex body known as the Ghana Cooperative credit unions Association (GCCUA). This body provides training, assistance and also monitors members to ensure correct procedures are followed.

2.5.2 Non-Governmental Organization (NGOs) Approach

Non-governmental organizations are non-profit entities; this is also another approach through which the poor in the society access financial services. Montgomery & Weiss (ibid) explain the pioneers of micro finance institutions (Grameen Bank of Bangladesh and Prodem of Bolivia) that first brought the microfinance revolution to the notice of the world started as financial NGOs.

Montgomery & Weiss (ibid) identify some major challenges where in some developing countries, financial NGOs are not given legal backing to operate its fullest capacity

2.5.3 Banking Approaches

The banking industry also provides financial services to the poor in order to help reduce poverty and hunger among the individuals. The main challenges of the banking sector in a country is that, they rather provide and offer loans to wealthy individuals, political allies of ruling government instead of financing the poor traders, farmers, fishermen and businessmen and women. Other constraints are high interest rates and collaterals required of poor people to be able to expand their businesses.

Table 2.5:4 Modalities of Microfinance delivery

	NGOs	Credit Unions	Commercial Banks
Target Client	The poor, especially the disadvantage group	Members	All small clients, particularly microenterprises and traders
Primary Source of Funds	Donors	Members	Depositors and investors
Strengths	Credit combine with training and support	Participatory, Access to rural areas	Savings mobilization, access to commercial funds and regulations to ensure prudential operations
Weakness	Limited sources of funds for expansion, Governance issues and management standards	Government issue, management standards, Outreach to limited to members	mission drift and exclusion of poor, constraint on expansion due to prudential requirements

Source: Montgomery and Weiss (2006)

2.6.5 The Group Lending Method Model (GLM)

The process in micro financing where borrowers form a group to enable them access credit is known as the Group Lending Method (GLM). It is well recognized as the most effective and efficient way of reducing risk, reducing high default rates and the need for collaterals.

Morduch asserts that it is risky to lend to poor people, who do not have collaterals and a savings culture, "received wisdom has long been that lending to poor household is doomed to failure: costs are too high, risks are too great, savings propensities are too low, and few household have much to put up as collaterals" (Morduch 1999).

However Mohammed Yunus, founder of the Grameen Bank of Bangladesh proved that it is possible to lend to poor households when he invented the

most celebrated innovation of microfinance, GLM. The model has helped manage credit risk and offer more financial assistance to the poor. Yunus also believes that a trust is also a good source of collaterals. For example in Bangladesh, the introduction of GLM has made the Grameen Bank record over 95% of loan repayment rate. (Boudreaux & Cowen, 2008)

However, Morduch noted that high repayment rates are not necessarily translated into financial sustainability as interest rates and inflation of a country can affect loans given to the poor. This will make the cost of borrowing high and also affects loan repayments thereby defeating the main purpose of microfinance.

In the group lending method, all group members are therefore held responsible for the repayment of loan to a member of the group. Morduch, (1999), observes that the effective way of managing loan portfolio, delinquency and risk is the group lending method. The main criteria used in the GLM are peer monitoring, dynamics incentives, regular repayment schedules and collateral substitutes.

CHAPTER THREE

METHODOLOGY

The group lending method will play a major role in this project, this is to ensure effective implementation of the water points. One of the main objectives of this project is to explore the profitability of water points through micro financing and how in the long term, it can reduce poverty in the society. The main aim of this study is to provide insights and understanding to individuals, groups, non-governmental organizations and financial institutions on how and why water points can be a sustainable and profitable venture.

3.1 Data Types and Sources

Both primary and secondary data was used in collecting the data for the study in order to ensure accuracy and reliability of data. A primary source of data can be defined as data collected for the first time and this data can be used for a specific purpose. When accurate and reliable data are collected, they answer research questions. One limitation of the primary data is that, it is very expensive since resources and other logistics are costly. The primary data will help this research to have first hand information on water points and how it can be sustainable, the secondary data will enable the study know what has been done, how it is working, challenges and the way forward.

Secondary data are published information available from other sources that has already been gathered. It is easy to access and also inexpensive. The main limitation of secondary data is that it is potentially unreliable when one is not sure where the information was coming from. Examples of such secondary data to be used are from Ghana Water Commission (GWC), GWCL, Ministry of Water Resources, Works and Housing (MWRWH) and CHF International.

3.2 Data Collection Period

A period of two weeks was used to collect the information needed for this study. The data collection process was self administered and conducting face-face interviews were conducted. Administering of Questionnaires was used to sample women, students, microfinance groups and individual water points managers. This helped to ensure even distribution of questionnaires. Face to Face interviews were used for project coordinators, managers and technical officers of CHF International, GWCL, GWC, and MWRWH in order to have firsthand information in the water sector.

In addition, time was spent on Fridays and Saturdays between the hours of 6 to 9am for two weeks to observe the number of hours water point business owners use to empty their tanks and also how many hours it takes to fill a

specific type of Polytank. This will enable the researcher to come out with a suitable cost analysis and management control.

3.3 Sample Size

The researcher selected two localities within the Metropolis of Accra namely, Accra New-Town and Avenor. This was because these communities are close to each other and there is scarcity of water. The sample size for this survey was 40. (20 in New-Town and 20 in Avenor). This is made up of women in micro financing, children, students, directors and technical personnel of Ghana Water Company Limited (GWCL), NGOs and individuals or group owners of water points. This sample size also helped the researcher cover a wide range of the population, and introduce diverse viewpoints.

3.4 Sampling Techniques

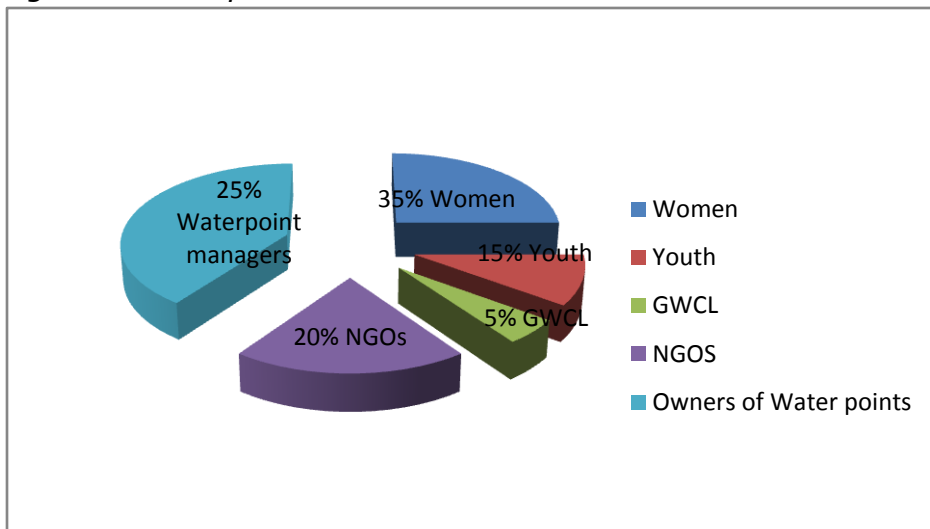
A sample is a portion of the population selected for analysis for the purpose of this study. Both probability and non-probability sampling method were used. Probability sampling method is a process that involves random selection. Example of probability to be used is simple random sample method. This method minimizes bias and simplifies analysis of results. Participants were selected by interviewing those with the 20-25 litre of gallons in the community. This was mainly targeting women, children and the youth who go to this water points to fetch water.

The non-probability sampling method does not involve random selection. An example of this method used in this study is convenience and judgmental sampling. This was chosen because it is more expedient and will be suitable to choose focus groups. The Convenience technique is least expensive and less time consuming.

Judgmental sampling was used to select the samples used for this study. This is because the researcher needed to exercise some expertise in choosing the respondent to be included in the sample to ensure a fair representation of the population of interest.

Convenience sampling will be used, in order to ensure expedience on the data collection. This technique will be used to choose a focus group; this is because the convenience sampling technique is least expensive and least time consuming.

Figure 3.1 Samples on Distribution



Administering of questionnaire to managers of water points was twenty five percent, this was to help the researcher know whether the business is profitable or not. About thirty five percent of questionnaires were administered to women in micro financing within the community. This is because women do most of the domestic chores in the home. Twenty percent of the questionnaires were used in interviewing managers and technical officers of both local and foreign NGOs namely CHF International and Youth and Women Foundation (YWF) which forms about ten percent. This was to help know what has been done and what needs to be done. Fifteen percent of the questionnaires were used in administering questionnaires to the youth in the community. This was to help know the effects on their education and businesses. 5% of the sample sizes were used in interviewing managers and technical officers from GWCL/AVRL. This will help the researcher know the state of water crisis in the two communities namely Accra New-Town and Avenor and what have been done.

Figure 3.2 Data Collection

CATEGORIES	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONDENTS (%)
Women	14	35
Youth	6	15
GWCL/ AVRIL	2	5
NGOs	8	20
Managers of Water points	10	25
Total	40	100

Five final year students of the Business Administration class were trained to help in administering of questionnaires. This helped minimize errors in the survey of the study, since they will be trained before administering of the questionnaire. It also reduces the time of data collection.

Interviews; Prior notice was given to these managers, field officers and technical officers in order to have good information and feedback during the interviews. The interviews were unstructured, because the research was exploratory in nature and it was important to explore issues affecting the challenges in the water sector. An interview was conducted with the Public Relations Officer (PRO) of Aqua Vitens Rand limited (ARL). Interviews were also done with the Programmes Director of Water and Sanitation of CHF International, Country Director of CHF Ghana and the Programmes Manager of CHF Ghana. The Chief Executive of Youth and Women Foundation (YWF) and the Project Manager of YWF were also interviewed since their local NGO is solely focused on women in micro financing. These interviews enabled the

researcher know what has been done, challenges and the way forward. The researcher also gave

Questionnaires; the final questionnaire went through refinement by planning, researching and critiquing and was administered to a pretest group. Some weaknesses were identified, and were addressed before administering the final one. The questionnaire was written in English and translated verbally into Twi to selected youth and women who did not understand the English language. This questionnaire was to help the researcher know the public's opinion on water scarcity in the community. The method of administering questionnaires directly to women and youth which is made of pupils, students, and unemployed provides a reliable means of gathering data and information for analysis.

Observation; this was to witness how frequently water flows in the community, the number of hours taps are opened, as well as the number of hours it took to fill a specified Polytank. This observation also enabled the researcher to have experience on the field, first hand information in order to better analyze the financials on water points in order to make sustainable profits.

3.5 Limitations

Most organizations were very cooperative during the interviews, but others were also not ready or willing to be interviewed. Also, in administering the questionnaire and translating to Twi, the researcher still had problems in explaining some technical definitions on water points and micro finance in

Twi and other languages such as Ga and Hausa. The researcher had members of the group who were able to read and write languages like Twi, Ga and Hausa, hence some of these technical definitions were explained very well to respondents on the field.

The data for the study relied on both primary and secondary data. This may have result in lack of accuracy and may also not be dependable. Finances were also of great hindrance to the research work, because the researcher had to rely on personal pocket money to fund expenses such as transportation, telephone calls, stationery cost etc. The researcher also relied on estimates and assumptions given by the experts and respondents which may not necessarily represent the view of all the people in the surveyed areas.

CHAPTER FOUR

DATA ANALYSIS

4.1 Demographic Profile/Summary

Figure 4.1

		Frequency	Percent
Sex	Male	9	30
	Female	21	70
Marital Status	Single	10	33
	Married	12	40
	Single Parent	8	27
Live /Residence	New - Town	16	53
	Avenor	14	47
Frequency of water	Thrice a week	12	40
	Twice a week	10	33
	Less than twice a week	8	27
Hours taps are opened	2-4	6	20
	5-8	14	47
	9-12	10	33
WATER POINT MANAGERS RESPONSE (10 participants)			
Size of Polytank	1500 litres	1	10
	2500 litres	3	30
	5000 litres	5	50
	10,000 litres	1	10
Daily sales	GHC 10 -20	2	20
	GHC 21-30	5	50
	GHC 31 -40	2	20
	Above 40	1	10

	Variables	Frequency	Percentage
Hours to fill tank	5-8 hrs	7	70
	9-12 hrs	3	30
	Above 12 hrs	0	0
Water bill expenses	GHC 10-20	2	20
	GHC 21-30	4	40
	GHC 31-40	3	30
	Above GHC40	1	10
Loan facility	YES	2	20
	NO	8	80
Business Profitable	YES	8	80
	NO	2	20
Gender of Water Managers	Male	3	30
	Female	7	70
Use of gallons per day	2-4 hours	7	23
	5-7 hours	15	50
	8-12 hours	8	27
Buy water	YES	20	66
	NO	10	34
How much to buy water	GHC 0.10	12	40
	GHC 0.15	15	50
	GHC 0.20	3	10

4.2 Findings

After the data collection on the field, there were some interesting and unique findings, it was revealed that majority of people that fetch water in the community are women and children with ages ranging from eight to forty five years. It was also revealed that most of these women are married and also use more than five gallons of water a day.

The analysis of the research results reveals that the flow of water for three times in a week is 40%, two times in a week is 33% and 27% of the population do not have water flowing at all. This finding indicates that there is rationing of water due to inadequate supply water and low pressure. This

also reveals there is huge potential for the water sector through micro financing.

The results also showed that 20% of the population has their water flowing for 2-4 hours, 47% of the population also has their taps opened within 5-8 hours, 33% of the population either has their taps opened once in a week or not at all. This result shows how scarce water has become in the urban centers, with the results that people travel long distances daily in search of water.

The research results also indicate that 23% of the population use 2-4 gallons of water in a day, 27% of the population use 8-12 gallon and 50% of the population use 5-7 gallons in a day. The result shows how very important water is an essential commodity to human life and also for domestic purposes.

The research results also shows that 52% of the population who are petty-traders use more water for their daily activities, 29% of the population are students, 14% are children. This results shows that water is used by different people from different sectors.

The findings from the water operators, micro finance groups and non-governmental agencies selling water shows that, 14% of the population make daily sales of GHC 21-30, 30% of the population make sales of GHC 31-40 and 20% also make sales of above GHC 40. This difference in the sales is due to the size of the polytanks. The size of the polytanks are; 1500

litres was 10%, 2500 litres was 30%, 5000 litres was 50% and 10,000 litres was 10%.

100% of the participants used Ghana Water Company Limited (GWCL) connections with none using water vendors or water tankers. Because of the dependency on GWCL, and situation where there is no water being supplied by GWCL, there is opportunity for private water point owners to capitalize on the availability of water from water vendors to increase profits.

The cost of constructing a water points ranges from GHC 500-800 is 10%, GHC 801-1000 is 40%, GHC 1001-1500 is 30% and above GHC 1500 is 20%. This indicates that the sizes of tanks vary within the urban centers. The reason is due to the space operators have in starting the businesses; some also do not have capital to buy bigger tanks.

It was also found out that 90% of the participants started the business with their own capital or from friends and family with only 9% of the participants barrowing from the banks. This demonstrates a huge opportunity to the financial institution who can lend to these individuals and groups for expansion of their businesses. This will create jobs to the women in the communities which in the long help them support their family budget.

It was also revealed that 95% of the interviewee showed that it was a very profitable venture, although it was not necessarily well managed. It also showed that 70% of females always go round searching and fetching of water with only 30% males of the population go round searching for water.

This indicates that women are adversely affected

4.3 FINANCIAL PROJECTIONS

The financial analysis for this project presented in three modules. Model 1 describes a scenario where water operators and managers get finances from friends and relatives, this financing will be paid back without and interest. Model 2 is a scenario where managers access credit from various financial institutions at a specific interest to repay within a stipulated time. Model 3 presents a scenario where operators will not rely solely on the Ghana Water Company Limited, but rather also rely on the water tanker services in order to enable one have a constant flow of water. It is expected that all the three scenarios are viable and can be carried out through the Group Lending Method (GLM) and individual method of micro financing.

The three modules took into consideration the price of the 25-litre of water to be sold for GHC 0.15, the total capacity (10,000 litres) of a polytank and operational cost, as well as the sales projected for 28 days (a month). The detailed projections for the three models cover a period of one year (12 months) is explained below;

Figure 4.4 Model Analysis

	Model 1GHC 0.15, Amount GHC 2,000 for one water point	Model 2 GHC 0.15, interest rate 35% of GHC 2,000 for one water point	Model 3, GHC 0.20, interest rate 35% of GHC 2,000 for one water point
Sales	1,680	1,680	2,240
Less Cost			
Water Vendor	30	30	200
Wages	40	40	40
Maintenance	5	5	5
Repayment	-	225	225
Profit/Month	1,585	1,380	1,770
Profit/12 Months	19,260	16,569	21,240

Source: Information gathered on the field

CHAPTER FIVE

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Models Analysis

In model 1 where there is a self-financed amount of GHC 2,000.00 to be paid back without interest, it is profitable and sustainable for a group or individuals to payback the amount within a period of 8-12 months at a selling price of GHC 0.15 per water container. This will help put up more water points in the community within a short period of time.

In the long-run, realistic pricing per-unit charges encourage financial self-sufficiency which in the long run can help reduce poverty and also ensure individuals having constant access to potable water throughout the year.

With models 2 and 3 where it is assumed that there is a loan from a financial institution of GHC 2000.00 at an interest rate of 35% annually, it will also be sustainable to pay back the loan within a period of 6 – 12 months by selling containers of water at GHC 0.20 each.

When interest rates increase to more than 48%, then the organization must be ready to increase the price to GHC 0.25 in order to be more sustainable and make profits to finance other water points within the locality. Where interest rates decrease, then the organization can sell at either GHC 0.15 or GHC 0.20 in order to make more profits to finance other water points within the Interest rates may fluctuate due to instability of the macroeconomic stability of the country.

5.2 Conclusions

The data collected on the field and financial analysis indicates clearly that water points in the urban centers are profitable, viable and sustainable venture that can help the communities, hence easy access to potable and clean water at an affordable price. This means that water points through micro financing will help create jobs for the women and the youth within the locality. Micro finance will help address the financing gap in water supply. It will also provide households without access to pipe water an alternative source of potable water supply with no up-front payment or connection fee. Water points can respond quickly to changes in demand among neighborhoods. Another advantage is that daily or weekly payment to water point attendant may be more manageable to low-income households as compared to a monthly water bill. If realistic pricing is used, per-unit charges encourage financial self-sufficiency which in the long run can help reduce poverty.

This in the long run will enable developing countries have solutions to the huge problems in making clean and potable water to the people in the rural and urban communities. It will also help increase water accessibility which has reduced from 85% to 61% according to the World Bank's Urban Development and Economic Report.

The training of groups within 4-6 weeks will help both groups and financial institutions know how best to manage the water points business and also reduce the risk of loan default among groups. The urban dwellers will also have easy access without necessarily travelling long distances in search of

water. Children of school going age will increase since there is easy water accessibility and clean water, less time will be used in search of water. The incidence of water borne diseases such as guinea worm and other water borne related disease will be minimized.

5.3 Recommendations

It is recommended that profitability of water points through micro financing is mainly based on the rate of recovery, sales, real income and availability of water. The following will help increase and sustain the profitability of water points;

- Water should be sold to consumers between GHC 0.15-0.20, even if water is connected or not connected to GWCL within the community.
- It is a very profitable venture hence there should be an effective and efficient management put in place.
- From the data analysis, repayments of loans should not take more than one year when the amount granted is not more than GHC 2,000.00.
- Effective monitoring and evaluation on water points should be enhanced.
- Quick feedback will enhance individuals, groups and financial institutions make good decisions for the other water points.
- Managing of the water point should be clearly spelt out before repayments starts. (i.e. either for institution, groups and individuals)

This research considers water as a commodity where free market and liberalization models should be used in order to ensure everyone having access to clean and potable water at lesser price and not as a fundamental

human right to mankind. This is because rapid growth in population has caused water facilities and resources inadequate and hence privatization will ensure effective and efficient running of the water sector. When water is seen as an economic good, it will in the long run lead to increased accessibility, efficient management of water and also effective treatment to provide clean water for all. This project defends to the statement that water should be privately owned and seen as commodity.

It is also important to note that the provision of micro credit through water points will help increase the confidence level of the poor by having small businesses of their own. It will also reduce poverty by bringing a significant improvement of the lives the people who are predominantly women.

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APPENDIX A
QUESTIONNAIRE FOR PRIVATE WATER POINT MANAGERS

This questionnaire is designed to solicit your views on access to water in your community. I ask that you kindly help me by filling this questionnaire. Thank you.

1. What are your daily sales (GWCL connection)?

a.) GHC 5-10] b.) GHC 11-20 c.) 21-30 d.)GHC31-40 e.)Above GHC40

2. What are your daily sales (no connection)?

a.) GHC 5-10 b.) GHC 11-20 c.) 21-30 d.) GHC31-40 e.)Above GHC40

3. How frequently does water flow in your community?

a.) Once a week b.) Twice a week c.) Thrice a week d.) Everyday e.) Not at all

4. How many times is water rationed in your community by GWCL?

a.) Once a week b.) Twice a week c.) Trice a week d.) Not at all

5. How many hours are your taps opened?

a.) 4-8hrs b.) 8-12hrs c.) 12-16hrs d.) 16-120hrs e.) 20-24hrs

6. What is the size of your Polytank?

a.) 150liters b.) 250liters c.) 500liters d.) 1000liters e.) don't Know

7. How many hours does it take to fill your Polytank?

a.) 2-4hrs b.) 4-8hrs c.) 8-12hrs d.)12-16hrs e.) 16-24hrs

8. How many hours does it take to empty your Polytank?

a.) 2-4hrs b.) 4-8hrs c.) 8-12hrs d.) 12-16hrs e.) 16-24hrs

9. How much do you pay in a month as water bill?

a.) GHC 5-10 b.) GHC 11-20 c.) 21-30 d.) GHC31-40 e.) Above GHC40

10. What is the cost of water bought from those without GWCL connection?

a.) GHC 10-20 b.) GHC21-40 c.) GHC41-50 d.) GHC51-60e.) Above 60

11. What is the cost involved on a water point (with GWCL connection)?

a.) GHC20-50 b.) GHC51-80 c.)GHC 81-100 d.)GHC101-150 e.)Above
GHC 150

12. What is the cost involved on a water point (no GWCL connection)?

a.) GHC20-50 b.) GHC51-80 c.) GHC 81-100 d.) GHC101-150
e.) Above GHC 150

13. What other expenses have you incurred on the water point?

a.) Plumbing works b.) Salaries c.) Loan repayment d)Taxes e. Other.....

14. Do you have a savings account?

a. Yes ☐ b. No ☐

15. Do you have a loan facility?

a. Yes ☐ b. No ☐

16. If yes, how much loan was granted?

a.) GHC 50-100 b.) GHC150-300 c.) GHC350-700 d.) GHC750-1500
e.) Above GHC1500

17. In your opinion, is the water point business profitable?

a. Yes ☐ b. No ☐

18. What is the way forward to improve water point businesses in
Ghana?.....

19. Where do you live?

a.) Avenor b.) Alajo c.) New-Town d.) Other Community

20. Gender;

a. Male ☐

b. Female ☐

21. Age:

a.) 10-17 b.) 18-25 c.) 26-32 d.) 33-40 e.) Above 40

22. Educational level

a.) Primary b.) Secondary c.) Tertiary d.) None

23. Marital Status:

a.) Single b.) Married c. Single Parent d. Widower/ Widow

24. Do you have any children? Yes ☐ No ☐

25. If yes, how many are they?

26. Do your children help you in your water business?

Yes – Often ☐ Sometimes ☐ Not at all ☐

APPENDIX B

QUESTIONNAIRE FOR THE YOUTH

This questionnaire is designed to solicit your views on access to water in your community. I ask that you kindly help me by filling this questionnaire. Thank you.

1. How frequently does your water flow?
a. Once a week b. Twice a week c. Thrice a week d. Everyday e. Not at all
2. How many times is water rationed in your community?
a. Once a week b. twice a week c. Thrice a week d. Not at all
3. How many hours are your taps opened?
a. 2-4hrs b. 4-8hrs c. 8-12hrs d. 12-16hrs e. 16-24hrs
4. How many gallons of water do use in a day?
a. 2-4 b. 5-7 c. 8-10 d. 11-13 e. Above 14
5. Will you be ready to buy water for your domestic chores?
a. Yes ☐ b. No ☐
6. How much will you buy a gallon (25 liters) of water?
a. GHC0.05 b. GHC0.10 c. GHC0.15 d. GHC0.20 e. Above 0.20
7. What are some of the challenges you are facing?
a. Scarcity of water b. Price of water c. Distance of getting water
d. Low pressure of water e. Other.....
8. What is the way forward to improve the water situation in Ghana?
.....

9. Where do you live?

a. Avenor b. Alajo c. New-Town d. Other Community.....

10. Gender;

a. Male ☐ b. Female ☐

11. Marital Status;

a. Single b. Married] c. Single Parent d. Divorced

12. What is your Occupation?

a. Pupil b. Student c. Petty-trader d. Others.....