MAKERERE UNIVERSITY

MAKERERE UNIVERSITY BUSINESS SCHOOL

DEBTORS' MANAGEMENT, WATER LOSS MANAGEMENT AND FINANCIAL PERFORMANCE OF NATIONAL WATER AND SEWERAGE CORPORATION IN THE SOUTHWESTERN REGION OF UGANDA

BY
OLUKA FRANCIS
2017/HD10/1982U
TEL: 0775759927

A RESEARCH DISSERTATION SUBMITTED TO FACULTY OF GRADUATE STUDIESAND RESEARCH OF MAKERERE UNIVERSITY BUSINESS SCHOOLIN PARTIAL FULFILLMENT OF THE REQUIREMENT FORTHE AWARD OF THE DEGREE OF MASTER OFBUSINESS ADMINISTRATIONOF MAKERERE UNIVERSITY

PLAN A

MARCH, 2021

DECLARATION

I Francis Oluka, declare that this work is of my own efforts and has never been submitted for any award to this University or any other institution of higher learning.

Signed.....Date 01 / 03 / 2021

Francis Oluka

2017/HD10/1982U

Email: Olukafrancis12@gmail.com

APPROVAL

This is to certify that this dissertation has been submitted in partial fulfillment of the requirements for the award of a Master's Degree of Business Administration with our approval as university supervisors.

Signature.....

Dr. Richard Akisimire (PhD)

Date..... 01/03/2021 .....

Signature.....

Mrs. Diana Kyomuhangi

Date..... 03/03/2021 .....

DEDICATION

This research work is dedicated to my dear parents Mr.OfumbiSauloand Mrs. Esther Ofumbi for laying a strong foundation to my life, to all my family members both nuclear and extended. I am humbled to have you all.

ACKNOWLEDGEMENT

First of all, I thank the Almighty God, the Most Gracious and the Most Merciful, Who gave me the courage and patience to achieve this milestone. My deepest appreciation and thanks go to my supervisors Dr. Richard Akisimire(Ph.D) and Mrs.DianaKyomuhangi for their constructive suggestions, right criticisms and guidance that helped me stay focused on finishing this research work on time. I am forever indebted to you.

My heartfelt gratitude goes to the Principal and Management of Makerere University Business School for admitting me to pursue this Master's Degree program. I also thank the Director and colleagues at the MUBS Mbarara Regional campus for being supportive during this period. I am indebted to my wifeMrs. Awori Esther, the children Precious, Peace, and Jerry for the moral and financial support given to me throughout my academic journey. God bless you richly. My deepest and sincere gratitude goes to my siblings Lameck, Grace, Wilberforce, Dorothy, Loy and Susan, my nephews Stephen, Mercy and Milly for their prayers and encouragement. I am hopeful that this work and degree will pay for all their sacrifices.

Special thanks to my dear friends Henry, Patrick, Paul, Richard, Christine, Robert and Zainab for the advice, encouragement and support. I also thank the staff of NWSC of south western region for giving me the necessary information that I needed during my research and the management team for sparing their little time to fill my questionnaires.

Finally, I want to thank everyone who participated towards the accomplishment of this research work especially my classmates.

LIST OF ABBREVIATIONS

ACP	Average Collection Period
AROA	Average Return on Assets
AWWA	America Water Works Association
CVI	Content Validity Index
ML	Militres
MVA	Missing Value Analysis
NRW	Non-Revenue Water
NWSC	National Water and Sewerage Cooperation
ROA	Return on Assets
ROI	Return on Investment
RPM	Research for Planning and Marketing
SPSS	Statistical Package for Social Scientists
VIF	Variance Inflation Factor

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

The study sought to establish the relationship between debtors' management, water loss management and financial performance of NWSC in the South Western Region of Uganda. The study adopted across sectional and correlation quantitative design using 97 respondents that were drawn from a population of 130 employees. The sample size was determined using Krejcie and Morgan Tables (1970). The data were tested for reliability and validity, analyzed using SPSS version 21 and results presented based on the study objectives.The correlation coefficient analysis revealed positive and significant relationships between debtors' management, water loss management and financial performance of NWSC which implies that when one variable is improved it leads to improvement of the other. Furthermore, the hierarchical regression analysis indicates that debtors' management combined with water loss management have a greater predictive potential on the financial performance (Adj R^2 of 0.380). However, it was further revealed that debtors' management has a more direct effect on the financial performance based on the individual contribution (R Square Change 0.262). Therefore it's worth recommending that the management of NWSC should train all her commercial and technical field staff to ensure that they have the required knowledge, skills and abilities in debtors and water loss management to ensure that the best quality management mental solutions are effectively and efficiently employed to improve on financial performance.The managers and staffshould build a strong relationship between the debtors and themselves by creating a strong trust and ensuring that clear and well explained procedures are maintained since this will increase on the compliance and it will turn improve on the financial position of the organization. There is need to conduct further study basing on a longitudinal design and a quantitative approach.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

World over, the provision of Water and Sanitation services is intrinsically related to the sustainable development of every economy (Dahan and Kashiwase, 2016). Water lies at the heart of humanity's social and economic transformations (Agnew and Woodhouse, 2010). Therefore, there is need for sustainable water management entities in every country to adequately provide such a resource. In Uganda, this mandate was entrusted to the National Water and Sewerage Corporation (NWSC), a state-owned utility that was established under the NWSC Act, Cap 317 (2000). The objective of the Corporation is to operate and provide water and sewerage services in areas entrusted to it under the Water Act, Cap 152 (2000).Indeed, one of the requirements for the NWSC to fulfill its mandate is provision of water supply and sewerage services on a sound commercial and financially viable basis. This implies that its financial performance must remain stable since it is paramount to sustainability.

Besides, Financial performance principally reflects business sector outcomes and its results show overall financial health of the sector over a specific period of time (Naz, Ijaz, & Naqvi, 2016). It therefore indicates how well an entity is utilizing its resources to maximize the shareholders wealth and profitability. This can be evaluated using various metrics such as Return on Investment (ROI), Return on Assets (ROA) and Average Return on Assets (AROA) among others (Nyangoma, 2012; Opanga, 2013 and Gatuhu, 2013). The NWSC has for overtime recorded an increasing trend in its financial performance but has consistently fallen short of its set targets. The corporation has not met its performance targets for revenues and profits in the last two financial years (NWSC performance report, 2017/2018). Existing studies have linked financial performance to debtors

andwater loss management, though not in isolation. For example, studies by Addaney, Awuah, & Afriyie, (2017) indicate that debtors management affects firm financial performance. Moreover, studies by Dong & Su, (2010)indicate that a firm's profitability and liquidity are influenced by its debtors management strategies. Similarly, the works of Mburugu and Gekara (2016) indicate that there is a relationship between debtors' management and firm financial performance and this is in agreement with works of Madegwa et al (2018), Kondo (2013) and Osoro et al. (2013).Moreover, theories such as the Operating Cycle Theory and the Cash Conversion Theory have also been used in previous studies to explain the relationships between debtors' management practices and organizational financial performance. Hence this study will adopt the two theories to explain the relationships between the variables.

With the consistent trend of the corporation falling below its financial targets, the researcher suspects that this perhaps could be attributed to poor debtor's management and water loss management gaps. Besides, extant literature has tended to partly associate financial performance of waterutilitycompanies to debtors and water loss management. Moreover, there is limited research explaining the same in NWSC Uganda and specifically to the NWSC branches operating in the South Western region. This therefore motivated the researcher to conduct this study.

1.2 Statement of the Problem

Although the NWSC has recorded an increasing trend in its financial performance over time, it has continuously fallen short of its set financial targets according to existing reports. In the financial year 2013/2014, it generated revenue of 88.1b against a target of 94.4b, profit after tax was 20.8b against a target of 21.6b and there was also a shortfall in the current assets by 4.1b (NWSC performance report, 2014). In the financial year 2017/2018, the target turnover was 390b against the actual of 387.8b while profit after tax target was 77.27b against the actual of 60.59b.

This phenomenon has not been explained by the existing literature and remains a problem that needs attention ifNWSC is to achieve good performance. Moreover, previous studies such as those conducted byAddaney (2016) and Kondo (2013) indicate that debtor's management and water loss management are key factors towards financial performance of a water utility company but they don't explain the same case in the context NWSC here in Uganda. Besides, there is limited research that has been carried out in Uganda to explore the causes of the declining financial performance of NWSC. The researcher therefore intends to investigate this matter in the context of NWSC Uganda, using NWSC branches operating in the South Western Region to contribute on bridging the gap.

1.3 Purpose of the Study

The purpose of the study was to examine the relationship between debtors' management, water loss management and financial performance of NWSC in the South Western Region of Uganda

1.4 Specific Objectives of the Study

i. To establish the relationship between debtors management and financial performance of NWSC in the South Western Region of Uganda
ii. To establish the relationship between water loss management and financial performance of NWSC in the South Western Region of Uganda
iii. To establish the combined relationship between debtors management andwater loss management with financial performance of NWSC in the South Western Region of Uganda

1.5 Specific Research Questions

i. What is the relationship between debtors' management and financial performance of NWSC in the South Western Region of Uganda?

ii. What is the relationship between water loss management and financial performance of NWSC in the South Western Region of Uganda?

iii. What is the combined relationship between debtors' managementandwater loss management with financial performance of NWSC in the South Western Region of Uganda?

1.6 Scope of the Study

1.6.1 Content Scope

The study was toinvestigatetherelationship betweendebtor's management, water loss management and the financial performance of NWSC in the South Western Region of Uganda. In breaking down this concept, three issues became of great concern to the researcher. First, debtor's management as an independent variable was viewed in terms of debt collection, debt age analysis and disconnection notices given. Secondly, water loss management also as an independent variable was viewed in terms of illegal connections control, accuracy in meter readings and leakages & bursts detection. Finally, financial performance as a dependent variable was viewed in terms of profitability, revenue growth and liquidity.

1.6.2 Geographical Scope

The study was based on the National Water & Sewerage Corporation operational areas in the South Western towns of Lyantonde, Rushere, Mbarara, Bushenyi, Kamwenge, Ntungamo, Ruhama, Rukungiri, Kabale and Kisoro.

1.6.3 Time Scope

The studycovereda time scope of one year since it focused on events happening in a point of time using a cross-sectional design. This time period was chosen because the time period given for

study is one year which calls for cross-sectional design which allows collection of data at one point in time

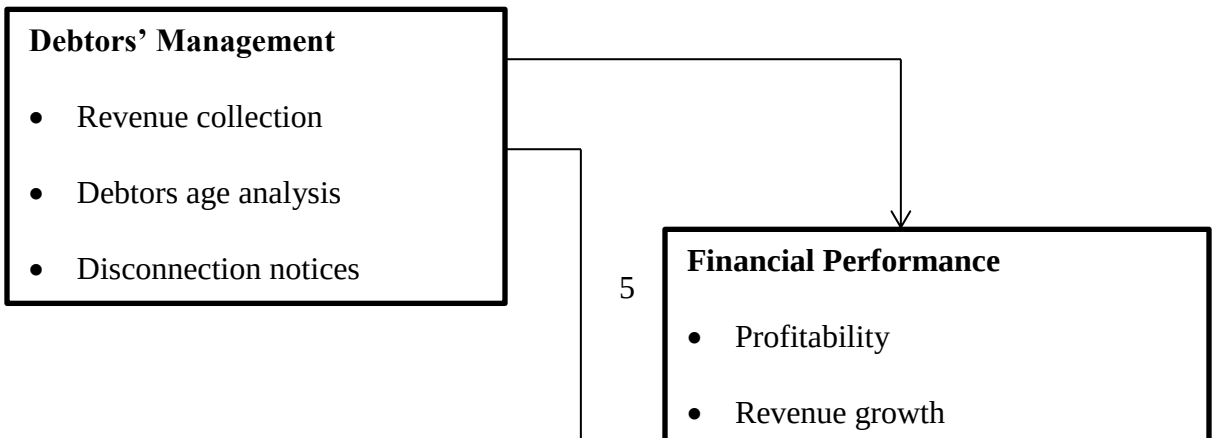
1.7 Significance of the Study

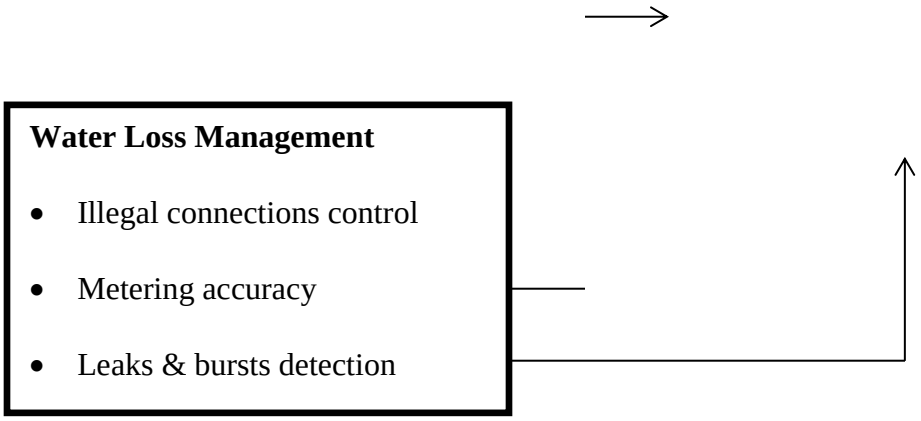
i. The findings of the study will give an understanding to the management of NWSC on how debtors management and water loss management impact on the financial performance of NWSC

ii. The findings of the study will be of significant help to the government, management consultants, academicians and researchers as a source of knowledge and this will be further important to policy makers, private water management organizations as they design debtors and water loss management policies aimed at enhancing financial performance

iii. Academicians who wish to undertake further research on debtor's management, water loss management and financial performance will also find the literature arising from this study to be of great value.

1.8 Conceptual Framework





Source: Developed by the researcher from reviewing past literature on this study: Mutikanga (2012), Mburugu and Gekara (2016), Nyangoma (2012)

The conceptual framework above shows debtor's management and water loss management are independent variables while financial performance is the dependent variable. Good debtor's management practices such as timely collection of revenues, aging of debtor's and timely issuance of disconnection notices lead to improved financial performance. Similarly, well managed water losses such as controlling illegal connections, accurate metering and timely detection of leaks and pipe bursts save costs and improve the financial performance of an organization, and the reverse is true. Debtor's management will be measured in terms of existing revenue collection strategies at NWSC, debt age analysis and issuing disconnection notices to customers who delay to pay their bills. On the other hand, water loss management will be measured in terms of existing controls towards illegal connections, accuracy in the metering as well as the detection of leaks and bursts in the piping system. Finally, financial performance will be measured by profitability, revenue growth and liquidity.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section involves an extensive review of the works of various scholars with specific emphasis on debtors' management, water loss management and financial performance of NWSC in the South Western Region of Uganda. The relationships between the variables are also explored as per various scholars.

2.1 Theoretical Literature Review

2.1.1 Operating Cycle Theory

The Operating Cycle Theory was advanced by Groth(1992). This theory looks explicitly at current assets of which, debtor's is a major component and gives income statement measures of a firm's operating activities which includes production, distribution and collection. Debtors for instance are directly affected by the credit management policy of an organization and the frequency of converting these debtors into cash differ from one industry to another (Mugo, 2014). For instance, a liberal credit policy will increase the profitability of a firm at the expense of liquidity hence the need for tight balancing. The operating cycle theory is one of the very important theories in debtor'smanagement. It measures the efficiency of debtor's management strategies and takes into cognizance the debtors related to working capital. The cycle traditionally commences from the receipt of raw materials to the collection of cash from debtors of the stock sales produced from those raw materials (Sugathadasa, 2018).

The traditional approach of relying on current or acid-test ratios as solvency indicators is quite defective compared to the operating cycle approach of relying on current or compared to the operating cycle approach where debtors and inventory turnover measures are incorporated as useful in liquidity management. This is quite clear because Average Collection Period (ACP) as a proxy for firms average debtors investment is converted to cash. One critical aspect to note is that

changes in collection and credit policy have a direct effect on the balance of debtors outstanding, in relation to annual firm`s sales (Richard & Laughlin, 1980). According to operating cycle theory, when firms grants more liberal credit terms to its customers there is a higher tendency of having a bigger, but ultimately less liquid investment in cycle (that is, the inventory turnover);this shows the number of times with which business firms converts the totality of their raw materials stock, their work-in-progress and ultimately the finished goods into product sales.

Understanding an organizations operating cycle therefore helps the firm to effectively and efficiently collect from its debtors by applying various strategies and this would enhance its financial performance. This theory will therefore inform the study by checking the NWSC operating cycle, looking at the different strategies used in debtor's management in the aspect of revenue collection, analysis of the age of the debtors as well as management of its disconnections (Sweetman, 2000).

2.2 The Cash Conversion Cycle Theory

The Cash Conversion Cycle theory approach was developed by Richards and Laughlin in 1980. In their work, the duo saw the need to have a critical look at working capital management and its individual components. They felt that although a substantial portion of financial manager`s time is spent on decision relating to short-term assets and liabilities, little attention has been given by most of the literature and researchers in this direction (Oseifuah, 2016). Accordingly, they describe the debtors, inventories and payables as the constituents of the cash conversion cycle model.

The theory of the cash conversion cycle centers on explaining a cycle that begins from the payment for the purchase of raw materials, through to its transformation and the emergence of new product, to the collection of receivables from the buyers and possible debtors of the interaction as a result

of the stock sale (Wang, 2017). Undoubtedly, financial managers and all related financial analysts appreciate at least at an intuitive level that all working capital investments do not have the same life expectancy, and their transformation rate to usable flows of liquidity is always not at the same speed (Richard & Laughlin, 1980).

Therefore, in the overall, one can conveniently say that the cash conversion cycle theory is the most central one in explaining debtor's management as it is concerned with all the concepts and components, ranging from raw materials to finished products, and outputs representing inventory levels, to receivables and payment representing the cash aspect. This theory will form the study in a sense that having an effective cash conversion cycle would tackle the question of debtor's management in terms of revenue collected and age of debtors which would boost the liquidity levels of the firm and generally the financial performance (Panigrahi, 2013).

2.3 Empirical Literature Review

2.3.1 The Concept of Financial Performance

The financial performance of an organizations is a general measure of a firm's overall financial health over a given period of time (Nyangoma, 2012). It can be reflected in the firm's profitability measured by different metrics such as Return on Investment (ROI), Return on Assets (ROA) and Average Return on Assets (AROA). Maintaining optimal liquidity demonstrates that there are economies of scale associated with the cash levels required to confront the normal transactions of the firm. Revenue growth is often used as a measure of performance and it is argued that if revenues increase, profits will eventually follow. Information on financial performance is useful in predicting the capacity of the enterprise (Opanga, 2013).According to the Institute of Cooperate finance (2018), Return on Investment (ROI) is a financial performance measure used to evaluate the efficiency of an investment or compare the efficiency of a number of different investments.

ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost. ROI is a popular metric used as a measure of a company's profitability.

Liquidity is important in the proper functioning of financial markets and the business sector(Hiadlovský, et al., 2016). Before the financial crisis, financial intermediaries were stable as funding was readily available and at low cost. The rapid reversal in market conditions illustrated how quickly liquidity can evaporate, and that illiquidity can reserve already earned profits as financial institutions and businesses are either forced to sell assets well below their market value or borrow at interest rates charges above their weighted return on assets(Marozva, 2015). Though insufficient liquidity is one of the major reasons for bank failures, holding liquid assets has an opportunity cost of higher returns. The liquidity crisis significantly affected banks' operational environment. In response to the catastrophe, financial bodies such as the Basel Committee for bank supervision advocated for the active management of liquidity risk. Liquidity and profitability are inversely related, when liquidity increases profitability decreases and vice versa while on the other hand, there is a direct relationship between higher risk and higher return, hence the dilemma in liquidity management is finding a balance between liquidity and profitability(Adler 2012).

Revenue growth from sales does not always mean more profit. Revenue is only part of the story. Revenue minus expenses equals profit. A business must keep their costs as low as possible to make sure it is maximizing its profits (Rwakakamba, 2011). Revenue growth management is an important approach to optimizing a company's sales and marketing interactions with potential buyers across a revenue cycle by transforming their approach to people, processes, and technology. Done correctly, it can have a hugely positive effect on marketing ROI and result in considerable top-line growth (Hansen &Mowen, 2005). A data-intensive approach, RPM requires collecting and analyzing huge amounts of data to learn about your approach to sales and marketing drives or

impedes revenue. Implementing revenue performance management typically leads to alterations to the tools used by your teams and improvement in communication between them.

2.3.2 Debtors Management and Financial Performance

All organizations need capital to run their operations (Pasban&Nojedeh, 2016). Generating capital through debtor's management systems has become a necessity for the growth of every organization (citation).According to the Investment Hand book (2010), advances that debt is the amount of monies incurred during a business period which payable to the organization is providing goods and services. Aspen Law and Business book depository defines debt as an amount owed to a person or organization for funds borrowed or for goods sold on credit. For the purposes of this study, debt is defined as any amount due to any organization for which payment has not been effected.Addaney (2016) argues that debtor management is any approach that is adopted to guide an individual or business organization to manage its debtors. This definition includes debt recovery, bankruptcy, debtor's consolidation as well as other techniques that assist businesses to collect from outstanding debtors.

Debtor's management is an act of trying to get one's debtors under control and become responsible for repaying associated obligations (Addaney, 2016). It can therefore be inferred that debtors management is a conscious measure taken by an organization or agents hired on their behalf to reduce the debtors burden or strategize to eliminate the debtors through acceptable payment terms. (Cecchetti et al. (2011) observe that a reasonable debtor's level improves welfare and enhances growth but high level debtors can lead to a decline in growth of a firm.

Reinhart (2015) reinforces this assertion by arguing that properly managed debtors impact positively to the performance of a firm only when it is within certain levels. He opines that an organization becomes vulnerable to financial crisis when the ratio goes beyond certain levels. Stern

Stewart and Company shares a similar view that high level of debtors increases the probability of an organization facing financial distress (Addane,et al., 2016). Specifically, on the nexus between debtor management and performance of organizations, the findings from the literature analysis show that debtor's management plays an important role in any organization (Wekesa, 2018). Thus prudent debtor's management ensures that organizations are able to improve their performance. A similar study by Dong & Su (2010) concluded that a firm's profitability and liquidity are influenced by its debtor management practices.

2.3.3 Water Loss Management and Financial Performance

A well-established water loss management system improves the financial performance of any water management company (Souzaa&Silva, 2013). This is mainly because it saves the company from unnecessary revenue loss through the lost water. According to Kingdom et al. (2006), about 30000ML of water is delivered to customers in the developing countries per day, but is not paid for because of water theft, employee's corruption and poor metering practices. They estimate that about US$3billion of revenue is lost per year in the developing countries due to commercial losses. They go on to conclude that the financial viability of water utilities in developing countries is constrained as a result and this hampers necessary service expansions especially for the poor (United Nations, 2009). This clearly demonstrates that a well-established and functioning system of managing water loss would improve the financial viability of a utility company which justifies that there is a positive relationship between water loss management and financial performance.

2.3.4Debtors Management, Water Loss Management and Financial Performance

Debtor's management is the method by which you collect and control the payments from your customers. Gatuhu (2013) describe credit management as methods and strategies adopted by a firm to ensure that they maintain an optimal level of credit and its effective management. It is an aspect

of financial management involving credit analysis, credit rating, credit classification and credit reporting. A proper credit management will lower the capital that is locked with the debtors, and also reduces the possibility of getting into bad debts.

Effective management of accounts receivables involves designing and documenting a credit policy. A sound credit policy is the blueprint for how the company communicates with and treats its most valuable asset, the customers.Mwangi (2013) proposes that a credit policy creates a common set of goals for the organization and recognizes the credit and collection department as an important contributor to the organization's strategies.Thewater service providers lose considerable quantity of water on a daily basis caused by water leakages during pumping, storage, transmission in the main pipes or in distribution networks, thefts or illegal connections and metering inaccuracies. On the other hand, water service providers may not count, or bill, the quantity consumed by particular entities; such as government and public utilities.

Therefore, the total of non-revenue water can be viewed as the aggregate of leakages, illegal connections, metering inaccuracies, and unbilled consumption (Makaya, 2016). This leads to a reduction in the expected water sales for the service providers and increasing the water production quantities to cover the lost volume. From a financial point of view, the quantities of non-revenue negatively affect water service providers on three scales. They reduce the operating revenue, increase the cost of production, operations and maintenance and increase investment provisions and budget allocation for capital expenditures as additional amount have to be spent on investment in facilities which all affect the financial performance of the service provider.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This section presents the research methods that were used to carry out the study. It covers the research design, study population, sampling design, data collection methods, measurement of variables, reliability and validity tests, data analysis & tests and anticipated limitations.

3.1 Research Design

The researcher used a cross-sectional research design. This is a type of design where data is collected at one point in time. For this study, the researcher followed the cross-sectional research design because the design provides a snapshot of the distribution of factors and outcomes in the population at a specified period of time and the prevalence of the specific factors and outcomes that can be calculated for the population and the levels of exposure to factors and outcome status can be easily compared (Kothari 2014). The researcher adopted the quantitative approach. This is a kind of approach that enables researchers to express their findings in numeric terms. This approach was adopted because the research objectives were accurately answered following the quantitative approach

3.2 Study Population

The target population under study was from 10 NWSC offices situated in the South Western Region of Uganda. These were considered because they are deemed to possess adequate information about the variables under study. According to NWSC, there are 10 main water offices in the South Western region and on average, the researcher targeted 13respondents from different sections of each main office, making a target study population of 130 respondents.

The unit of analysis was National Water and Sewerage Corporation (NWSC) branches in south western Uganda while unit of inquiry was the different employees in the categories of commercial officers, accounts and finance officers, billing officers, area engineers, area managers and branch managers.

3.4.1 Primary Data

Primary data was obtained from employees of NWSC in the categories of Area Managers, Branch Managers, area engineers, Commercial Officers, Accounts & Finance and Billing officers, who filledinthe questionnaires administered to them.

3.5 Data Collection Instrument

The key data collection instrument that was usedis a self-administered questionnaire. The questionnaire was used in light of the fact that the data was gathered from a large sample in a brief time frame since the respondents were able to read and compose (Bill, 2011). The questionnaire comprised of closed-ended questions purely structured in nature whose variables were measured on a 5-point Likert scale (5 strongly Agree, 4 Agree, 3 Not sure, 2 Disagree and 1 strongly Disagree) in order to gather the different perceptions and views of the respondents to answer the questionnaire.

3.6 Measurement of Variables

As explained in the conceptual framework, the independent variables were debtor's management and water loss management while the dependent variable was financial performance. These variables were measured using factors drawn from existing literature and theories. All the constructs and sub constructs were anchored on a 5 point Likert scale ranging from 1= Strongly Disagree to 5 = Strongly Agree. The respondents were required to indicate the extent to which they are in agreement with the prescribed items using their perceptions.

Table 3.1:**Measurement of Variables**

Concept	Definition	Author (s)
Debtors Management	The methods by which NWSC collects and controls its debtors in terms of revenue collection, debt age analysis and disconnection notices.	Kariuki, 2010; Byusa and Nkusi, 2012; Addaney, 2016
Water Loss Management	The way in which NWSC manages the quantity of water difference between its supply and consumption throughout the distribution system in terms of controlling illegal connections, managing the metering accuracy and detecting of leaks and bursts.	Mutikanga, 2012; Water Board, 2019; Souzaa and Silva, 2013
Financial Performance	The general measure of NWSC's overall financial health over a given period of time in terms of Profitability, Revenue growth and Liquidity.	Thomas, 2007; Nyangoma, 2012; Opanga, 2013

Source: Secondary Data, 2019

3.7 Reliability Tests

Reliability assesses the extent to which the factors in a questionnaire generate consistent responses over several trials with different populations in the same setting or circumstances (Miles &Huberman, 1994).Reliability test indicates the extent to which the questionnaire was without bias or error free, and hence ensures consistent measurement across time and across the various factors in the questionnaire. In this study, Cronbach's alpha coefficient was employed to determine the internal consistency of the 5-point scale used to measure the items of the study variables

(Cronbach, 1951). According to Field (2006), a certain number of items that were found to affect the reliability of the scales were deleted to improve the reliability. According to Sekaran (2003), some professionals as a rule of thumb, require a reliability of 0.70 or higher (obtained on a substantial sample) before they use an instrument. Upon performing the test, the results that were 0.7 and above were considered reliable.

3.8 Validity Tests

Validity is the extent to which research instruments measure what they are intended to measure (Saunders et al., 2003). According to Sekaran (2000), content validity test ensures that the measures include an adequate and representative set of items that tap the concept. The more the scale items represent the domain of the concept being measured, the greater the content validity. The test was conducted at the questionnaire development stage where the draft questionnaire was given to four different experts (2 academicians and 2 practitioners) to assess the appropriateness of the items to capture the study variables. Validity was determined using Content Validity Index (CVI).

$$\text{CVI} = \frac{\text{Number of items rated relevant}}{\text{Total number of items}} \times 100\%$$

As recommended by Saunders et al. (2003), for the instrument to be valid, the CVI should be at least 0.7

Table 3.2:Validity and reliability results

Variable	CVIs	Cronbach's Alpha	No of Items
Debt management	0.874	0.854	30
Water Loss Management	0.965	0.857	30
Financial Performance	0.774	0.951	30

Source: Primary Data, 2020

3.9 Data Processing, Analysis and Presentation and diagnostic tests

Data processing: from the field, data to verify, organize, transformed and extract data in an appropriate output form ready for analysis. This involved Tabulating, sorting, editing, classifying and coding. In addition, this step involved checking for missing values and outliersand then after,

Data analysis techniques adopted included Pearson's correlation and Hierarchical regression.

Pearson's Correlation analysis was conducted to measure the strength of linear associations between the study variables and is denoted by r. The Pearson correlation coefficient, *r*, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association; that is, as the value of one variable increases, so does the value of the other variable. A value less than 0 indicates a negative association; that is, as the value of one variable increases, the value of the other variable decreases. The study variables were measured on a continuous scale, and thus Pearson correlation was found to the most appropriate to test the relationships between the variables.

Hierarchical regression analysis was used to determine the predictive power of the separate variables on the dependent variable (financial performance).

Detection of Outliers

Outliers are values that are out of the range compared to the measurement scale (Ong and Puteh, 2017). An outlier check was conducted using minimum and maximum frequency counts, means and scatter plots. A few identified outliers were due to data entry error and they were traced and corrected.

Missing Value Analysis (MVA)

Data can be missing at the point of questionnaire filling or data entryand if not handled, it distorts the analysis and results. MVA helps address several concerns caused by incomplete data (Ong and Puteh, 2017). Thus, MVA in this study was performed to establish whether there was any missing value and the respective magnitude of how data was missing and deciding how to deal with the missing values. Also, missing data may reduce the precision of calculated statistics because there is less information than originally planned.

After running descriptive statistics, the missing data were identified, and it was established that the omissions were made by respondents and not at data entry point. It was further established that the missing data constituted less than 1% of the data; and thus, considered too small and could not suppress the standard deviation (Field, 2009). Nonetheless, the missing data were replaced using the linear interpolation method. The cleaned data was summarized and converted into frequencies and percentages using the category system. The researcher then used Statistical Package for Social Scientists to (SPSS), version 26, to analyze the data collected. The data analyzed was presented using frequency distribution tables for easy interpretation. Pearson's Correlation Coefficients was run to establish the relationship among the study variables as set in the objectives.

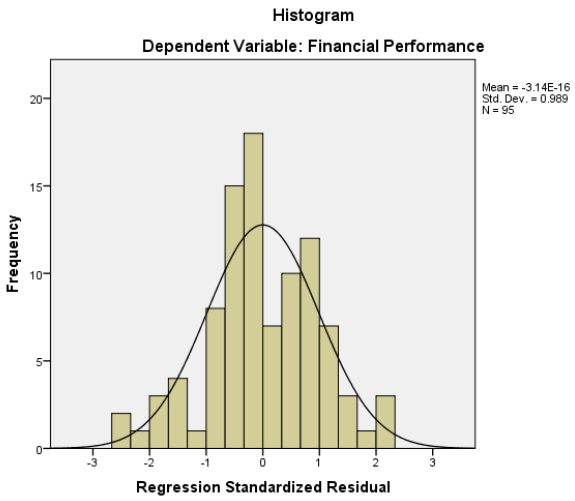
Tests for Parametric Assumptions

The conceptualization of this study coupled with the methodology adopted calls for diagnostic tests such as correlation and regression. This meant that the data had to be tested to see where they meet the assumptions for parametric tests. Specifically, normality, linearity and homogeneity were tested. This was done using statistical and/or graphical approaches as detailed below.

Normality Assumption Test

A normality test was conducted to determine whether the distribution of the data deviates from a comparable normal distribution. Tabachnick and Fidell (2001) recommend inspecting the shape of the distribution (e.g. using a histogram). Thus, graphically, normality in this study was tested using histograms. A bell-shaped histogram indicates that data is normally distributed. The results in this study reveal a fairly bell-shaped histogram, thus upholding the normality assumption.

Figure 4.1: Histogram showing results on normality test

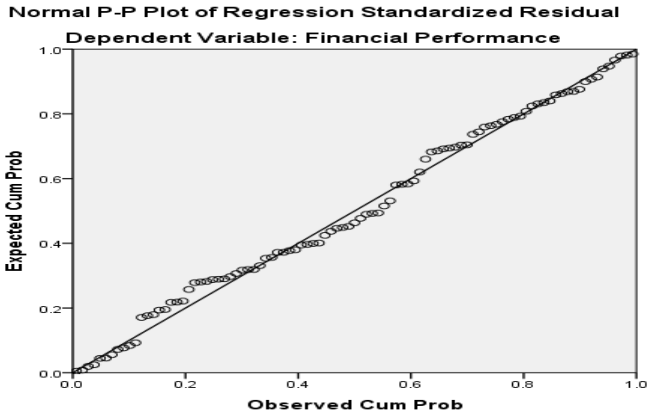


Source: Primary data

Linearity Assumption Test

Linearity refers to the presence of a straight-line relationship between two variables. Graphically, linear data is obtained when the scores are seen to be in the form of fairly straight line, not a curve. A normal probability plot (normal Q-Q plot) was used in this study to plot the residual against the predicted scores. The results in fig 3 revealed a fairly straight line thus the data passed the linear assumption test.

Figure 4.2: Normal Q-Q plot showing results on linearity test

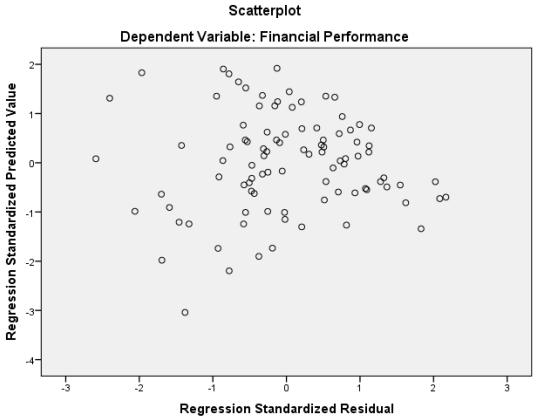


Source: Primary data

Homogeneity Assumption Test

Data is said to be homogeneous if the variance of one variable is stable at all levels of the other variables (Field, 2009). Graphically, a scatter plot was drawn plotting the residual against the dependent variable. The results of the scatter plot (figure 4) shows that the points are dispersed around zero and there is no other clear trend in the distribution; an indication that homogeneity assumption was met.

Figure 4.3: Scatterplot showing results on homogeneity test



Source: Primary data

Multicollinearity

Multicollinearity exists if the regressors correlate highly when regressed against each other. A collinearity diagnostic test under regression analysis was utilized. Under this procedure, two values are given, the tolerance and the variance inflation factor (VIF). The tolerance value is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model. The VIF is the inverse of the tolerance value. Basing on the tolerance figures, various scholars indicate different cut off points for the accept/reject standard. According to Menard (1995), if the tolerance values are below .2, that shows the existence of multicollinearity. While VIF values above 10 indicate serious concern (Myers, 1990; Bowwerman& O'Connell, 1990). The results in this study reveal tolerance values one (1). This is supported by VIF values below 10, therefore implying non-multicollinearity among the variables, and thus the assumption was met (tolerance value above .2 and VIF below 10). And based on the results below, there is collinearity among independent variables

	Collinearity Statistics	
Variables	***Tolerance***	***VIF***
Debtors Management	1.000	1.000
Water Loss Management	1.000	1.000

3.10 Ethical Considerations

The researcher acquired an introduction letter from the University together with the identity card presented to the organizations under study as well as the respondents. Assurance was made to management and staff that the information needed was for academic purposes and would be handled with confidentiality. The assent issue was resolved by obtaining an informed consent informing target respondents of the purpose of the study, the expected participation from them and any other information about the research that they would want to know. Confidentiality of the respondents was paramount except in the case where they would give permission to be cited in the study.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter covers the data analysis performed, their presentation and interpretation. It focused on establishing the relationship between debtors' management, water loss management and financial performance of NWSC in the South Western Region of Uganda.

4.1 Demographic Characteristics of Respondents

Demographic characteristics captures data on respondents by gender, age group, level of education, among others.Demographic characteristicswere important to determine the respondents' ability to participate in the study and provide valid and reliable data. The results are presented as follows:

Distribution by Gender of the Respondents

The gender of the respondents was distributed as indicated in table 4.1

Table 4.1: Gender of the respondents

Item	***Frequency***	***Percent***
Male	57	60.0
Female	38	40.0
Total	95	100.0

Source: Primary Data, 2020

The results in table 4.1 indicate that majority of the respondents were male (60%) and female were (40%). This means that males tend to take part more in NWSC than females because most of the activities in the national water requires men than women since they are more technical. And this calls for a need to involve more women in the finance participations for gender equality. In addition

in Uganda, all the gender related issues have be handled and it's a policy by government that all government and even private organisations to ensure that both women and men do participate in all activities of the organization. This has also made NWSC to involve both sexes to participate in their activities and this has resulted into improved financial performance.

Distribution by Age bracket of the respondents

The age bracket of the respondents was distributed as indicated in table 4.2

Table 3.2: Age bracket of the respondents

Item	*Frequency*	*Percent*
18-27	12	12.6
28-37	38	40.0
38-47	32	33.7
48-57	13	13.7
Total	95	100.0

Source: Primary Data, 2020

The results in table 4.2 indicate that majority of the respondents were between 28-37 years(40%), these were followed by 38-47(33.7%) and the least group were those who were between 18-27 years (12.6%). These findings imply that NWSC in western Uganda has employee who are mature enough with good experience in executing their duties and this results in to financial performance. Furthermore, the results also indicated that all the age brackets under the working age are mostly catered for and this gives room for the young generation/employees to learn from their seniors and this further helps to keep the continuance of the work hence improved financial performance.

Distribution by the level of education

The education level of the respondents were distributed as indicated in table 4.3

Table 4.3: Education level of the respondents

Item	*Frequency*	*Percent*
Diploma	7	7.4
Bachelor	62	65.3
Post graduate	26	27.4
Total	95	100.0

Source: Primary Data, 2020

The results in the table 4.3 indicate that the majority of the respondent are degree holders (65.3.0%), these were followed by those who had studied beyond bachelor's degree (post graduate) (27.4%) and the least group were diploma holders (7.4%). This implies that most of the employees are well educated and they have the right knowledge and skills which help them to do their allocated duties which results in to improved productivity hence increased financial performance. In addition the results indicated that the respondents were well balanced in terms of their education, and this means that the organization allows them to go for further studies which is so much necessary for any development of the organization because it helps them to acquire new knowledge which helps to improve the organization in terms of new ideas and decision making process hence improved financial performance.

Distribution by time period spent by the branch of NWSC

The existence of the branch was distributed as indicated in the table 4:4.

Table 4.4: Period spent by the branch of NWSC

Item	*Frequency*	*Percent*
Less than a year	1	10.0
1 – 5 years	3	30.0
5 – 10 years	6	60.0
Total	10	100.0

Source: Primary Data, 2020

The findings in the table 4:4 indicate the majority of the MWSC branches has spent 5-10 years (60%), these were followed by those which had spent between 1-5 years (30.0%)and the least group had spent less than a year (10%). This implies that most of the branches enjoy the economies of scale which reduces the cost of providing water to the citizens' hence increased financial performance.

Correlation results

The Pearson correlation was used to examine the relationship between debtors' management, water loss management and financial performance since based on the quantitative data, Pearson correlation is the best method

Table 4.5: Pearson correlation results

Variable	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***
Debt Collection(1)	1											
Debt Age Analysis(2)	.719**	1										
Disconnection Notices(3)	.716**	.810**	1									
Debtors Management(4)	.600**	.911**	.924**	1								
Illegal Connections Control(5)	-.059	-.013	.021	-.020	1							
Accuracy of Meter Readings(6)	-.096	.010	-.010	-.039	.377**	1						
Leaks & Bursts Detection(7)	.021	.077	.096	.070	.378**	.681**	1					
Water Loss Management(8)	-.063	.024	.038	-.003	.768**	.639**	.509**	1				
Profitability (9)	.388**	.454**	.454**	.472**	.132	.249*	.517**	.343**	1			
Revenue growth (10)	.385**	.411**	.354**	.418**	.143	.283**	.514**	.362**	.525**	1		
Liquidity (11)	.372**	.583**	.550**	.542**	.121	.228*	.444**	.305**	.605**	.799**	1	
Financial Performance(12)	.409**	.517**	.487**	**.512****	.141	.270**	.527**	**.360****	.546**	.630**	.627**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Primary Data, 2020

The relationship between debtors' management and financial performance of NWSC in the South Western Region of Uganda

The results in table 4.4show that there is a positive significant relationship between debtors' management and financial performance of NWSC in the South Western Region of Uganda (r=.512**, p≤.01). This implies that any positive change in debtors' management is associated with a positive change in financial performance of NWSC. In other words improvements in debtors' management such as debt collection, debt age analysis and disconnection notices are associated with an improvement in financial performance of NWSC in the South Western Region of Uganda. This is indicated in the correlation results which show individual positive relationship between debt collection and financial performance generally (r = .409**, p≤.01), debt age analysis and financial performance (r = .517**, p≤.01) and disconnection notices (r = .487**, p≤.01). Respondents who answered questions posed on each of the sub constructsindicated that NWSC has a competent debt collection team and there are clear debt collection guidelines in place. This implies that when these factors are strengthened the financial performance of NWSC would improve.

The relationship between water loss management and financial performance of NWSC in the South Western Region of Uganda

The results in table 4.4show that there is a positive significant relationship between water loss management and financial performance of NWSC in the South Western Region of Uganda (r=.360**, p≤.01). This means that any positive change in water loss management is associated with a positive change in financial performance of NWSC. In other words improvements in water loss management such as illegal connections control, Accuracy of meter readings and leakages and bursts detection are associated with an improvement in financial performance of NWSC in the South Western Region of Uganda.A well-established water loss management system improves the financial performance of any water management company. These findings

are in line with Souzaa& Silva, (2013) who found out that water loss management saves the company from unnecessary revenue loss through the lost water. According to Kingdom et al. (2006), about 30000ML of water is delivered to customers in the developing countries per day, but is not paid for because of water theft, employee's corruption and poor metering practices. They estimate that about US$3billion of revenue is lost per year in the developing countries due to commercial losses. They go on to conclude that the financial viability of water utilities in developing countries is constrained as a result and this hampers necessary service expansions especially for the poor (United Nations, 2009). This clearly demonstrates that a well-established and functioning system of managing water loss would improve the financial viability of a water utility company which justifies that there is a positive relationship between water loss management and financial performance

The combined relationship betweendebtor's management and water loss managementwith financial performance of NWSC in the South Western Region of Uganda

To examine the combined effect of the two independent variables (debtor's management and water loss management) to the dependent variable (financial performance), the researcher used the hierarchical regression since it helps in explaining the combined effect of the two independent variables to the dependent, it shows the direction of the relationship and also brings out clearly the individual contribution of each independent variable to the dependent

The results are in agreement with Gatuhu (2013) describe credit management as methods and strategies adopted by a firm to ensure that they maintain an optimal level of credit and its effective management. It is an aspect of financial management involving credit analysis, credit rating, credit classification and credit reporting. A proper credit management will lower the capital that is locked with the debtors, and also reduces the possibility of getting into baddebts.

Effective management of accounts receivables involves designing and documenting a credit policy. A sound credit policy is the blueprint for how the company communicates with and treats its most valuable asset, the customers. Mwangi (2013) proposes that a credit policy creates a common set of goals for the organization and recognizes the credit and collection department as an important contributor to the organization's strategies. The water service providers lose considerable quantity of water on a daily basis caused by water leakages during pumping, storage, transmission in the main pipes or in distribution networks, thefts or illegal connections and metering inaccuracies. On the other hand, water service providers may not count, or bill, the quantity consumed by particular entities; such as government and public utilities.

Table 4.6: Hierarchical regression results

	Model 1			**Model 2**			**VIF**
	B	SE	β	B	SE	B	
(Constant)	1.763	.297		.530	.388		
Debt management	.540	.094	.512**	.541	.086	.513**	1.000
Water loss management				.328	.074	.362**	1.000
R		.512			.627		
R Square		.262			.393		
Adjusted R Square		.252			**.380**		
R Square Change		**.262**			**.131**		
F Change		33.03			19.809		
Sig. F Change		.000			.000		

Dependent Variable: Financial Performance; N=95; *regression is significant at 0.05;
**regression is significant at 0.01

Model One

The results in model one indicate that 26.2% (R Square Change=.262) of the variations in the financial performance of NWSC in the South Western Region of Uganda is explained by debtor's management. The results further indicated that a unit increase in debtor's management

will result in to 0.513 units (Beta=.513, p<.01) increase in financial performance of NWSCholding other factors constant.

Model Two

The results in model two indicate that 13.1% (R Square Change=.131) of the changes in financial performance of NWSC is explained by water loss management. In addition the results indicate that a unit increase in water loss management will result in to 0.362 units (Beta=.362, p<.01) increase in financial performance of NWSC holding other factors.

Finally the results in the regression model further explain that, the combined effect of debtor's management and water loss management explain 38% (Adjusted R Square=.380), meaning that the remaining 62% is explained by other variables not considered in this study. It should be further noted that debtors' management explains much of the variations in financial performance than water loss management as explained by the individual contribution (R Square Change)

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter discusses all the findings reported in chapter four based on the research questions and objectives, draws conclusions and suggests recommendations for the findings, limitations of the study and also proposes some areas for further research.

5.1 Discussion of Results

The discussion of results followed the objectives of the study which include the relationship between debtor's management and financial performance, the relationship between water loss management and financial performance and the combined relationship between debtor's management and water loss management with financial performance of NWSC in the South Western Region of Uganda.

5.1.1The relationship between debtors' management and financial performance

The findings indicated a positive significant relationship between debtor's management and financial performance of NWSC in the south western region of Uganda. The findings mean that when there is improvement in debtors' management in terms of debt collection, debt age analysis and disconnection notices, this will improve financial performance in NWSC. In addition, when there is a debt collection policy, team responsible for debt collection, debt collectors are always in touch with customers, NWSC has a competent debt collection team, there are clear debt collection guidelines in place, this will improve financial performance. This is also in line with the Investment Hand book (2010), advances that debt is the amount of monies incurred during a business period which payable to the organization providing goods and services. Aspen Law and Business book depository defines debt as an amount owed to a person or organization for funds borrowed or for goods sold on credit. For the purposes of this

study, debt is defined as any amount due to any organization for which payment has not been effected.Addaney (2016) argues that debtor's management is any approach that is adopted to guide an individual or business organization to manage its debtors. This definition includes debt recovery, bankruptcy, debtor's consolidation as well as other techniques that assist businesses to collect from outstanding debtors.

Furthermore, when NWSC are skilled in planning, supervision, when they have access to new technologies, and have the skill in reducing the lead times, this will increase their performance. Finally abilities of the NWSC in handling the problems, when they have a sense of responsibility of the purchasing staff, and ability in conducting risky and ambivalent purchases, this will improve their performance.

The findings are in agreement with the findings of Addaney (2016) who found out that "debtors management are considered to be composed of the revenue collection, debtors age analysis and disconnection notices. That is associated with high performance on the job at an individual level." Revenue collection can be defined as "taxes from different organization," Debtors age analysis can be described as analyzing the debtors age," and disconnection notices can be described as "notifying the staff on any disconnections to be made in advance." Oseifuah, 2016). Moreover, the lack of appropriate debtor management, revenue collection, and debtor age analysis can lead to delays or even halt the business. This being the case, development of debtor's management should be included in the long-term planning (Peltola, 2010). The significance of specific debtor's management and water loss management is obvious. Indeed, numerous studies have already measured and evaluated resources and skills of consumers very extensively, using data related to aspects such as organizational resources and reputation (Kraatz and Zajac, 2000), property rights (Miller and Shamsie, 1998) and market shares (Cecchetti et al. (2011)

5.1.2 The relationship between water loss management and financial performance

The findings of the study indicated a significant positive relationship between relationship between water loss management and financial performance. It can be observed that, when there is an improvement in the elements of illegal connections control, leaks and bursts control and metering accuracy there is much improvement in financial performance. This can be done through encouraging consumers to stay within the terms of contracts. A well-established water loss management system improves the financial performance of any water management company. These findings are in line with Souzaa& Silva, (2013) who found out that water loss management saves the company from unnecessary revenue loss through the lost water. According to Kingdom et al. (2006), about 30000ML of water is delivered to customers in the developing countries per day, but is not paid for because of water theft, employee's corruption and poor metering practices. They estimate that about US$3billion of revenue is lost per year in the developing countries due to commercial losses. They go on to conclude that the financial viability of utilities in developing countries is constrained as a result and this hampers necessary service expansions especially for the poor (United Nations, 2009). This clearly demonstrates that a well-established and functioning system of managing water loss would improve the financial viability of a utility company which justifies that there is a positive relationship between water loss management and financial performance.

5.1.3 The combined relationship between debtors' management and water loss management with financial performance

From the findings, debtors' management and water loss management are very important since they explain much of the variations in the financial performance. This was indicated by a higher explanatory power of 38%. This implies that when there is good debtor management in terms of revenue collection, debtor age analysis and disconnection notices, this will enable them to perform efficiently and effectively. In addition when there is a good water loss control in terms

of illegal connections control, leaks and bursts control and metering accuracy, this will improve financial performance.

The findings are in agreement withGatuhu (2013) describe credit management as methods and strategies adopted by a firm to ensure that they maintain an optimal level of credit and its effective management. It is an aspect of financial management involving credit analysis, credit rating, credit classification and credit reporting. A proper credit management will lower the capital that is locked with the debtors, and also reduces the possibility of getting into bad debts.

Effective management of accounts receivables involves designing and documenting a credit policy. A sound credit policy is the blueprint for how the company communicates with and treats its most valuable asset, the customers.Mwangi (2013) proposes that a credit policy creates a common set of goals for the organization and recognizes the credit and collection department as an important contributor to the organization's strategies. The water service providers lose considerable quantity of water on a daily basis caused by water leakages during pumping, storage, transmission in the main pipes or in distribution networks, thefts or illegal connections and metering inaccuracies. On the other hand, water service providers may not count, or bill, the quantity consumed by particular entities; such as government and public utilities.

Therefore, the total of non-revenue water can be viewed as the aggregate of leakages, illegal connections, metering inaccuracies, and unbilled consumption (Makaya, 2016). This leads to a reduction in the expected water sales for the service providers and increasing the water production quantities to cover the lost volume. From a financial point of view, the quantities of non-revenue negatively affect water service providers on three scales. They reduce the operating revenue, increase the cost of production, operations and maintenance and increase investment provisions and budget allocation for capital expenditures as additional amount have

to be spent on investment in facilities which all affect the financial performance of the service provider.

5.2 Conclusions

This study was undertaken to identify how debtors' management and water loss management impacts on financial performance of NWSC branches in the south western region of Uganda. While broader institutional-level decisions need to be undertaken for incentivizing water service providers to become more financially accountable, there are some interventions targeting reduced commercial losses that need to be undertaken at the provider level to produce revenue enhancements that will contribute in bringing about sustained improvement of servicesandthese are resolved below:

Based on the findings of the study, debtor's management is a key factor that positively affects the financial performance of an organisation. It can be concluded that when an organisation has a stringent debtors' management policy that is focused on intensive collections from customers, proper aging of debtor's as well timely issuance of notification orders, customers will be able to pay their bills in time and this will improve the liquidity, profitability and revenue growth of an organisation. Conversely, if the organisation has a relaxed policy, there is likelihood for debtors to default and this will slow down revenues, profits and liquidity levels. Also, strong elaborate debtors' follow-up procedures on the delayed payments, staff competency and integrity in adhering to the debtors' collection policy, formulation, implementation and regular review of debtors' collection policy have been observed to be crucial while managing debtors. The study further found that debtor's management impacts greatly on organisation performance with majority of the respondents holding the view that appropriate debtors' management practices leads to the success of their organisation. This study therefore adds new insight into the existing literature on debtors' management.

Water loss management is very important in improving financial performance since according to the results, there is a confirmed positive significant relationship between the two variables which means that when one variable improves, the other will also improve. In addition, water loss management can be improved by building illegal connections control, leaks and bursts control and metering accuracy and ensuring that compliance with the procedures and quality is followed. As a result, the water saved will be turned into revenue which will improve liquidity levels and profits of the organization leading to improved financial performance. Moreover, using the water loss management strategies above, the organization will be able to benchmark and track their progress towards target goals and become better stewards of their financial resources. Generally, decreasing water loss is cost effective, but several factors need to be considered when evaluating the cost benefit analysis for a specific water system. Therefore, water system managers must decide the level of financing investment that result in a positive ROI (AWWA 2009)

The findings show that both independent variables have a positive significant relationship with the financial performance of NWSC. This also means that any positive change in any of these variables will result in a positive change in the financial performance of the sector. Much emphasis should be on effective management of accounts receivables which involves designing and documenting a credit policy. A sound credit policy is the blueprint for how the company communicates with and treats its most valuable asset, the customers.Mwangi (2013) proposes that a credit policy creates a common set of goals for the organization and recognizes the credit and collection department as an important contributor to the organization's strategies. The water service providers lose considerable quantity of water on a daily basis caused by water leakages during pumping, storage, transmission in main pipes or in distribution networks, thefts or illegal connections and metering inaccuracies. On the other hand, water service providers

may not count, or bill, the quantity consumed by particular entities; such as government and public utilities.

5.3 Recommendations

The research recommends the management of NWSC to trainallhercommercial and technical field staff to ensure that they have the right and the required knowledge,skillsandabilities in debtorsand water loss management, to ensure that the best quality management mental solutions are effectively and efficiently employed to improve on financial performance.

There is need to have a debt collector. Area managers should define detailed statements indicating its collection procedures, due dates, grace periods, penalties, date of turnover of delinquent account to a collection agency and make customers aware of the details of the collection process to avoid penalties. This will reduce arrears and improve on revenue growth

The branch managers and commercial officers should build a strong relationship between the debtors and themselves by building a strong trust and ensuring that clear and well explained procedures are maintained by establishing debt collection policies that clearly outlines the top management's view of business development priorities and the terms and conditions that should be adhered to since this will increase on the compliance.The debt collection policy should be reviewed and regularly updated to reflect changes in the economic outlook and evaluation of branches on debtors' portfolio and be distributed to all commercial officers

NWSC should concentrate on controlling real water loss which refers to the amount of water physically lost from the distribution system, including leakage and overflows, apparent water losses which is the amount of water that is not properly measured, accounted or paid for, apparent losses can occur for a number of reasons including metering inaccuracies, unauthorized consumption and data handling errors. This can be handled through acquiring

tools like real time dashboards, control panels and interactive reports can efficiently consolidate network maintenance information and statistical data on historical customer consumption. These tools can be used to enable a statistical oversight of the operation based on organization recognized models. Finally, the predictor variables in the study account for 38% of financial performance. This covers all the two predictor variables of the study. However, the remaining percentage may be attributed to other factors outside this study. This is because financial performance is affected by other factors which differ from one NWSC to another. Thus, it is important to consider variety of factors than to focus only on the predictor variables in this study.

5.4 Limitations of the study

Limitations are weaknesses of a study related to the proposed sample, data collection environment, measurement techniques, and personal biases that may affect the quality of the results and credibility of the conclusions. During the research study, the researcher encountered the following challenges in carrying out the study for NWSC in the south western region of Uganda:

Response rate was slow as some respondents had fear to disclose some information as they took such information to be secrets of their respective institution. However, the researcher was carefully and tactfully interacted with respondents and managed to get the data of interest for the study and I believe future researchers can use the same technique to ensure that they collect data from such respondents.

Accessibility to most of places was difficult due to rainy season which affected the collection of data. The researcher ended up visiting few places than those that he would have visited due to the interference by the rain, this means that future researchers can try their level best to fix the right season on when to collect data or prepare money to use protective rain gadgets.

Formulation of research aims and objectives. The researcher might have formulated research aims and objectives too broadly. This required the researcher to specify in which ways the formulation of research aims and objectives could be narrowed so that the level of focus could be increased.

Implementation of data collection method: Because as a researcher, extensive experience was a requirement as a primary data collection there could be a great chance that the nature of implementation of data collection method could flawed.

Lack of previous studies in the research area,Literature review is an important part of any research, because it helped to identify the scope of works that had been done so far in research area. Literature review findings were used as the foundation for the researcher to be built upon to achieve her research objectives. However, there might had been little, if any, prior research on your topic if you had focused on the most contemporary and evolving research problem or too narrow research problem.

Limited willingness to respond to questionnaires by respondents because they found it as time consuming. The researcher tried to explain each question to simplify the complexity of the questions in the questionnaire.

5.5 Areas of further research

i. The study adopted a cross sectional design where data is collected at one point in time and the findings from such studies are always limited to the current period only hence future studies should look at a longitudinal research design where financial performance in NWSC in south western Uganda are monitored for a long period of time

ii. The study was restricted to a quantitative approach using a structured questionnaire to elicit information from the respondents meaning that other features that can be observed

were not included in the findings and thus future research should incorporate qualitative factors using for example observations and interview guide.

iii. In this study, the variables debtor's management and water loss management relationship contributed 38% towards financial performance, further research should explore other determinants of financial performance and if possible, variables that need to be combined with these variables in order to stimulate financial performance in NWSC in south western Uganda.

REFERENCES

Agnew, C., & Woodhouse, P. (2010). *Water resources and development*.Routledge.

Amemba, C. S., Nyaboke, P. G., Osoro, A., &Mburu, N. (2013). Challenges affecting public procurement performance process in Kenya. *International Journal of Research in Management*, *3*(4), 41-55.

Addaney, M., Awuah,. B. S &Afriyie, A. (2016). Debt Management and the Performance of Small Scale enterprises in the Kumasi Metropolis of Ghana.Journal of Asian Business Strategy. DOI: 10.18488/journal.1006/2016.6.5/1006.5.101.112

Awuah, S. B., &Addaney, M. (2016). The interactions between microfinance institutions and small and medium scale enterprises in the Sunyani municipality of Ghana. *Asian Development Policy Review*, *4*(2), 51-64.

Cecchetti, S. G., Mohanty, M. S., &Zampolli, F. (2011). The real effects of debt.

Dong, H. P., & Su, J. T. (2010). The relationship between working capital management and profitability: a Vietnam case. *International Research Journal of Finance and Economics*, *49*(1), 59-67.

Dong, H., & Su, J. (2010). The relationship between working capital management and profitability: a Vietnam case. *International Research Journal of Finance.*

Dahan, S., Kashiwase, H. (2016). SDG on water and sanitation is essential for sustainable development. *World Bank blogs.*

John, E. E., Apata, T., Aladejebi, O., Apata, O., Ekiti, A., Obaisi, A., F.G.N. (2017).Statistical bullentin. *Land Use Policy*. https://doi.org/10.1126/science.1178058.

Gatuhu, R.N. (2013). The effect of credit management on the financial performance of Microfinance institutions in Kenya.*Thesis, University Of Nairobi.*

Galaitsi, S. E., Russell, R., Bishara, A., Durant, J. L., Bogle, J., & Huber-Lee, A. (2016). Intermittent domestic water supply: A critical review and analysis of causal-consequential pathways. *Water*, *8*(7), 274.

Gatuhu, R. N. (2013). The effect of credit management on the financial performance of microfinance institutions in Kenya. *Unpublished MBA Dissertation, University of Nairobi, Nairobi*.

German, L., Schoneveld, G., &Mwangi, E. (2013). Contemporary processes of large-scale land acquisition in Sub-Saharan Africa: legal deficiency or elite capture of the rule of law?. *World Development*, *48*, 1-18.

Groth, J. C. (1992). The operating Cycle: Risk, Returns and opportunities. Management decision Vol.30 No.4, 199

Hiadlovský, V., Rybovičová, I., &Vinczeová, M (2016). Importance of Liquidity Analysis In The process of Financial Management of Companies Operating in the Tourism Sector in Slovakia: An Empirical Study. International Journal for Quality Research 10(4) 799–812 ISSN 1800-6450

Investment Hand book (2010). CRA investment hand book. Federal bank of San Francisco

Kamau, .C.N. (2014).Effect of internal controls on the financial performance of manufacturing firms in Kenya.Thesis report.

Kondo, E. M. (2015). The effect of revenue enhancement strategies on financial performance of Kenya revenue authority. *Unpublished MSc project, University of Nairobi, Kenya*.

Kothari, C. R. (2004). Research Methodology Methods and Techniques, new Age International (P) Ltd. *New Delhi*.

Laughlin, R., &Puxty, A. G. (1980). *The decision-usefulness criterion: wrong cart, wrong horse?*.University of Sheffield.

Madegwa, B. L., &Namusonge, E. N. M. P. G. Effects of Automation of Revenue Collection on the Performance of County Government: A Case Study of Trans Nzoia, County Government. Kenya.

Makaya, E. (2017). Performance Based Water Loss Management for Gweru, Zimbabwe. *American Journal of Water Resources*, *5*(4), 100-105.

Malhotra, N., Hall, J., Shaw, M., & Oppenheim, P. (2006). *Marketing research: An applied orientation*. Pearson Education Australia.

Miles, M. B. (7). B &Huberman, A, M.(1994). An Expanded Sourcebook: Qualitative Data Analysis.

Mugo,.N. P. (2014). The relationship between working capital management and financial performance of energy and petroleum companies listed at the Nairobi securities exchange. a research project submitted.

Nyangoma, P. S. (2012). *Credit terms, access to finance and Financial Performance of SMEs in Kampala* (Doctoral dissertation, Makerere University).

Nyangoma, P. S. (2012). *Credit terms, access to finance and Financial Performance of SMEs in Kampala* (Doctoral dissertation, Makerere University).

Ong,.M. H. A. &Puteh, F. (2017). Quantitative Data Analysis: Choosing Between SPSS, PLS and AMOS in Social Science Research. International Interdisciplinary Journal of Scientific Research ISSN: 2200-9833 www.iijsr.org.

Opanga, B. O. (2013). The relationship between corporate governance and financial performance: A study of insurance firms in Kenya. *Unpublished Master's Thesis).University of Nairobi*.

Opanga, B. O. (2013). The relationship between corporate governance and financial performance: A study of insurance firms in Kenya. *Unpublished Master's Thesis).University of Nairobi*.

Oseifuah,.E. (2016). Cash Conversion Cycle Theory and Corporate Profitability: Evidence from Non-Financial Firms Listed on the Johannesburg Stock Exchange. J o u r n a l o f A c c o u n t i n g a n d M a n a g e m e n t J A M v o l. 6 ,n o. 3 (2 0 1 6)

Panigrahi,. A. K. (2013). Cash Conversion Cycle and Firms' Profitability – A Study Of Cement Manufacturing Companies Of India. International Journal of Current Research Vol. 5, Issue, 06, pp.1484-1488, June, 2013

Pasban, M., Nojedeh, S. H. (2016).A Review of the Role of Human Capital in the Organization. 3rd International Conference on New Challenges in Management and Organization: Organization and Leadership, 2 May 2016, Dubai, UAE.

Patzelt, H., Knyphausen-Aufse, D., and Nikol, P. (2008). Top management teams, business models, and performance of biotechnology ventures: An upper echelons perspective. *British Journal of Management*, 19, 205-221.

Reinhart, C. M., &Rogoff, K. S. (2015). Financial and sovereign debt crises: Some lessons learned and those forgotten. *Journal of Banking and Financial Economics,* (2 (4)), 5-17.

Ruguwa, C. K. (2018). The impact of debt finance on the financial performance of a firm: a case of City of Mutare.

Sekaran, U. (2003). Towards a guide for novice research on research methodology: Review and proposed methods. *Journal of Cases of Information Technology*, *8*(4), 24-35.

Sweetman,. M. A. N. (2000). Working capital management: theory and evidence from New Zealand listed limited liability companies. A thesis.

Sugathadasa,.D.D.K. (2018). The Relationship between Cash Conversion Cycle and Firm Profitability: Special Reference to Manufacturing Companies in Colombo Stock Exchange. IOSR Journal of Economics and Finance (IOSR-JEF) Volume 9, Issue 6 Ver. II (Nov. – Dec.2018), PP 38-47

United Nations (2009).Achieving Sustainable Development and Promoting Development Cooperation.Dialogues at the Economic and Social Council. New York, 2008

Wangchuk, T. (2005). *Tiger Action Plan for the Kingdom of Bhutan, 2006-2015*. Nature Conservation Division, Department of Forests, Ministry of Agriculture, Royal Government of Bhutan.

Wang,.B. (2017). The Cash Conversion Cycle Spread.

Wekesa,. M. W. N. (2018).Effect of Debtors' Management Practices on Growth of Small and Medium Sized Enterprises In Kenya: A Case Study of Hire Purchase Sector in Kenya. PhD Thesis.

Appendix2: Table for determining sample size from a given population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	256	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

Krejcie, Robert V., Morgan, Daryle W., "Determining Sample Size for Research Activities", Educational and Psychological Measurement, 1970

QUESTIONNAIRE

MAKERERE UNIVERSITY BUSINESS SCHOOL

Questionnaire for the Research Study on "Debtor's Management, Water Loss Management and Financial Performance of NWSC: A Case of South Western Region, Uganda"

Dear Respondent,

I am FrancisOluka a postgraduate student of Makerere University Business School conducting a research on **"Debtors' Management, Water Loss Management and Financial Performance of NWSC".** Kindly answer these questions as objectively as possible so that the results of the data analysis are fairly accurate. Thank you very much for your cooperation.

SECTION ONE: DEMOGRAPHICS OF RESPONDENTS

A1Gender of respondent: Male ☐ Female ☐

A2 Age of respondent: 18-27 ☐ 28-37 ☐ 38-47 ☐ 48-57 ☐ 58+ ☐

A3Respondent's level of Education:

PLE ☐ O-Level ☐ A-Level ☐ Diploma ☐ Degree ☐

A4 For how long has NWSC been in existence?

Less than a year ☐ 1 – 5 years ☐ 5 – 10 years ☐ 10 years & above ☐

SECTION TWO: DEBTORS MANAGEMENT

This section contains questions about Debtors Management. Debtors Management are looked at in terms of debt collection, debt age analysis and disconnection notices. In the tables below, the numbers 1-5 represent levels of agreement from strongly disagree to strongly agree. Please mark the given statements according to your level of agreement.

Levels of Agreement

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Debtors Management

Debt Collection		1	2	3	4	5
DC1	There is a debt collection policy at NWSC offices					
DC2	There is a team responsible for debt collection					
DC3	Debt collectors are always in touch with our customers					
DC4	As an organization, we have a competent debt collection team					
DC5	There are clear debt collection guidelines in place					
DC6	Our organization has almost collected all its debtors in the last 12months					
DC7	Our organization has no long outstanding debtors					
DC8	Our organization has not written off debtors					
DC9	Our organization's debtors turnover level is improving					
DC10	Our organization ensures it doesn't lose money in bad debts					
Debt Age Analysis		1	2	3	4	5
DA1	Our organization carries out debt age review					

DA2	Debtors who exceed their time are penalized					
DA3	Our organization keeps a database of all its debtors and is always analyzed					
DA4	There are debtors who have exceeded their payment dates					
DA5	There is a separate team responsible for debtor age analysis					
DA6	Our organization makes reminder calls					
DA7	Our organization separates debtors by age					
DA8	Our organization writes off long outstanding debts					
DA9	Our organization classifies its debtors per age					
DA10	Our organization separates debtors who have over aged					
Disconnection Notices		1	2	3	4	5
DD1	Disconnection orders are always served in time					
DD2	Disconnection orders are confirmed received by customers					
DD3	There is a team responsible for serving disconnection orders					
DD4	All customers get disconnection orders					
DD5	We have alternative channels for alerting customers on disconnection					
DD6	Disconnections have helped the company to recover money					
DD7	Disconnections pushes customers to pay their bills					
DD8	Disconnections are executed in time					
DD9	Our organization gets money from reconnection fees					
DD10	Our organization has a standby disconnection team					

SECTION THREE: WATER LOSS MANAGEMENT

This section contains questions about Water loss management. Water loss management is all about the mechanism put in place to minimize water loss at NWSC. In the tables below, the numbers 1-5 represent levels of agreement from strongly disagree to strongly agree. Please mark the given statements according to your level of agreement.

Levels of Agreement:

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Water Loss Management:

Illegal Connections Control		1	2	3	4	5
WI1	Our organization puts controls to reduce illegal connections					
WI2	Our company identifies individuals who illegally connect water					
WI3	Our organization penalizes illegal water connectors					
WI4	Our organization recovers money from illegal connections					
WI5	Illegal connections have reduced over time					
WI6	Our organization arrests illegal connectors					
WI7	Most connections have been genuine in the last 12months					
WI8	Our organization issues public warnings on illegal connections					
WI9	Our organization employs a team to track illegal connections					
WI10	Our organization maintains a policy on illegal connection					
Accuracy of Meter Readings		1	2	3	4	5
WA1	The system of meter reading is accurate					
WA2	Inaccurate meter readings are detected and reversed					
WA3	There are minimal errors from meter readings					
WA4	There are controls to minimize inaccurate readings					
WA5	Meter readings are always accurate					
WA6	Our organization employs competent staff for reading meters					
WA7	Our organization gets few errors in meter readings					
WA8	Meter reading inaccuracies have reduced in the last 12 months					
WA9	There are no recurrent errors in meter readings					
WA10	Our organization conducts a routine programme for meter reading					
Leaks & Bursts Detection		1	2	3	4	5
WL1	There are minimal water leakages and bursts					
WL2	Our customers continuously report leakages to NWSC					
WL3	There are channels through which leakages are reported					
WL4	Engineers respond very fast to fix leakages					
WL5	There is a reduction in the amount of water lost in leakages over time					
WL6	Our organization employs a stand by team to handle leakages					
WL7	Our organization buys equipment for fixing leakages					
WL8	Our organization provides a toll free line for reporting busts					
WL9	No water leakage cases were reported in the last 12 months					
WL10	Our organization conducts routine field visits to check unreported leaks					

SECTION FOUR: FINANCIAL PERFORMANCE

This section contains questions about Financial Performance. Financial performance will be looked at in terms of profitability, revenue growth and liquidity. In the tables below, the numbers 1-5 represent levels of agreement from strongly disagree to strongly agree. Please mark the given statements according to your level of agreement.

Levels of Agreement

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Financial Performance

Profitability		1	2	3	4	5
FP1	Our profit have increased over time					
FP2	We always meet our profitability targets					
FP3	Our profit increased due to limited water loss					
FP4	Our profit is affected by good debt management					
FP5	We can increase our profits if we strengthen debt collection					
FP6	Our organization has been making profit in the last 5 years					
FP7	Our organization makes enough profit to pay shareholders' dividends					
FP8	Our organization has enough profit to expand its operations					
FP9	The organization's profitability meets the industry average standard					
FP10	Our profits have been increasing in the last 12months					
Revenue growth		1	2	3	4	5
FR1	Our organization's revenue growth is stable					
FR2	Our organization always meets its revenue targets					
FR3	Our revenues are increased by good collection practice					
FR4	Our revenues are increased by good debt management practices					
FR5	We can increase our revenue if we strengthen debt and water loss management					
FR6	Ourorganization's revenue has been increasing in the last 12months					
FR7	Our organization's revenue has been increasing over time					

FR8	Our organization's revenue growth rate is high					
FR9	Our organization's revenues supersede its costs					
FR10	The revenues of our organization meet the industry standards					
Liquidity		1	2	3	4	5
FL1	Our cash levels are adequate					
FL2	Our organization has no cash constraints					
FL3	Stringent debt collection measures have increased our cash levels					
FL4	Stringent water loss management measures can increase our cash levels					
FL5	Our organizationenforces adequate debt and water loss management practices					
FL6	Our organization has not suffered from cash constraints					
FL7	Our organization's cash flows meets industry average					
FL8	Our organization's cash levels have improved over time					
FL9	Our organization's cash levels have improved in the last 12 months					
FL10	Our organization has enough cash to meet day to day operations					

Thank you very much for your time and responses
God bless you.