

**AN INVESTIGATION ON FINANCIAL PERFORMANCE OF WATER SERVICE  
PROVIDERS LICENCED BY RIFT VALLEY WATER SERVICES BOARD**

**GATHAIRU J.M.**

**D/61/8894/05**

**A PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT FOR  
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF  
MASTERS OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,  
UNIVERSITY OF NAIROBI**

**NOVEMBER 2012**

## DECLARATION

This project report is my original work and has not been presented for any other award in any other institution of learning.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Gathairu J.M**

**REG. NO: D/61/8894/05**

## APPROVAL

This project report has been submitted with my approval as the University Supervisor

**Supervisor**

**DR. J.O ADUDA**

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **DEDICATION**

This research project is dedicated to my wife and children for their tireless effort to see me complete it. They have supported me in my academic endeavors.

## ACKNOWLEDGEMENT

I wish to express my profound appreciation to my supervising lecturer, Dr. J.O Aduda, Chairman Finance and Account Department, Lower Kabete Campus, University of Nairobi whom by dint of hard work was very instrumental in carrying out this research work. He painstakingly saw me through the arduous task of my master project research, and also for his unflinching support and relentless advice to ensure the completion of the project, particularly at the moments when I almost quit the program due to office work pressure. To this end, he ensured that I gave the best toward this research project and encouraged me when I was down and gave insightful inspiration.

My thanks go to my children Susan, Bridget and Valerie for constantly reminding me to complete the program. The replay-statement of my usual warning by my children - spurred me into finishing the project. I cannot forget my dear wife Virginia for the sacrifice she has shown when I was studying by taking care of the family when I was not around.

Special thanks to the NAWASSCO staffs for the support they have given to me. I also appreciate the assistant given by staffs from other water companies and Rift Valley Water Services Board who participated in this study. I also appreciate my research assistant for his tireless effort to help me during data collection. May God bless all those who assisted me when carrying out the study.

Above all, I thank the Almighty God for my life and what He is using me to do. It is my prayer that the Masters will make me touch many lives to the glory of God.

## **ABSTRACT**

Financial analysis is the process of identifying the financial strengths and weakness of the firm from the available accounting data and financial statements. The focus of financial analysis is on key figures in the financial statements and the significant relationship that exists between them.

The analysis of financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance. The objective of this study was to investigate on financial performance of water service providers licensed by Rift Valley Water Services Board. The study adopted a descriptive survey method. The target population for the study was all water service providers licensed by Rift valley Water Services Board which are ten (10) within its jurisdiction. The study adopted census method to get a sample. From the ten water service providers, four senior managers from different departments were purposively sampled to fill in the questionnaires.

Descriptive inferential statistics and frequencies were used to analyze the various variables using Statistical Package for Social Sciences. The analysis has shown that predictor variables are highly correlated with financial performance. From the finding of the study, it can be concluded that Rift Valley Water Services Board financial performance is poor since the WSPs are performing below average. The financial performance has been affected by high levels of UFW across all the WSPs, low profitability ratio among majority WSPs, poor debt ratio and management and inefficient billing.

## Table of Contents

DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT.....	v
ABBREVIATIONS .....	ix
CHAPTER ONE.....	1
INTRODUCTION .....	1
1.1 Background of the Study .....	1
1.1.1 Rift Valley Water Services Board.....	4
1.2 Research Problem .....	5
1.3 Objective of the Study .....	7
1.4 Significance of the Study .....	7
CHAPTER TWO .....	8
2.0 LITERATURE REVIEW .....	8
2.1 Introduction.....	8
2.2 Commercialization of Water Services In Kenya .....	8
2.3 Financial Performance Measures of Water Sector.....	11
2.3.1 Metering Ratio .....	11
2.3.2 Un- accounted For Water.....	12
2.3.3 Cost recovery/sustainability.....	12
2.3.4 Revenue Collection Efficiency .....	13
2.4 Theory on Financial Performance.....	13
2.4.1 Positive accounting theory .....	13

2.4.2	Agency Theory.....	13
2.5	Empirical Review.....	14
2.6	Summary.....	17
CHAPTER THREE .....		19
3.0	RESEARCH METHODOLOGY.....	19
3.1	Introduction.....	19
3.2	Research Design.....	19
3.3	Study Population.....	19
3.4	Sample Method and Sampling Procedure.....	19
3.5	Data Collection .....	20
3.6	Data Analysis .....	20
CHAPTER FOUR.....		21
4.0	DATA ANALYSIS AND RESULTS.....	21
4.1	Introduction.....	21
4.2	Background information .....	21
4.3	Findings of the study.....	21
4.3.1	Metering Ratio .....	21
4.3.2	Un-Accounted For Water.....	22
4.3.3	Cost Recovery/ Sustainability.....	23
4.3.4	Revenue Collection Efficiency .....	24
4.3.5	Billing Efficiency.....	25
4.3.6	Debt Management.....	26
4.3.7	Profitability Ratio.....	26

4.4	Financial performance Model .....	27
4.5	Summary and interpretation of the findings .....	30
CHAPTER FIVE .....		33
5.0	SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	33
5.1	Summary .....	33
5.2	Conclusions.....	35
5.3	Policy Recommendations.....	36
5.4	Limitations of the study .....	37
5.5	Areas Suggested for further Research.....	37
REFERENCES .....		39



## **ABBREVIATIONS**

GOK	GOVERNMENT OF KENYA
MWI	MINISTRY OF WATER AND IRRIGATION
NWCPC	NATIONAL WATER CONSERVATION AND PIPELINE CORPORATION
RVWSB	RIFT VALLEY WATER SERVICES BOARD
SPA	SERVICE PROVISION AGREEMENT
UFW	UNACCOUNTED FOR WATER
WASREB	WATER SERVICES REGULATORY BOARD
WSP	WATER SERVICE PROVIDER
WaterCAT	WATER CREDIT ASSESSMENT TOOL

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Halving the estimated 1.1 billion people without access to safe drinking water by 2015 is one of the Millennium Development Goals. At the current rate of progress it is unlikely that this target will be achieved in many parts of the developing world. According to the most recent Human Development Report, 2040 is a more likely date for this goal to be achieved in Africa unless there is accelerated investment in the sector (UNDP, 2006). While traditional government-run water utilities often subsidize prices for consumers in hopes of attaining social equity (i.e. people pay according to what they can afford, or all contribute to reduce costs because this is most socially beneficial), many private and publicly owned water systems today are choosing to adopt a commercial approach to water pricing (Bakker, 2007).

A water sector crisis in Africa followed the recessionary conditions of the 1970s, when many service providers found themselves in a financial vicious circle caused by a decline in government funding of capital expenditure, low tariffs, low billing, low revenue collections and increasing demand for water (Shirley, 2002). The neoliberal solution to problems in the water sector has been privatization. However, the experiments of more than a decade have shown that privatization of water services was a poor policy prescription, involving ‘spectacular failures’ in the words of UNDP (2006).

In 2002 the Government of Kenya carried out water sector reforms that culminated in the passing of the Water Act of 2002. This Act gained legislative force in 2003. Under this Act, it is recognized that water resources remain vested in the State. The Water Act however recognizes the need to decentralize management and regulation of the sector to ensure more participation of stakeholders in the sector. These stakeholders would include the private sector, the local authorities, community based organizations and non-governmental organizations. Further, the Act has introduced increased commercialization of water resources as part of the decentralization policy. The new Water Act seeks to allow reforms into the sector, to strengthen institutional framework into the sector while eliminating the Government’s direct role in provision of water (MWI, 2005).

During the 1980/90s various studies notable among them, the National Water Master Plan Study pointed out that the then widely acknowledged major constraint in the development of the water sector - inadequate financial resources, was due to underlying compounded problems such as lack of comprehensive policy, institutional and legal framework, centralized decision making and lack of adequate financing mechanism in the water sector (National Water Master Plan Study, 1992).

In the past, management of utilities was mainly under the public institutions such as Local Authorities, National Water Conservation and Pipeline Corporation (NWCPC) and Ministry of Water and Irrigation (MWI). The Government commenced water sector reforms with the enactment of the Water Act 2002. These reforms led to the creation of the new institutions and effectively separated aspects of policy formulation, regulation, asset development and water service provision (MWI, 2005). Thus, the Ministry of Water and Irrigation retained the role of policy formulation, coordination and sourcing for funds while Water Services Regulatory Board (WASREB) was given regulatory and monitoring role, Water Service Boards (WSBs) and Water service Providers (WSPs) were given the role of water and sanitation services delivery.

Water services were being undertaken by public institutions such as the City Council, Municipal Councils, National Water Conservation and Pipeline Corporation and the Government itself. It was felt that the public institutions were not reinvesting the revenues back in the water services hence the deterioration of the services. The commercial enterprises (WSPs) created are required to collect the revenues and reinvest back for improvement of the water services (MWI, 2005).

The WSPs are required to apply the commercial and business principles in the conduct of their activities. The WSPs have to ensure that all operational costs are recovered and that surpluses made are for service improvement. The WSPs bring a paradigm shift from the Government purely technical orientation to commercial and customer orientation in water service delivery. This shift requires the Companies to take good care of their customers, the water consumers as without them they will not exist. Government and Municipality employees did not regard consumers as important for their existence as they always received their salaries whether they

attended to customer complaints or even collected the revenues or not (MWI, 2005).

In this paradigm shift workers who mainly came from municipalities, Government employees in the water ministry and National water Conservation and Pipeline corporation have to change their cultures and attitude to fit in the new dispensation of water commercialization. The consumers as well were also to change their perception of water as a free social good to a commercial good which has a cost and must be paid for.

Though water is a social good, the water sector reforms advocate for commercialization in which private – sector – like management principles are applied in the management of the water entities, with the objective of ring- fencing water funds and ploughing back the same into the sector for improved services delivery. Good governance is to be embraced and appreciation of water as a commodity that has a cost and has to be paid for to guarantee sustainable quality service.

According to Global Water and Sanitation Assessment Report of year 2000 the challenges of keeping with a net population growth of more than a billion people over the next 15 years, closing the coverage and service gap with emphasis on sanitation that lags behind considerably behind the water supply, ensuring sustainability of existing and new services and improving the quality of the water services were found to be facing and will continue to face the water sector in the years to come (WHO/UNICEF, 2000).

The report came up with conclusions that the Millennium Development Goals (MDGs) target of halving the fraction of the population without water services in Africa, Asia, Latin America and the Caribbean had to be met and that there is need to address and resolve institutional and social issues in the water sector which were considered more critical than the technical issues (WHO/UNICEF, 2000).

According to Global water and Sanitation Assessment 2000 Report, Sustainability development was defined as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” (WHO/UNICEF, 2000). Functional

Sustainability is the ability of the Institution and its finances to carry on long after the initial excitement of the system inauguration. The question that the functional sustainability answers is whether the system will survive or will only go into disuse because essential funds or skills for operation and maintenance cannot be found. Environment Sustainability on the other hand asks the question whether the system operations will damage the environment and thereby damage the health and prosperity of the future generations. Environment Sustainability will also answer the question as to whether the operations today will damage the water sources to the point where future services become difficult or impossible to maintain. The Water and Sewerage sector has always found easy to get money for capital investment but have had it very difficult to maintain the sustainable system. A system cannot be sustainable in the long run if its costs cannot be recovered.

### **1.1.1 Rift Valley Water Services Board**

On the institutional and social arrangements the Kenya Government enacted the water Act 2002 creating separate institutions and bringing all the stakeholders on board for efficient service delivery. Rift Valley Water Services Board (RVWSB) was created together with other boards through this Act to provide water services in its respective region (Ministry of Water and Irrigation, 2002).

Under the Water Act 2002, Rift Valley Water Services Board is legally responsible for the provision of Water and Sanitation services through a license issued by the Water Services Regulatory Board. The Law does not however allow RVWSB to supply water and sanitation services directly, but should do so through the appointment of agents referred to as Water Service providers (WSPs). RVWSB appoints WSPs through a Service Provision Agreement (SPA). The responsibility of RVWSB is to hold, develop and manage all the water assets in its area of jurisdiction. The Board undertakes investment programmes and rehabilitation of the existing pipelines and other infrastructures. RVWSB then hands over through a lease agreement called deed of hand over, these assets to the contracted water service providers in the respective area for operation .The Water Services Providers pay an agreed lease / agency fees to RVWSB to cover financing costs of the assets and also contribute to operational costs of the Board. The water service providers are required to pay 1% of their collected revenue to the Water Services

Regulatory Board to meet its operational costs (Ministry of Water and Irrigation, 2002).

The Water Act 2002 however prohibited the Boards to provide the services directly to the consumers but required the Boards to appoint agents called water service providers which were registered under Companies Act Cap 486. Current estimates of the Kenyan water supply situation indicate that about 64 per cent and 40 per cent of the country's urban and rural populations respectively have access to safe drinking water. In Rift valley the current estimate indicate that 43% of the population gets water but less than 3% have access to sanitation facilities. Rift Valley Water Services Board (RVWSB) was established through Kenya Gazette Notice NO.1715 of 12<sup>th</sup> March, 2004. In line with the Water Act 2002, RVWSB has the legal responsibility of ensuring cost effective and sustainable provision of water and sanitation services in its area of jurisdiction (Ministry of Water and Irrigation, 2002). The Board is one of the eight boards in the country that have been mandated to fulfill the governments mandate in providing water and sanitation services in the country. Rift Valley Water Services Board is required to provide water to 50% of its residents through its agents the WSPs by the year 2015.

It is this Act that provided for the commercialization of water services through recruitment of water service providers. The strategic objective of the companies is to be financially viable and self sustaining commercial enterprises. Their responsibilities being to provide quality water and sewerage services to the residents in their areas of jurisdiction according to the water act and also the SPA signed between themselves and the Boards.

## **1.2 Research Problem**

A water sector crisis in Africa followed the recessionary conditions of the 1970s, when many service providers found themselves in a financial vicious circle caused by a decline in government funding of capital expenditure, low tariffs, low billing, low revenue collections and increasing demand for water (Shirley, 2002). The neoliberal solution to problems in the water sector has been privatization. However, the experiments of more than a decade have shown that privatization of water services was a poor policy prescription, involving 'spectacular failures' in the words of UNDP (2006). Problems have been associated with the difficulty of establishing competitive market structures (Estache et al, 2005; Kessides, 2004; Kirkpatrick et al., 2006),

ineffectiveness of regulation in the presence of information asymmetries and incomplete contracts (Martimort, 2006), and negative welfare effects (Bayliss, 2003; Dagdeviren, 2006; Ugaz and Price, 2003). Over the years, the confidence of the public in the benefits of utility privatization and that of the private sector in the profitability of developing country utilities, especially water, has dwindled. Private investment in infrastructure projects has declined and many existing private operations have been subject to re-negotiation (Hall and Lobina, 2004; Harris, 2003).

In Kenya, some of the utilities still depend on government even after many years of commercialization. This has resulted in the sector attracting a large number of operators such as the Self-Help Groups, Organized Communities and NGOs, who wish to start and operate their schemes. Their efforts have positively impacted on the Sector, which hitherto relied heavily on the public sector for the development and management of the water resources. In the Economic Survey released by the government (GOK, 1990) it was revealed that, budgetary constraints is the main bottleneck in the development of the water sector. The problem has been compounded by the water tariff regime in place, which does not cover the cost of services rendered. In a liberalized socio-economic framework, it would not be advisable therefore, to continue spending public funds on utilities whose operational costs cannot be sustained.

On a study conducted by Otieno (2006) on the effect of water sector reforms on service delivery, at Narok Water and sewerage Company found out that the consumers raised a number of complaints regarding the service delivery by the company. There were complaints about meter readings, payment procedures and water shortages. On another study by Gikuhi (2005) on commercialization of services by Local Authorities there were recommendations that Local authorities in Kenya should engage more in Public – Private Partnerships in water services and other services for better performance and efficiency. Based on fieldwork carried out in 1999-2000, Onjala (2002) compared five Kenyan urban centres – Nairobi, Eldoret, Kisumu, Nakuru and Thika – regarding the performance of their water authorities, measured in terms of service ratio, unaccounted-for-water, metering, and collection efficiency. The service ratio is the percentage of the urban population served by the public water utility and ranged from 52% (Kisumu) to 88% (Nairobi). The percentages of unaccounted-for water were high: 45% (Nakuru)

to 82% (Kisumu) of the water produced was 'lost' due to the dilapidated state of the pipeline infrastructure and/or illegal connections. As for water metering, only an estimated 25% of the consumers in Nairobi were properly metered. In the other four urban centres, percentages of metered connections were much higher (76-90%). It is in this line that this study sought to investigate on financial performance of water service providers licensed by Rift Valley Water Service Board.

### **1.3 Objective of the Study**

The objective of this study was to investigate on financial performance of water service providers licensed by Rift Valley Water Service Board.

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

The study will build a case for evaluation of water companies in terms of their performance in key performance indicators in water sector. Stakeholders will be able to stride. This information can be used to generate recommendations on sector policies, program strategy and management of service delivery and improvement. Furthermore, the study will act as a tool to provide feedback to the companies as a public service agent on their strengths and weaknesses in delivering its services as commercial entity. The study will provide feedback to the Government through the Rift Valley Water Services Board on the success WSPS on financial performance after water sector reforms. The WSPs studied under the Rift Valley Water Services Board will also share the results and recommendations with other water service providers in the country.



## CHAPTER TWO

### LITERATURE REVIEW

#### **2.1 Introduction**

This chapter gives the literature review of the study. The chapter is divided into sections. One of the sections gives theoretical review of the study which explore water scenario in Kenya, water sector reforms in Kenya, commercialization of public water utilities in other countries and theory on financial performance. The other section discusses past studies while other sections give general literature review and summary of the study.

#### **2.2 Commercialization of Water Services In Kenya**

Commercialization of water and sanitation services for the first time featured in the Session paper No. 1 of 1986 on Economic Management for Renewed Growth. The paper suggested decentralization of water and sanitation services to the Local Authorities from Central government that was seen as having the necessary administrative and technical capacity to efficiently run the services.

In line with the Sessional Paper, GTZ which was supporting water and sanitation Projects in Kenya moved to the Ministry of Local Government and formed Water and Sewerage Operation Unit (WSOU). WSOU's goal was to ensure that water and sewerage services in selected municipalities were self sustaining (Lotz,1995). WOUS later changed the name to Urban Water and Sanitation Management (UWASAM) focused on assisting Local Authorities to form fully fledged water and sanitation departments (WSDs) with autonomous powers within the municipalities.

In 1995 a workshop was held in Nairobi and attended by the piloted municipalities, Ministry of Water and Development, Ministry of Local Government and GTZ that resolved that the formation of water and Sewerage Companies be the second level. In 1997 three water companies namely Kericho, Eldoret, and Nyeri were registered as companies.

In a Sessional paper No.1 on the national water policy on water resources management and development (G.O.K 1999) the Government of Kenya asserted that water is one of the most

important resources for man's survival. In recognition of this fact, it instituted Water Supply and Sanitation Programmes in various parts of the country to bring water closer to the people. The *National Water Master Plan*(G.O.K. 1974), had indicated that portable water was made available, at a reasonable distance, to all households by the year 2000 through the establishment of water supply schemes, sinking of boreholes, construction of catchment dams and provision of the conveyance infrastructure in the form of pipes and furrows.

By the 1980s and 1990s the Kenyan water sector could no longer adequately cope with the ever-increasing challenges. Deficiencies in the management of water and sanitation installations were responsible for the growing disconnect of water users in both rural and urban areas. Insufficient maintenance and shortages of funds for operation brought to a halt the extension of services to new and fast growing settlements. Insufficient cost recovery was the cause of increasing interruption of water supply, dwindling water quality and falling coverage.

The World Bank Report of 1994 defines commercialization to be characterised by the Institution having clear and coherent goals focused on delivering services, having autonomous management and enjoying financial independence. Survey on estimates done by JICA/GOK (GOK/JICA 1990); on the Kenyan water supply situation indicate that about 64 per cent and 40 per cent of the country's urban and rural populations respectively have access to safe drinking water. This has been achieved through provision of some 330 gazetted water sources countrywide, accounting for 80 per cent of the served population; the rest (20 per cent) of the population is supplied by the non-gazetted schemes.

This has resulted in the sector attracting a large number of operators such as the Self-Help Groups, Organized Communities and NGOs, who wish to start and operate their schemes. Their efforts have positively impacted on the Sector, which hitherto relied heavily on the public sector for the development and management of the water resources. In the Economic Survey released by the government (GOK, 1990) it was revealed that, budgetary constraints is the main bottleneck in the development of the water sector. The problem has been compounded by the water tariff regime in place, which does not cover the cost of services rendered. In a liberalized socio-economic framework, it would not be advisable therefore, to continue spending public

funds on utilities whose operational costs cannot be sustained.

In order to ensure sustainable water schemes, therefore, there was need to apply commercial principles and make water a product that has a price and to remove the mentality of free water. There is nothing that is free. Water has a cost to be able to reach the consumer. This is the cost that must be paid for. The Government, has allowed the formation of these companies so that they able to improve the services and recover the operational costs from the consumers. The Government on its part is to take care of the development of the assets in the country. The Companies are managed by Boards of directors selected from the private sector.

The water sector reforms in Kenya began in the mid 1980's with the reports generated from the water resources assessment programme (WRAP) and the National Water Master Plan of 1992 (NWMP, 1992). The challenges which were noted during these studies lead to the formation of a water policy to address the challenges of the then Water Act cap 372 (1972). The water policy was finalised (NWP, 1999) in 1999 and it culminated into the Water Act (2002) which was enacted and became effective on March, 18, 2003. This has led to radical reforms in the water sector, where water management and water service provision is handled by two separate institutions, Water Resources Management Authority (WRMA) and Water Services Regulatory Board (WASREB).

The Water Act (2002) also provides for the change of water resources management from political boundary based concept to catchment management approach. Based on this approach and the drainage network in Kenya, six catchment areas were created each drained by one river system or several rivers and their tributaries. These are Lake Victoria North, Lake Victoria South, Rift Valley, Tana, Athi and Ewaso Nyiro North. The national WRMA office located in Nairobi regulates the activities of the regional offices. Stakeholder participation is institutionalised at the region through the CAACs and Water Resources Users Associations (WRUAs).

The massive problems in the water sector negatively affected progress in other areas such as public health, agriculture, industrial production and tourism, to name a few. By the end of the

1990s the Ministry of Water Irrigation (MWI) could no longer allow the situation to further deteriorate and commenced a thorough reform in response to increasing pressure of public opinion and to seek long-lasting solutions for the manifold problems in the sector.

The comprehensive water sector reform process that has been implemented in Kenya over the last five years has brought about a high level of modernization in the sector. It has gradually increased the efficiency of government institutions and commercialized organizations for water and sanitation, as well as for water resource management. It has oriented the sector along the international framework towards which the Government of Kenya has committed itself- above all to the millennium development goals (MDGs) and human rights.

### **2.3 Financial Performance Measures of Water Sector**

Financial analysis is the process of identifying the financial strengths and weakness of the firm from the available accounting data and financial statements. The focus of financial analysis is on key figures in the financial statements and the significant relationship that exists between them.

The analysis of financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance.

The analysis of financial statements is an important aid to financial analysis. They provide information on how the firm has performed in the past and what is its current financial position. Financial analysis is the process of identifying the financial strengths and weakness of the firm from the available accounting data and financial statements. The focus of financial analysis is on key figures in the financial statements and the significant relationship that exists between them. The analysis of financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance.

#### **2.3.1 Metering Ratio**

Metering ratio is defined as the number of connections with operational meters compared to the total number of connections. Metering enables a WSP to change consumers according to what

they have actually consumed. It is also a critical tool for controlling Non Revenue Water (especially commercial losses) and for managing per capita water consumption. WASREB inspections have established that most of the WSPs do not have accurate and reliable measuring devices (master and consumer meters) and therefore rely on estimates to determine production and consumption. Low metering ratio is a threat to financial sustainability of the WSPs, directly translating into poor service and large revenue losses.

### **2.3.2 Un- accounted For Water**

Un- accounted For Water (UFW) is defined as the difference between the amount of water produced for distribution and the amount of water billed to consumers. It results from a combination of physical losses (leakages) and commercial losses ( illegal connection/water theft, unmetered public consumption, metering errors, unbilled metered consumption and water use for which no payment is collected. The Global Water Supply and sanitation Assessment Report indicated that the distribution systems are the major factors contributing to the physical losses. According to this report Africa has the highest rate of unaccounted for water followed by Asia, Latin America and the Caribbean. Management through concerted efforts can early enough eliminate commercial losses at minimal costs as they tackle technical losses which may be due to dilapidated systems. Unaccounted for Water takes over 50% of all the water produced hence a huge loss to the water service provider. The levels of UFW act as a measure of financial performance in the water sector.

### **2.3.3 Cost recovery/sustainability**

According to Global Water and Sanitation Assessment 2000 Report Sustainability development was defined as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs”. Functional Sustainability is the ability of the Institution and its finances to carry on long after the initial excitement of the system inauguration. The question that the functional sustainability answers is whether the system will survive or will only be put into disuse because essential funds or skills for operation and maintenance cannot be found .Environment Sustainability on the other hand asks the question whether the system operations will damage the environment and thereby damage the health and prosperity of the future generations. Environment Sustainability will also answer the question as to whether the operations today will damage the water sources to the point where future services

become difficult or impossible to maintain.

The Water and Sewerage sector has always found easy to get money for capital investment but have had it very difficult to maintain the sustainable system. A system cannot be sustainable in the long run if its costs cannot be recovered and all revenue collected.

### **2.3.4 Revenue Collection Efficiency**

Revenue collection efficiency is defined as the total amount collected by a water service provider compared to the total amount billed in a given period. It gives an indication on the effectiveness of the revenue management system in place and consequently the amount of resources available to the water service provider. It also reflects customers' willingness to pay, which is closely correlated to customer satisfaction with the service a water service provider provides. Paddey (1999) describes Revenue as the value of goods or services supplied to a customer. The water service providers will receive revenue from water sale .According to WHO (1994) only about 60% of the revenue due from the 20-50% of the water that reaches the consumer and hence billed is collected. This is as a result of poor consumer records combined with inefficient billing and collection practices not to mention the unethical practices like illegal connection due to low staff morale.

## **2.4 Theory on Financial Performance**

### **2.4.1 Positive accounting theory**

There is no one theoretical framework within which to conceptualize such a study but rather there are strands of a number of theories. Changes in accounting policy and resulting changes in profitability and funding are, in part, a response to managers making self-interested choices. Newly-appointed managers may have perceived that benefits could be derived from measuring their performance from a low base and taken advantage of the opportunity to utilize discretionary accruals by shifting income to the post-corporatisation period and recording write-offs and increased depreciation in the pre-privatisation period. This deliberate exercising of accounting policy choice falls within the framework of positive accounting theory (Watts and Zimmerman, 1986) as the managers of water entities sought to "preserve" earnings for future years.

### **2.4.2 Agency Theory**

The agency theory aspect of positive accounting theory provides a framework for examining the

economic incentives that could motivate management's choice of accounting policies. Watts and Zimmerman (1986) includes government regulation and political costs (e.g. income taxes) as suggested factors that would influence managers in their choice of accounting policies. Such choices may include revaluation of assets to give a lower rate of return in order to justify price increases or the use of 'discretionary accruals' (Healy, 1985). Agency theory would therefore lead us to expect changes in accounting practice during periods of environmental and regulatory change as experienced by the companies.

The change from local body entities to companies, and from an engineering culture to a business culture encompassing shareholder expectations, provided motivation for newly-appointed managers to maximize their personal objectives. Their choice of accounting policies influenced their ability to achieve those objectives. Thus this research can be framed to some extent by agency theory aspects of positive accounting theory. In addition legitimacy theory has been used to explain the behaviour of managers and the process of organizations adapting to a changing environment. Both theories acknowledge the interaction of organizations and their environment. Water Sector reforms placed a number of conflicting pressures on managers as they sought to obtain legitimacy for their entities, and balance their own expectations with those of shareholders and consumers. These interactions took place within a sceptical and challenging environment.

## **2.5 Empirical Review**

The historical and economic context in which commercialization is implemented has a crucial impact on the outcome of the policy. In a study done in Guinea found that the water sector was in crisis before commercialization in 1989. The study indicated that the utility was under-funded and over-staffed. Collection rates were very low and in 1987 it was estimated that only 15% of those billed, paid for the water. The network was in very poor shape with unaccounted-for-water (UFW) at 50% and a connection rate below 40% (Menard and Clarke 2000).

A major study was funded by the government, the World Bank and the UNDP and undertaken by a private consultancy firm, Coopers and Lybrand Co., to assess the issues in the water and sanitation sector in Zambia and inform the government about the possible reform strategies. The study found that the revenues of urban suppliers covered 83 per cent of total operational and

maintenance costs in 1987 (Coopers and Lybrand, 1988). When this is compared to the average cost recovery of 67 per cent in 2005 it becomes pertinent to ask what has gone wrong in the process of commercialization.

In Gabon, on the other hand, the water utility was performing well before privatisation. Assistance in the privatisation process was provided by the World Bank's International Finance Corporation (IFC). According to Francois Wohrer, investment officer in IFC's privatisation and financial advisory group, SEEG (the utilities of both Gabon and Guinea have the acronym SEEG) was a 'relatively wealthy company' in better shape than many African utilities. Speaking just before the contract was awarded, Wohrer said *'They have been showing limited losses but will make a fairly decent profit in 1996...The company was a little messy before 1993 but there has been a nice cleaning process over the last three years. There is no overstaffing and the company is quite well managed.'*

The utility in Senegal was also performing well before privatisation. Following financial difficulties and the need for major investment, reforms began in 1993 and in 1996 a ten year lease contract was signed with a Saur-led consortium known as Senegal aise des Eaux (SdE). Before the privatisation, water services within urban centres were well managed by the public utility, SONEES. Labour productivity was high (7 per 1000connections in 1994), UFW was at 30% in 1994. 80% of the population had access to water (Kerf 2000). However, the company's financial position was overshadowed by non-payment by government agencies and low prices. Aside from any efforts by the investors, following privatisation the financial position was greatly improved thanks to a World Bank loan of \$247m (Tremolet et al 2002).

In Cote d'Ivoire the water utility SODECI was privatized in 1960. Operational performance has always been very good (until recently). There has been high water quality, a high collection rate from private users (although not from public users), high labour productivity (8 workers per 1000 connections in 1987); low levels of UFW (about 15% in 1987 – similar to Western Europe). In 1987, the sector suffered a severe financial shock when an ambitious expansion programme coincided with macroeconomic shock and depressed demand for water. Large industrial users which were paying the highest rates sharply reduced their water consumption,



meanwhile poor consumers increased theirs but they paid less so while the total number of consumers was unchanged the total revenue fell. SODECI's remuneration was about the same for all tariff levels but the revenue available to government was reduced substantially. The contract was renegotiated for a further 20 years from 1987. During renegotiations, the authorities managed to negotiate a 20 percent reduction in the fees paid to SODECI by suggesting that they might allow other companies to bid for the contract (Menard and Clarke 2000).

In a study done in Guinea by Menard & Clarke, ten years after the start of the lease, found that UFW was still high at about 47%. The structure of the contract meant that the private operator had little incentive to reduce UFW (Menard and Clarke 2000). In Gabon a study findings showed that losses on average were about 14% (Tremolet and Neale 2002). In Senegal, leakage was cut from 31% to 22% (although this was still higher than the 15% target set in the contract) (Tremolet, 2002). In Cote d'Ivoire, UFW has been consistently less than 20% in Abidjan since the early 1960s and was about 16% nationally (Menard and Clarke 2002s). However – following recent social tensions in the country – the figure for UFW is reported to be increasing and now stands at about 23% of water production (Tremolet 2002).

In Guinea one of the first effects of privatisation was a massive increase in the extent of metering. Before reform about 5% of customers had working meters. By 1996 98% of private customers were metered and 100% of administration connections were metered. Bill collection from private customers improved initially but this fell when the price increased. The collection rate fell from 75% of the amount billed in 1989-90 to under 50% in 1991-1992, recovering to around 60% in 1993 where it stayed. The fall in collection rates was due to the increase in the price as water as well as the fact that the government still fails to pay its water bills (Menard and Clarke 2000).

In Gabon, customers were already paying their bills before privatization when levels of recovery on monthly billing for electricity and water were around 93%. According to the IFC adviser on the project before the privatisation, *'People are paying their bills quite well -- this is a very high level of compliance for a developing country, and helps to explain the interest from bidders.*

In Senegal, bill collection was also good before privatisation but it improved from 91% to 97 %

due in part to government starting to pay their bills as well as adopting a strict disconnection policy (Tremolet 2002). In 2002 it was reported that as many as 12% of existing connections were not in service in the area of operation in the capital, Dakar. The rate outside Dakar was even higher (Tremolet et al 2002).

In Cote d'Ivoire, collection rates from the private sector are high but they are low from the public sector. By the early 1980s, metering was almost universal and billing was executed efficiently with a computerised system. However, this achievement conceals a substantial social cost in the form of disconnection of non-payers. Private sector customers have been routinely cut-off for non-payment and households were entitled to receive a free 'social' connection only once. In 1997, it was estimated that SODECI carried out 17,000 forced disconnections and in some of SODECI's areas of operation, up to 20% of connections are inactive (Tremolet and Neale 2002). Collection rates from the public sector (which accounted for 25% of total sales) have been much lower. SODECI is unable to cut off public sector entities for non-payment (Menard and Clarke 2000).

In Guinea, the financial position of the private operator improved rapidly as a result of improvements in billing and large increases in tariffs. In 1996, the company made profits of \$3.2m (Menard and Clarke 2000). In Gabon, turnover has risen and since its first year of operation, SEEG has paid dividends to its shareholders. In 2000, the company reported a profit of \$6.89m and in 2001 this rose to \$9.67m (Tremolet and Neale 2002). In Senegal financial results are not available (as the company is not listed on the stock exchange) but they are reported to be disappointing due to demand falling below projections although the company is now posting stable profits (Tremolet et al 2002). In Cote d'Ivoire, the utility SODECI has remained profitable since 1986 and profits were approaching \$4m in 1996 (Menard and Clarke 2000).

## **2.6 Summary**

Lack of access more often results from sociopolitical factors and institutions that constrain delivery, than from scarcity of water resources. Until the late 1980s, the supply of water in the vast majority of developing countries was entrusted to public companies. But the latter failed to

make the infrastructural investments required to provide water services to all, and poorer regions, neighborhoods and people were often neglected. Even areas that were connected to public water supplies suffered from unreliable service, an indication that maintenance was also insufficient. By the early 1990s, reforms involving commercialization of water services—the application of principles of cost recovery and profit maximization—and private sector participation were being proposed as a way to increase investment in water delivery networks, improve access for all sectors of the population and reduce the burden of public services on government finances.

In the water sector, one of the most common ways of bringing in the private sector is through concession agreements, via which the state, while retaining ownership, transfers the right of operating the water utility to a private company. But the commercialization and privatization of water services are controversial. On one hand, there is strong opposition from large segments of society that question the treatment of water purely as a commodity, rather than as a human right. On the other hand, water fee increases as a consequence of reforms are predictably unpopular, and users have voiced their concerns, sometimes violently, often bringing reforms to a halt. Moreover, increases in water fees tend to be regressive, hurting the poor more than other segments of society.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses the research design, the study population, sample and sampling procedures or techniques which will be used. It also discusses the instrumentations and data collection procedure. The study is expected to be carried out for a period of one and half months between August 2012 and mid September 2012.

#### **3.2 Research Design**

This study adopted a descriptive survey method. Descriptive survey method was good for this study since it involved an investigation which attempts to describe and interpret what exists at present in the form of conditions, practices, processes, trends, effects, attitudes and beliefs. This method was the most ideal for this study as it attempted to analyze important aspects of the financial performance of water service providers.

#### **3.3 Study Population**

Population according to Mugenda and Mugenda (2003) refers to the entire group of individuals, events or objects having a common observable characteristic. It's not feasible to reach the entire population or the universe in any research because of limitations in terms of time and other resources thus the need to identify and define an experimentally accessible population for the study which should have the desirable characteristics for the study from which to choose a sample (Ibid). The target population for this study was all water service providers licensed by Rift valley Water Service Board. Currently, the Board has ten (10) licensed water service providers within its jurisdiction.

#### **3.4 Sample Method and Sampling Procedure**

There are ten water service providers licensed by Rift Valley Water Service Board. The study adopted census method to get a sample. All the ten water service providers licensed by the board were sampled. From the ten water service providers, four senior managers from different departments were purposively sampled to fill in the questionnaires. These departments were purposively picked since they were assumed to be common in every water service provider and were in position to give required information pertaining to financial performance of the water service providers after commercialization. The managers that were sampled from each water

provider company include commercial manager, finance manager, technical manager and human resource manager.

### **3.5 Data Collection**

Data collection instruments were developed which facilitated collection of information. Questionnaires were the main data collection instrument. Also secondary data from financial/audit reports of the water service providers were used. The study considered data from the year 2009 to 2012. Questionnaires were delivered to respondent who filled them and the researcher collected them. Secondary data was obtained from relevant department. Examination of records was also carried out.

### **3.6 Data Analysis**

Data collected from questionnaire administered to senior managers of the water service providers was coded and entered into the computer by use statistical package of social scientist (SPSS) version 17. It was cleaned in readiness for analysis. Descriptive inferential statistics and frequencies were used to analyze the various variables. The information was presented in from of table, charts and narrative form.

The regression model that will be used will be

$$FP = a + B_1M + B_2UFW + B_3CR + B_4RCE + e$$

Where:

FP=Financial performance is the dependent variable and is measured as return on assets (profitability)

a= minimum value of the dependent variable if all the independent variables are zero

M- Metering ratio- Number of connections with operational meters compared to the total number of connections

UFW- Unaccounted for Water –difference between the amount of water produced for distribution and the amount of water billed to consumers

CR- Cost recovery- Recover of all of the costs associated with a water system, programme or service to ensure long-term sustainability

RCE- Revenue Collection Efficiency –total amount collected by WSP compared to total amount billed in a given period

e=Error

## CHAPTER FOUR

### DATA ANALYSIS AND RESULTS

#### **4.1 Introduction**

This chapter gives the results of the data collected and data analysis approaches that were used in this study to achieve the objectives of this study and the results of the analysis. Data obtained from the field was verified, coded, entered in the computer, cleaned and analyzed using SPSS (Statistical Package for Social Science).

#### **4.2 Background information**

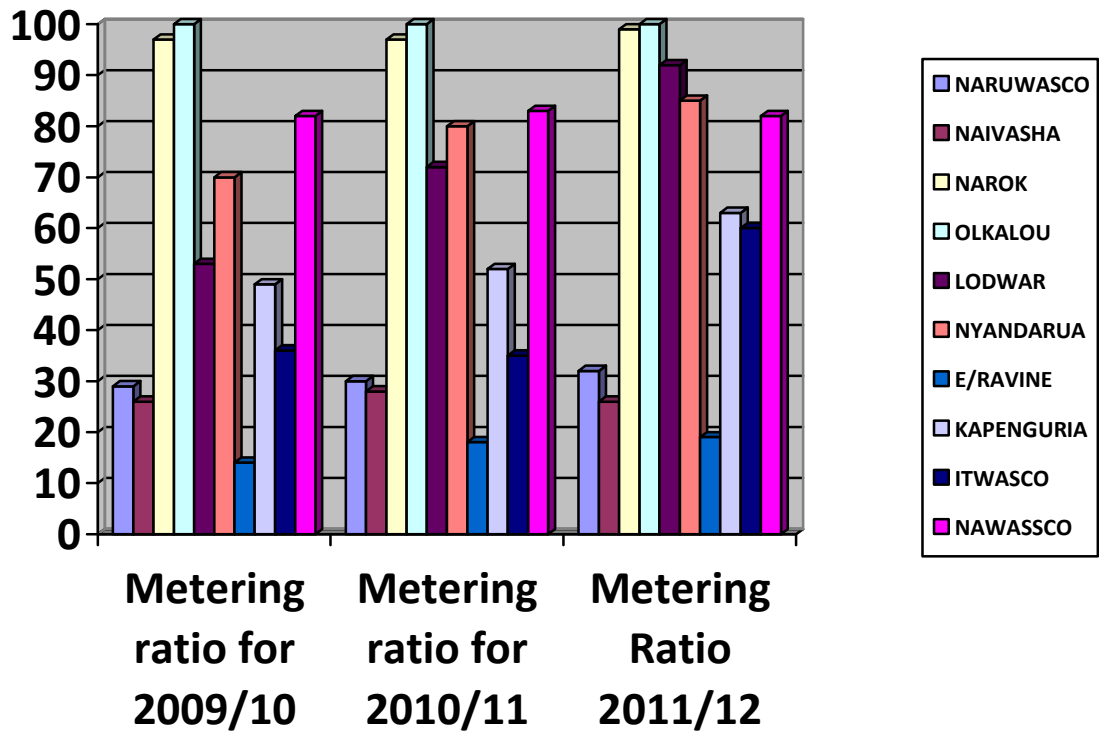
The analysis of financial statements is an important aid to financial analysis. They provide information on how the firm has performed in the past and what is its current financial position. Financial analysis is the process of identifying the financial strengths and weakness of the firm from the available accounting data and financial statements. The focus of financial analysis is on key figures in the financial statements and the significant relationship that exists between them. The analysis of financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance. The report analysis on financial performance was based on four key performance indicators namely: metering ratio, Un-accounted for water, cost recovery/ sustainability and revenue collection efficiency. Together these indicators give a good picture of the performance of a WSP and, in aggregate, the overall sector performance. Data used in the performance analysis was generated from questionnaires that were filled by WSPs management and cross checking of reports provided by the WSPs.

#### **4.3 Findings of the study**

##### **4.3.1 Metering Ratio**

The average performance on this indicator was established to be 55.6% in 2009/10, 59.5% in 2010/11 and 65.8% in 2011/12 for the WSPs that were studied. The Overall average for the three years was established to 60.23% which is below the benchmark of 100%. It was established that only one WSP had attained 100% metering ratio. Improvement in metering ratio was noted from 2009/10 to 2011/12. Metering enables a WSP to charge consumers according to what they have actually consumed. Low metering ratio renders a WSP commercially unsustainable and lead to

inefficient use of available resources. From the finding, where only 1 out of 10 WSPs is able to achieve 100% metering, there is need for the WSPs to find ways of increasing the number of metered consumers and ensure that all are operational. In study report on performance of WSPs in the Kenya by Water Service Regulatory Board, in 2009/10, it was established that only 17 WSPs (27%) in the country were within the acceptable sector benchmark (WASREB, 2010).



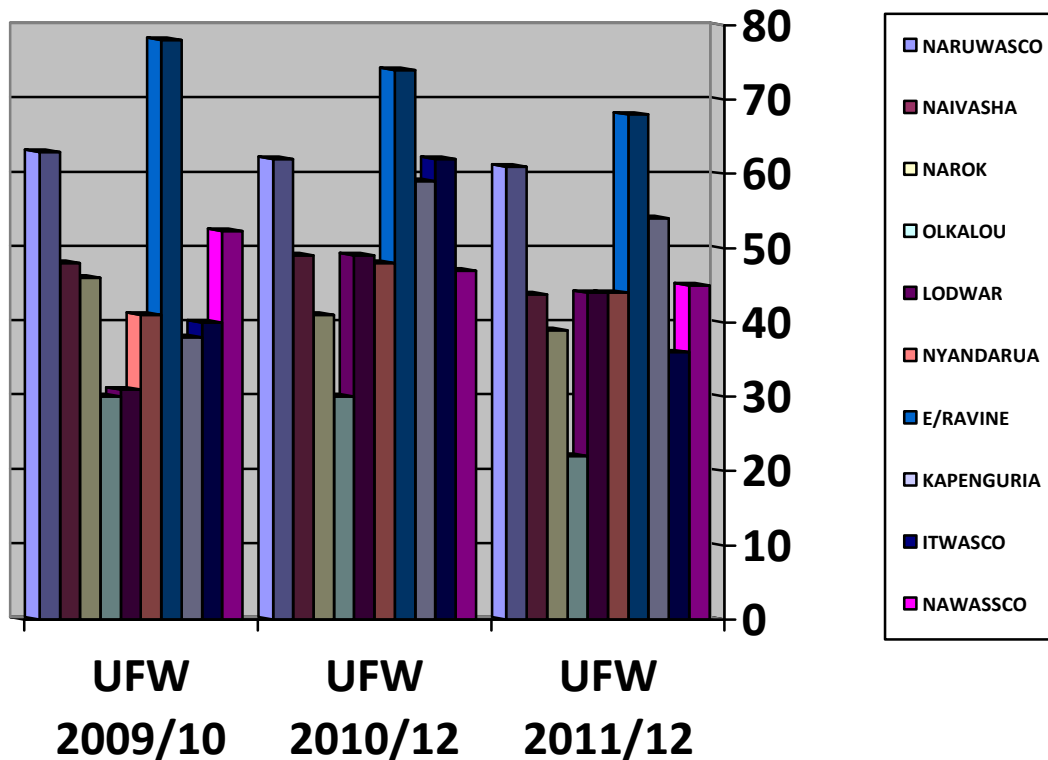
**Figure 1: Metering Ratio**

#### 4.3.2 Un-Accounted For Water

Un-accounted For water result from a combination of physical losses (leakage) and commercial losses (illegal connections/water theft, unmetered public consumption, metering errors, unbilled metered consumption and water use for which no payment is collected). It was established from the study that the average WSPs UFW in 2009/10 was 46.73%. This increased in 2010/11 to 52.1% but dropped in 2011/12 to 45.68%. The overall average for the three year was established to be 48.17%. This is far much above the sector acceptable benchmark of 25%. The high level may be attributed to lack of accurate and reliable measuring devices (masters and consumer

meters) thus resulting to reliance on estimates.

The study established that UFW may be higher than gathered from the questionnaires as it was noted from WSPs' audit report. A case is given of NARUWASCO where the UFW in quantity was 5,446,702 m<sup>3</sup> amounting to 62% of the water produced in 2009/10(Kenya National Audit Office, 2010)



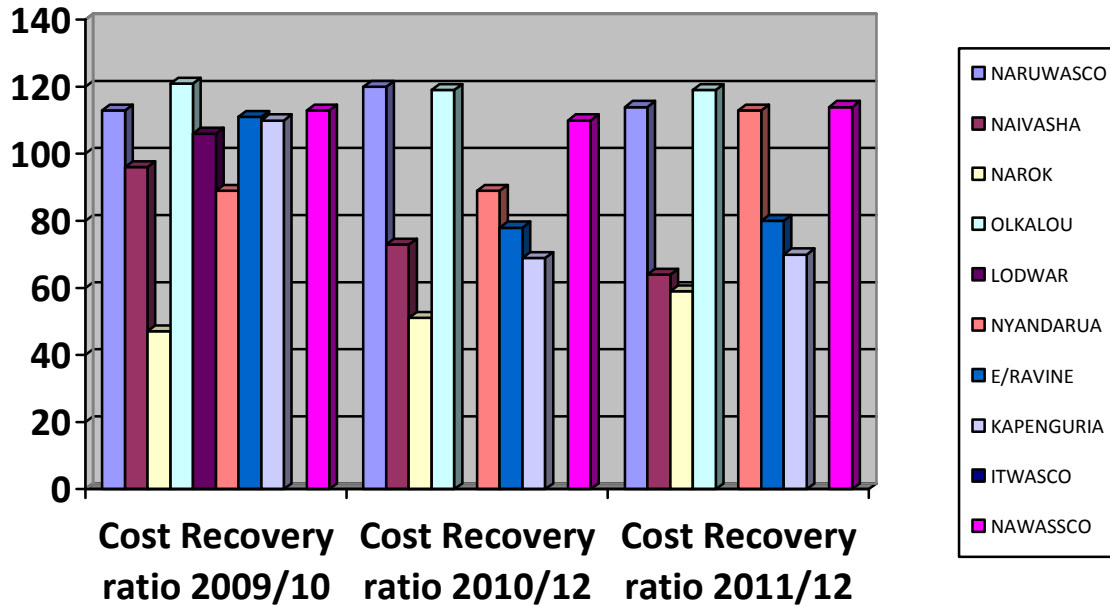
**Figure 2: Un- Accounted For Water in percentage**

### 4.3.3 Cost Recovery/ Sustainability

Every WSP incur operation and maintenance costs. The costs include administration, personnel, energy, chemical cost and maintenance of plant and equipments. Cost recovery ratio measures the ability of the WSP to meet its costs against the revenue available. The sustainability of WSP is assured if it attains the benchmark of the sector which is 150% (WASREB, 2010).It was established from the study that some WSPs did not have data for this. The average coverage in 2009/10 was 100.67%, in 2010/11 it dropped to 88.63% and rose in 2011/12 to 91.63%. The overall cost recovery ratio was established to be 93.93% which is way below the sector



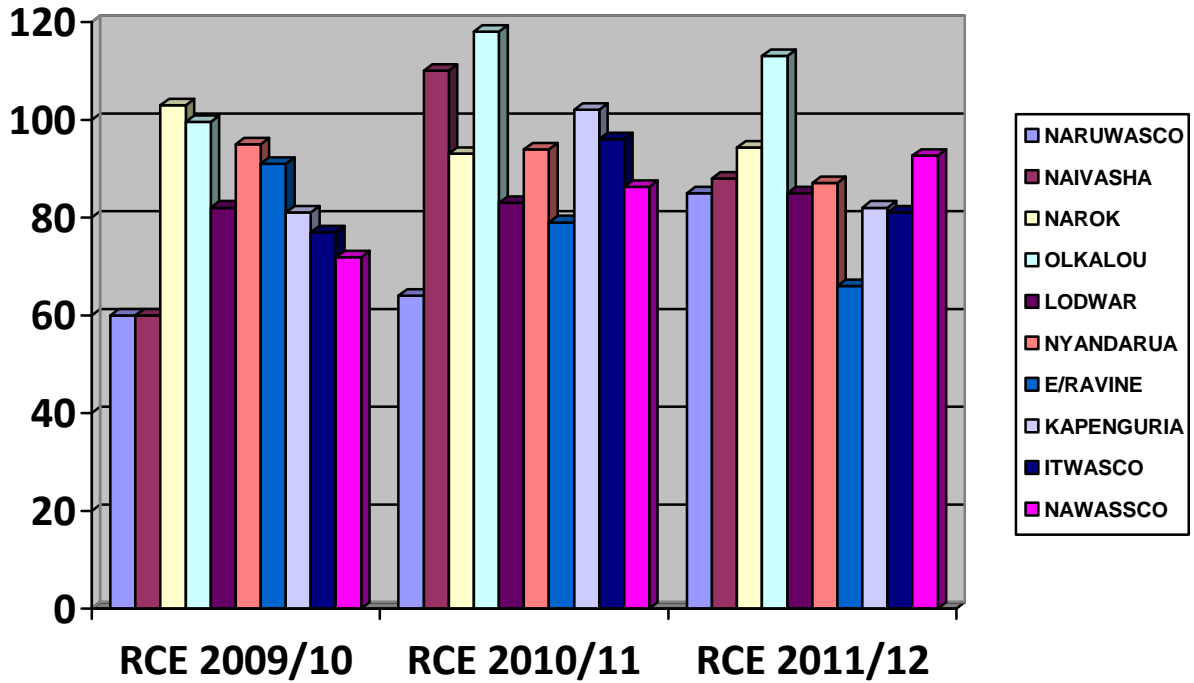
benchmark.



**Figure 3: Cost Recovery ratio in percentage**

#### 4.3.4 Revenue Collection Efficiency

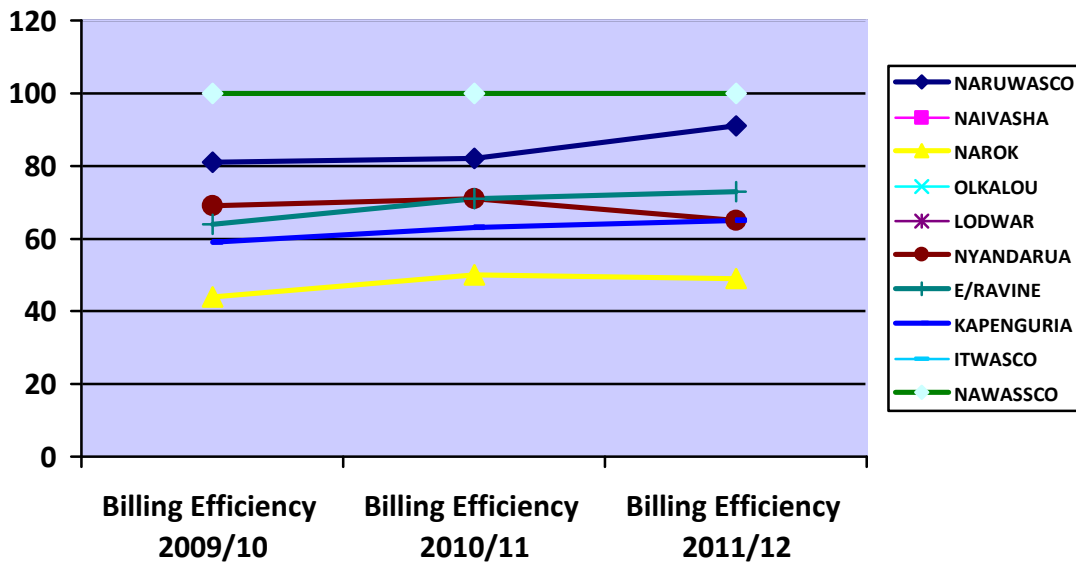
From the finding of the study, it was established that the average revenue collection efficiency stood at 82.05% in 2009/10 improved to 92.52% in 2010/11 but dropped to 87.41% in 2011/12. The overall average for the WSPs over that period of three years was established to be 87.33%. From the study, 3 out of 10 WSPs were established to have revenue collection efficiency of more than 100%. This can be attributed to in-ability of WSPs to differentiate between current collections and arrears which is a factor affecting all the WSPs. It was established from data analyzed from WSPs’ audit reports that almost all the WSPs were not able to collect all the revenue in a given period which led to accumulation of arrears despite them selling water on cash which is paid within fourteen days from the time billed. This has led to WSPs failing to meet their needs opting for loans and subsidies from government. The WSPs end up under-performing and experiencing difficulties in meeting their obligations. In a study conducted by WHO (1994), it was established that only about 60% of the revenue due from the 20-50% of the water that reaches the consumer and hence billed is collected.



**Figure 4: Collection Efficiency in Percentage**

**4.3.5 Billing Efficiency**

From, the finding of the study, 5(50%) WSPs could not establish their billing efficiency. From those that their billing efficiency could be established, only one WSP has 100% billing efficiency. The average billing efficiency for the in 2009/10 was 69.5% which improved in 2010/11 to 72.8% and further improved to 73.83% in 2011/12. Billing play an important role in revenue collection as consumers will pay for what they have consumed. Laxity and inconsistence in billing affects the paying behavior of consumers who failed to pay resulting to Non Revenue Water. In-ability of management to monitor their billing system amount to losses in WSPs. From the study finding, the overall average of 72.06% is way below the sector benchmark of 85%.



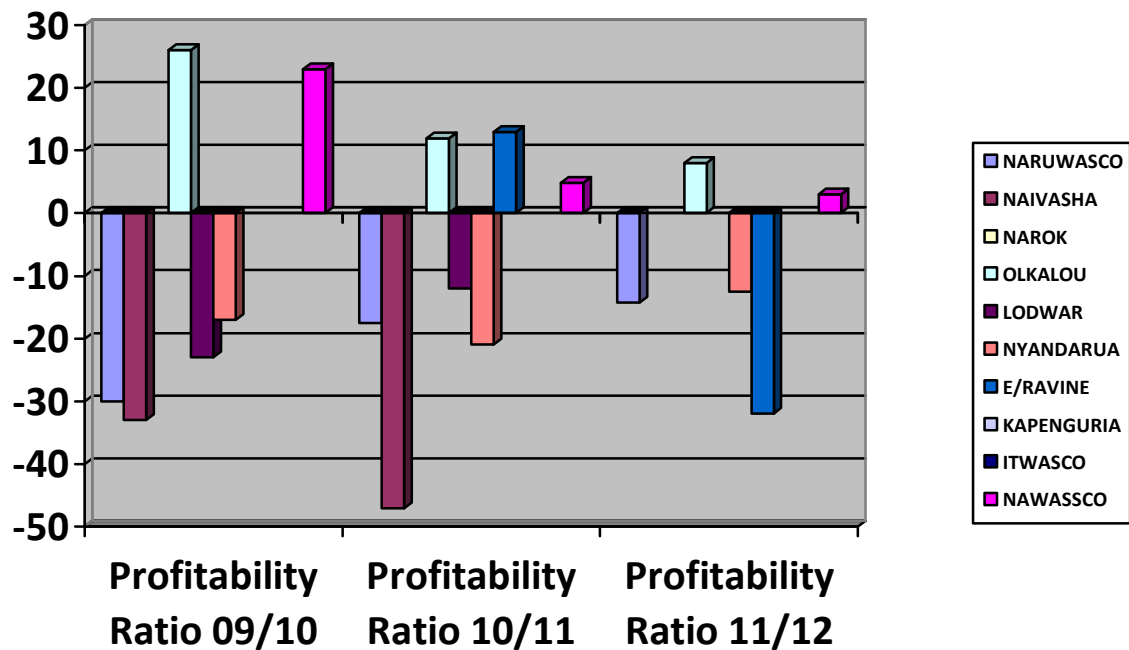
**Figure 5: Billing efficiency in percentage**

#### 4.3.6 Debt Management

Debt management is one of the areas accorded attention and measures put in place with specific performance targets to be achieved. One of the targets of WSPs is to reduce the number of days of outstanding debts. The challenge facing most of the WSPs is in-ability of their systems to do debt age analysis which can help them recover debt as per the period the debt was incurred. The study established that only 20% of the WSPs had records on data Management but also they were not complete. As established from secondary data gathered through documents provided, all the WSPs were not able to manage their debts in a chronological manner and even debts arising from arrears were at times treated as revenue for a given month. All the WSPs could not separate debts for the three consecutive years under study and would only report their debts cumulatively.

#### 4.3.7 Profitability Ratio

From the finding of the study, it was established that only 6 out of 10 WSPs had data on profitability ratio. Only 2 out of 6 WSPs that had records on profitability posted positive profit. It was established from the finding of the study that majority of the WSPs were running at loss as shown in the figure below. As established from secondary data, WSPs profitability is being affected by high level of UFW, poor billing, huge debts and high operation costs.



**Figure 7: Profitability ratio in percentage**

#### 4.4 Financial performance Model

The analysis of financial statements is an important aid to financial analysis. They provide information on how the firm has performed in the past and what is its current financial position. Financial analysis is the process of identifying the financial strengths and weakness of the firm from the available accounting data and financial statements. The focus of financial analysis is on key figures in the financial statements and the significant relationship that exists between them. The analysis of financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance.

The regression model that was used was;

$$FP = a + B_1M + B_2UFW + B_3CR + B_4RCE + e$$

Where:

FP=Financial performance is the dependent variable and is measured as return on assets (profitability)

a= minimum value of the dependent variable if all the independent variables are zero

M- Metering ratio- Number of connections with operational meters compared to the total number of connections

UFW- Unaccounted for Water –difference between the amount of water produced for distribution and the amount of water billed to consumers

CR- Cost recovery- Recover of all of the costs associated with a water system, programme or service to ensure long-term sustainability

RCE- Revenue Collection Efficiency –total amount collected by WSP compared to total amount billed in a given period

e=Error term

The study finding analysis yielded the following;

**Table 1: Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.938 <sup>a</sup>	.880	.400	1.195918265427438E1

a. Predictors: (Constant), Revenue Collection Efficiency, Cost Recovery , Metering Ratio, UFW

b. Dependent Variable: Financial Performance

The rough interpretation of  $R^2$  in table 1 above is that 88 percent of the variation in the dependent variable can be explained by variation(s) in the independent variable(s).

**Table 2: ANOVA table**

**ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1049.436	4	262.359	1.834	.499 <sup>a</sup>
Residual	143.022	1	143.022		
Total	1192.458	5			

a. Predictors: (Constant), Revenue Collection Efficiency, Cost Recovery , Metering Ratio, UFW

b. Dependent Variable: Financial Performance

The table 2 above shows the “ANOVA table” for the regression. ANOVA stands for Analysis Of Variance – specifically the analysis of variation in the FP scores. The variance of the residuals (or errors) is the value of the mean square error or MSE—here it is 143.022.

Also in this table 2 we get the F test. This tests the hypothesis that the predictors shows no relationship to Financial performance (FP).

The value of the test for our data is  $F(4,1) = 1.834$ .

From table 3 below, our values of **a**, **B<sub>1</sub>**, **B<sub>2</sub>**, **B<sub>3</sub>** and **B<sub>4</sub>** are listed as “unstandardized” values, and their standard errors are in the second column.

**Table 3: Model Coefficients table**

Model	Coefficients <sup>a</sup>				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-393.875	180.167		-2.186	.273
Metering Ratio	.796	.576	1.670	1.383	.399
Cost Recovery	.982	.633	.733	1.551	.365
UFW	2.386	1.385	2.502	1.723	.335
Revenue Collection Efficiency	1.325	.748	1.185	1.771	.327

a. Dependent Variable: Financial Performance

The results show that, taken together, there are real effects by the different category variables on the WSPs’ financial performance and explain 88 percent of the variance in performance. Thus, as a whole, the model appears to be a modestly robust predictor of financial performance. However, none of the individual independent variables is statistically significant—it cannot be said, therefore, that at the level of individual variables, whether the ‘effects’ to ‘financial performance’ are due to something more than chance. In the same way, results showing a sign that is not consistent with expectations cannot be said to be real effects.

Thus our study model now will be

$$FP = -393.875 + 0.796M + 0.982 CR + 2.386UFW + 1.325RCE$$

#### **4.5 Summary and interpretation of the findings**

The average performance on metering ratios was established to be 55.6% in 2009/10, 59.5% in 2010/11 and 65.8% in 2011/12 for the WSPs that were studied. The Overall average for the three years was established to be 60.23% which is below the benchmark of 100%. It was established that only one WSP had attained 100% metering ratio. Improvement in metering ratio was noted from 2009/10 to 2011/12. From the finding, only 1 out of 10 WSPs is able to achieve 100% metering. The findings shows that majority of the companies have not been able to meter their consumers or if they have, the connections are dormant or meters are faulty. This translates to loss of revenue affecting the financial performance of the WSPs and the RVWSB at the end. An assessment that was done by Water Service Regulatory Board on average performance of WSPs in the country in 2009/10 indicated a metering ratio of 82% which was below the bench mark of 100% but was an improved from 2008/9 (WASREB, 2010). This implies that WSPs under study are performing poorly compared to the national average.

It was established from the study that the average WSPs UFW in 2009/10 was 46.73%. This increased in 2010/11 to 52.1% but dropped in 2011/12 to 45.68%. The overall average for the three year was established to be 48.17%. This is far much above the sector acceptable benchmark of 25%. The study established that UFW may be higher than gathered from the questionnaires as it was noted from WSPs' audit report. A case is given of NARUWASCO where the UFW in quantity was 5,446,702 m<sup>3</sup> amounting to 62% of the water produced in 2009/10. In a report by WASREB on performance of WSPs 2011/12 it was established that high levels of UFW have huge financial implications. At a total billing of KSh 541 million for rural WSPs and KSh 11.6 billion for urban WSPs and considering their average UFW is 63% and 45% respectively, the total amount lost in 2010/11 can be estimated at KSh 10.4 billion (WASREB, 2012). From, the same report, it has been established that the average UFW for the country has stagnated at 45% since 2009/10, remaining at a level almost double the minimum acceptable level of 25% (WASREB, 2012). In fact, only Meru Water Company has been able to keep UFW at an acceptable level. Current UFW levels translate to financial losses of KSh 9.5 billion annually, which is about a quarter of the annual sector budget. The continuously high UFW levels threaten the financial sustainability of the water services sector.

It was established from findings of the study that some WSPs did not have data for cost recovery. The average cost coverage in 2009/10 was 100.67%, in 2010/11 it dropped to 88.63% and rose in 2011/12 to 91.63%. The overall cost recovery ratio was established to be 93.93% which is way below the sector benchmark. A study on performance of WSPs in the country in 2011/12 conducted by WASREB shows the average performance attained an average of 120%. While the sector average was within the acceptable benchmark, only six (6) WSPs attained in the country a cost recovery ratio of more than 150%, which indicates the long term sustainability of a WSP (WASREB, 2012). The finding of the study can be interpreted that RVWSB WSPs are performing poorly on cost recovery except for a few and still rely heavily on government subsidies

The study established that the average revenue collection efficiency stood at 82.05% in 2009/10 improved to 92.52% in 2010/11 but dropped to 87.41% in 2011/12. The overall average for the WSPs over that period of three years was established to be 87.33%. From the study, 3 out of 10 WSPs were established to have revenue collection efficiency of more than 100%. The findings of the study are not much different from the sector as shown in WASREB IMPACT report of 2012. From the report, the average collection efficiency marginally improved from 82% in 2009/10 to 84% in 2010/12 (WASREB, 2012). It is also evident from the study that some WSPs have not been able to separate between payments for current billing and arrears collected. Some WSPs record revenue collection efficiencies of over 100%. An assessment of WSPs in the country in 2010/11 showed that five (5) out of 35 WSPs reported collection efficiencies above 100%, which implies the inclusion of arrears (WASREB,2012).

Net debtor days assume that amounts are billed but have not been collected. Billing efficiency, on the other hand, measures the amount of water sold that has been billed. While uncollected bills affect the cash position of a WSP, unbilled sales affect its revenue potential. From the finding of the study, five (50%) WSPs could not establish their billing efficiency. From those that their billing efficiency could be established, only one WSP has 100% billing efficiency. The average billing efficiency in 2009/10 was 69.5% which improved in 2010/11 to 72.8% and further improved to 73.83% in 2011/12.



The challenge facing most of the WSPs is inability of their systems to do debt age analysis which can help them recover debt as per the period the debt was incurred. The study established that only 20% of the WSPs had records on data Management but also they were not complete. On study done by WASREB 2010, the findings shows that over 60 percent of the total WSP revenues, that is, over two-thirds, have accumulated as accounts receivable in their 2010 balance sheets (WASREB/WSP, 2011). This may in part be due to inherited legacy debts for which bad debt provisions have not been made. Creating provisions for bad debts will improve the net debtor days, as this indicator accounts for debtors net of provisions. In study done by WASREB in collaboration with WSP in WaterCAT interviews with utilities indicated very low billing (and collection) efficiency scores. Less than half of the utility managers interviewed believed their billing systems were adequate and efficient, regardless of their shadow rating (WASREB/WSP, 2011). Inadequacies range from lack of consumer records, inadequate updating of customer accounts, outdated systems used for monitoring, non categorization of receivables by customer type and age, fragmented information management, and other administrative problems.

From the finding of the study, it was established that only 6 out of 10 WSPs had data on profitability ratio. Only 2 out of 6 WSPs that had records on profitability posted positive profit. It was established from the finding of the study that majority of the WSPs were running at a loss. As established from secondary data, WSPs profitability is being affected by high level of UFW, poor billing, huge debts and high operation costs.

From the overall findings of the study, it shows the financial performance of RVWSB is below average. Using the model in the study, it was established that the performance score was 40.64 which is far below the sector benchmark of 85 as established by WASREB.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary

Unfortunately there is limited information available in the public domain to establish an accurate picture of the performance of these WSPs. Still an overall impression can be given and a number of limitations can be established. In summary, it seems that considerable improvements can be made on all indicators that are used in this report. The assessment shows that all service providers in the case study areas have limitations on almost all performance indicators. Technical efficiency is low to medium for WSPs because of high UFW. From study the level of UFW is almost double the minimum acceptable level of 25%. The continuously high UFW levels threaten the financial sustainability of the water services sector. This implies that WSPs under study are performing poorly compared to the national average.

The findings shows that majority of the companies have not been able to meter their consumers or if they have, the connections are dormant or meters are faulty. This translates to loss of revenue affecting the financial performance of the WSPs and the RVWSB at the end. All the WSPs under study have their metering ratio below the 100% sector bench mark.

The overall cost recovery ratio was established to be 93.93% which is way below the sector benchmark. A study on performance of WSPs in the country in 2011/12 conducted by WASREB shows the average performance attained an average of 120%. While the sector average was within the acceptable benchmark, only six (6) WSPs attained in the country a cost recovery ratio of more than 150%, which indicates the long term sustainability of a WSP (WASREB, 2012).

The overall average for the WSPs over that period of three years was established to be 87.33%. The findings of the study are not much different from the sector as shown in WASREB IMPACT report of 2012. It is also evident from the study that some WSPs have not been able to separate between payments for current billing and arrears collected some WSPs record revenue collection efficiencies of over 100%

While uncollected bills affect the cash position of a WSP, unbilled sales affect its revenue potential. From the finding of the study, five (50%) WSPs could not establish their billing efficiency. From those that their billing efficiency could be established, only one WSP has 100% billing efficiency.

The challenge facing most of the WSPs is inability of their systems to do debt age analysis which can help them recover debt as per the period the debt was incurred. The study established that only 20% of the WSPs had records on data Management but also they were not complete. In study done by WASREB in collaboration with WSP in WaterCAT interviews with utilities indicated very low billing (and collection) efficiency scores. Less than half of the utility managers interviewed believed their billing systems were adequate and efficient, regardless of their shadow rating (WASREB/WSP, 2011). Inadequacies range from lack of consumer records, inadequate updating of customer accounts, outdated systems used for monitoring, non categorization of receivables by customer type and age, fragmented information management, and other administrative problems.

The finding of the study can be interpreted that RVWSB WSPs are performing poorly on cost recovery except for a few and still rely heavily on government subsidies. It was established from finding of the study that some WSPs did not have data for this. The average cost coverage in 2009/10 was 100.67%, in 2010/11 it dropped to 88.63% and rose in 2011/12 to 91.63%. The overall cost recovery ratio was established to be 93.93% which is way below the sector benchmark. A study on performance of WSPs in the country in 2011/12 conducted by WASREB shows the average performance attained an average of 120%.

From the finding of the study, it was established that only 6 out of 10 WSPs had data on profitability ratio. Only 2 out of 6 WSPs that had records on profitability posted positive profit. It was established from the finding of the study that majority of the WSPs were running at a loss. As established from secondary data, WSPs profitability is being affected by high level of UFW, poor billing, huge debts and high operation costs.

## 5.2 Conclusions

The findings of the study suggest that financial performance of the WSP under Rift Valley Water Service Board is below average. The analysis has shown that predictor variables are highly correlated with financial performance. This implies that poor results in any predictor variable will affect overall financial performance of the WSPs. The performance of the Board in water sector is assessed on how WSPs under its jurisdictions performs. From the finding of the study, it can be concluded that Rift Valley Water Service Board financial performance is poor since the WSPs are performing below average.

The financial performance has been affected by high levels of UFW across all the WSPs, low profitability ratio among majority WSPs, poor debt ratio and management and inefficient billing. While efforts are made to grow investments in the sector, high levels of water losses to be experienced, translating to huge financial losses. WASREB inspections have established that most of the WSPs do not have accurate and reliable measuring devices and therefore rely on estimates to determine production and consumption. For effective management of UFW, it is of utmost importance to switch to accurate measuring both at production, distribution as well as consumer level. UFW is a threat to financial sustainability of the WSPs, directly translating into poor performance and large revenue losses. The fact that WSPs have not been able to increase their Operation and Maintenance Cost Coverage shows that too many WSPs are still operating under unjustified and unsustainable tariffs.

The results of the study have also highlighted issues that affect WSPs across the board, which may need to be addressed through policy change. The large amount of accounts receivables in the books of WSPs is one such policy issue. Uncollectible receivables may have to be written off as bad debts and policies on recovering measures from classes of clients that habitually delay payment of water bills, such as government agencies, for example, may have to be put in place.

The major obstacle/challenge that faces all the WSPs is the in-ability to separate between payments for current billing and arrears collected. Revenue collection efficiency of the WSPs cannot be measured accurately as long as WSPs are not in a position to separate revenue from arrears.

Metering has also been a challenge that has been established in the study where WSPs are not able to meter all their consumers. Metering enables a WSP to charge consumers according to what they actually consumed. It is also a critical tool for controlling UFW and for managing per capita water consumption.

The negative performance trend can be explained by inadequate execution of core activities such as professional investment planning and monitoring as well as the delegation of infrastructure operations to WSPs or local communities (in the rural setting). In fact, the biggest weakness of RVWSB is the absence of investment plans sufficiently detailed (to pre-feasibility quality), for further development through feasibility studies and financing plans. The consequences are low value for money in investments or poor impact of investments and unacceptably low investment realizations despite continuously rising budget levels.

### **5.3 Policy Recommendations**

In order to effectively address UFW, utilities have to put monitoring systems at production, distribution and consumer levels. Moreover, WSPs should focus on reduction of commercial losses. These generally represent about 40% of total NRW yet their mitigation does not require major capital investments. Also, the WSPs should put stringent measure like patrolling of water mains, maintenance of water mains and metering to curb high level of UFW that will in effect reduce the high water tariffs and improve revenue collection. Also WSPs can put in place measures to deal with rogue staffs who sometimes contribute to water losses by colluding with consumers who have illegal connections.

The WSPs should keep records of their activities to be able to know their status at glance. Small WSPs which have rural setting have no elaborate data submission systems which hamper the efforts to keep track of their financial performance. The increasing number of WSPs who submit data indicates a growing appreciation of the importance of accurate information in the planning and operation of water services. Challenges, however, remain in terms of data quality and the timeliness of data submission.

Also the WSPs should improve/upgrade their system to ensure that age of debt can be monitored. The WSPs should involve private sector in bringing efficiency and improvement in the O & M

services for self sustainability. WSPs should strive toward improving billing systems by using state-of-the-art information management systems, combined with a focus on customer management to deliver substantial results within a short time frame.

#### **5.4 Limitations of the study**

Due to data release constraints, this study will only be able to provide a broad overview of performance. The increasing number of WSPs who submit data indicates a growing appreciation of the importance of accurate information in the planning and operation of water services. Challenges, however, remain in terms of data quality and the timeliness of data submission.

The study adopted all WSPs under Rift Valley Water Service Board without categorizing them in terms of their sizes, capacities and their area of operation. To ensure a level playing field in analyzing performance, WSPs need to be categorized first, by size and second, by the operating environment (urban or rural). To account for significantly different operating environments in urban and rural settings (population density/geographic spread, state of infrastructure, level of economic activity, availability of external support), performance needed to be analyzed separately for urban and rural WSPs.

The study focused on a few key performance indicators. The sector has nine key performance indicators but only four were evaluated. The study could have adopted all the indicators but opted for only four. This may be constraining the study as other indicators may also have impact to the performance of the study.

#### **5.5 Areas Suggested for further Research**

It appears that record keeping is a challenge across all the WSPs. The study suggests a further study on impact of record keeping and management in financial management of WSPs in Kenya. A majority of the urban population lives in low income areas, yet these areas continue to experience inadequate services. It is evident that information on water and sanitation coverage in these areas remains scanty.

Performance of a WSP can be influenced by its size, capacity and location. The study suggests a comparative study on financial performance of rural and urban WSPs and factors affecting their performance. Size is a key factor with respect to the sustainability of WSPs. Larger WSPs command a large share of business, making it possible for them to charge lower tariffs and still remain viable. Small WSPs, on the other hand, have higher unit operating costs, which makes it hard for them to be viable.

It appears that very little has been done to develop an audit framework for financial performance in various water companies. It is suggested that a further study be conducted in this area to look at other aspect which impacts on financial performance of Water service provides.

## REFERENCES

- Bakker, K. 2007. Commons or Commodity? The Debate over Private Sector Involvement in Water Supply. In K. Baker (Ed.) *Eau Canada: The Future of Canada's Water*. Vancouver: UBC Press.
- Bayliss, K. 2003 'Utility Privatisation in Sub-Saharan Africa: A Case Study of Water', *Journal of Modern African Studies* 41(4): 507–31.
- Coopers and Lybrand Co. 1988). 'Re-organization Study of the Water and Sanitation Sector in Zambia'. Final Report. Sponsored by the Government of the Republic of Zambia, the United Nations Development Programme and the World Bank. Lusaka: Government of the Republic of Zambia.
- Dagdeviren, H. (2006) 'Re-visiting Privatization in the Context of Poverty Alleviation: The Case of Sudan', *Journal of International Development* 18(3): 469– 89.
- Estache, A., S. Perelman and Trujillo L. (2005) 'Infrastructure Performance and Reform in Developing and Transition Economies: Evidence from a Survey of Productivity Measures'. Policy Research Working Paper 3514 (February). Washington, DC: The World Bank.
- Gikuhi, R. 2005. An MBA thesis on Commercialization Process, A case study of Nyeri Municipal Council.
- GoK (1999) *Sessional Paper No. 1 on Water management*, Nairobi.
- GoK (1986) *Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth*. Nairobi: Government Printer.
- GoK (1997) *Economic Surveys*, Central Bureau of Statistics. Nairobi.
- GoK (1999) *Sessional Paper No. 1 of 1999 on National Policy on Water Resources Management and Development*. Nairobi: Government Printer.



GoK (1999) *Sessional Paper No. 1 on Water management*, Nairobi.

GoK (2006) *The National Water Resources Management Strategy (NWRMS) (2006-2008)*. Nairobi: Ministry of Water and Irrigation. Kenya, Government of (2002), *The Water Act 2002*. Nairobi: Government Printer.

Hall, D. and E. Lobina (2004) 'Private and Public Interests in Water and Energy', *Natural Resources Forum* 28: 268–77.

Kerf, M. (2000) 'Do State Holding Companies Facilitate Private Participation in the Water Sector?' Policy Research Working Paper 2513. World Bank, Private Sector Development, Washington, D.C.

Kessides, I.N. (2004) *Reforming Infrastructure: Privatization, Regulation, and Competition*. Oxford and New York: Oxford University Press for the World Bank.

Kirkpatrick, C. and D. Parker 2006. 'Domestic Regulation and the WTO: The Case of Water Services in Developing Countries', *World Economy* 28(10): 1491–1508.

Kirkpatrick, C., D. Parker and Yin-Fang Zhang (2006) 'An Empirical Analysis of State and Private Sector Provision of Water Services in Africa', *The World Bank Economic Review* 20(1): 143–63.

Lobina, E. 2005. 'Problems with Private Water Concessions: A Review of Experiences and Analysis of Dynamics', *Water Resources Development* 21(1): 55–87.

Lotz, J.1995, Kenya German Water management Group, Unpublished GTZ Reports, Nairobi.

Martimort, D. 2006. 'An Agency Perspective on the Costs and Benefits of Privatization', *Journal of Regulatory Economics* 30: 5–44.

McDonald and J. Pape (eds) *Cost Recovery and the Crisis of Service Delivery in South Africa*, pp.

17–40. London: Zed Books; Cape Town: HSRC Publishers.

McDonald, D.A. 2002. 'The Theory and Practice of Cost Recovery in South Africa', in D.A.

McDougal, A. Neil. 1995. *Improvement of Local Authority water and sanitation services*. GTZ, MOLG and UWASAM , Nairobi

Menard, C. and G. Clarke, 2000. 'A Transitory Regime: Water Supply in Conakry, Guinea' Policy Research Working Paper 2362. World Bank, Development Research Group, Washington, D.C., June 2000

Mugenda, O. and Mugenda,A. 2003. *Research Methods, Quantitative and Qualitative Approaches*, Acts Press, Nairobi.

Muriuki,E. W. McDough, N.A. Milgo and Macharia, M. 1986. Proposed Institutional Reform for water and sanitation Services in water undertaking Local Authorities. A report to the Permanent Secretary , Ministry of Local government , Nairobi.

MWI (Ministry of Water and Irrigation), 2005. Handbook on Water Sector Reforms, WSRS-MWI.

MWI, 1992. National Water Master Plan Study, Ministry of Water and Irrigation, Nairobi Kenya (Ministry of Water and Irrigation), 2005 . Handbook on Water Sector Reforms, WSRS-MWI.

MWI, 1992. National Water Master Plan Study, Ministry of Water and Irrigation, Nairobi Kenya (Ministry of Water and Irrigation), 2005 . Handbook on Water Sector Reforms, WSRS-MWI.

MWI, 1992. National Water Master Plan Study, Ministry of Water and Irrigation, Nairobi Kenya (Ministry of Water and Irrigation), 2005 . Handbook on Water Sector Reforms, WSRS-MWI.

MWI, 1992. National Water Master Plan Study, Ministry of Water and Irrigation, Nairobi Kenya (Ministry of Water and Irrigation), 2005 . Handbook on Water Sector Re



Hall.

WHO/UNICEF, 2000. Global Water Supply and Sanitation Assessment 2000 report, Geneva

World Bank, 2005. *World Development Indicators*. Online Database.  
<http://devdata.worldbank.org/wdi2005/Cover.htm>

## Appendix I: Research Questionnaire

### Financial performance

1. Give the following details in term of financial performance of the company for the past three (3) years. Give the ratios in terms of percentage change.

<b>Ratio</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>
Metering ratio			
Remuneration increment ratio			
Cost recovery ratio			
Un- accounted for water			
Billing efficiency			
Revenue collection efficiency			
Debt management ratio			
Profitability ratio			

2. In your opinion, how has the water service provider performed in terms of the following.

Tick where appropriate

<b>Aspects</b>	<b>No change</b>	<b>Slight Improvement</b>	<b>Great Improvement</b>
Maintenance of water mains			
Payment of staff			
Water supply network			
Provision of working facilities			
Debt payment			
Procurement of goods and services			