FACTORS INFLUENCING NON-PAYMENT OF WATER BILLS BY EMBU MUNICIPALITY RESIDENTS, EMBU COUNTY, KENYA.

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university

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DEDICATION

This work is dedicated to my mother, Regina Kalandi Mwaniki, my wife Rose and Children Linda, Angela, Tony and Laurah.

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ABBREVIATIONS AND ACCRONYMS

CAACs Catchment Area Advisory Committees

EWASCO Embu Water and Sewerage Company

FY Fiscal Year

GDP Gross Domestic Product

GoK Government of Kenya

HRM Human Resource Management

ICT Information Communications and Technology

IWRM Integrated Water Resources Management

JMP Joint Monitoring Programme

KFS Kenya Forestry Service

MWI Ministry of Water and Irrigation

NGO Non-Governmental Organization

NRW Non-Revenue Water

NWA National Water Act

NWCPC National Water Conservation and Pipeline Corporation

O & M Organization and Methods

PES Payment for Environmental Services

SPAs Service Provision Agreements

UFW Unaccounted for Water

UN-HABITAT United Nations Human Settlements Programme

UNICEF United Nation Children's Education Fund

WAB Water Appeal Board

WARIS Water Regulation Information System

WASREB Water Services Regulatory Board

WHO World Health Organization

WRMA Water Resources Management Authority

WRUAs Water Resources Users Associations

WSB Water Services Board

WSPs Water Service Providers

WSTF Water Services Trust Fund

ABSTRACT

Non-payment or delays in payments of water bills by customers to Water Service Providers (WSPs) resulting to decline in revenues, for water supplied to them has been cited as a major concern for sustainable, effective and efficient water supply and management in Kenya. For instance, Embu Water and Sanitation Company (EWASCO) had a collection efficiency of 82% in the year 2011 and for the period from the year 2008 to 2012, the WSPs in Embu County had arrears amounting up to 28.26% of the total bills charged. Thus, WSPs are unable to honour their statutory obligations of paying for raw water. Consequently, the Water Resource Management Authority has been experiencing a serious financial shortfall. Further, it would be very difficult for the country to achieve the Vision 2030, since water is vital for economic development. This state of affairs ignited the desire to conduct the present study, whose objective is to evaluate the factors that contribute to the non-payment of water to EWASCO by consumers in Embu municipality. This study, which used descriptive design, was conducted to address the issue of payment for water by consumers. The target population was the 8,836 people served with water by EWASCO in Embu County. The study used Fischer method to obtain a sample size of 400 and the respondents were selected using stratified random sampling. A structured questionnaire was administered to the respondents during data collection. A pretesting was conducted to test the research instrument for reliability and validity before its administration after which data was collected. The collected data was checked for errors and then analyzed using descriptive analysis and correlation analysis. The study found out that the billing system affected payment of water negatively, revenue collection system was effective and did not have any negative effects on the water payment by water users; the cost of water was exposed as one of the main reasons why the water users failed to pay water promptly, and the consumer behavior, contributed immensely to the failure to pay water bills on time. The study recommends that, EWASCO should strengthen its water billing payment policies; invest more in information technology; enhance its revenue collection systems of modern technology in paying water bills; the WSP should organize forums to inform the water consumer of the need to pay for water service and why it is necessary and EWASCO would need to sensitize the water consumer on the institutional and legal framework on water service delivery. The study findings will benefit among others Water Service Providers, Water Resource Management Authority, the water sector players in the country, academicians and researchers. The findings of the study would help develop ways and means of improving the over-all performance of the water sector.

CHAPTER ONE:

INTRODUCTION

1.1 Background in the Study

Water, a natural resource, is life. Both fauna and flora entirely depend on water for their survival. This makes water development, management and utilization vital exercises in ensuring success of these sectors and survival of the country's citizens (Kinuthia *et al.*, 2009). In the global perspective, water has been prioritized as a basic need and a human right, (Wagah *et al.*, 2010). He insisted that across the globe, countries are reforming their water resource management in an effort to avail and sustain provision of adequate, safe and affordable water to all their consumers. According to the World Health Organization (WHO) statistics, it is estimated that about 1.1 billion people in the world do not have access to safe water (WHO, 2003). The United Nations' states that by 2025, 1.9 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under stress conditions (UN, 2000).According to Wagah *et al.* (2010), the Africa region has the worst water crisis; owing to its financial woes. In fact Africa's water supply and sanitation coverage stood at 62% for water supply and 60% for sanitation at the time.

The Kenya Water Policy (under Sessional Paper Number 1, 1999) provides the policy direction on water as a social and economic good with the objective of supplying quality, reliable and adequate water, meeting acceptable standards for the various needs and developing a sound and sustainable financial system for effective and efficient water supply and water borne sewerage collection, treatment and disposal. The paper recognizes water as one of the most important resources for man's survival. Although all water resources are vested in the state (Mumma, 2011), access to adequate, safe and affordable water is very low (Sittoni, 2011). It is estimated at 68% in urban areas and 49% in rural areas (Wagah *et al.*,

2010). However, the country has put in place reforms to correct this anomaly. The reforms were made a reality by the legislation of National Water Act (NWA) of 2002, which introduced regulatory and tariff reforms.

In the vision 2030, the Kenya government aims to increase annual GDP growth rates to an average of 10% over the vision horizon. The 2030 vision for water and sanitation is to ensure that improved water and sanitation are available and accessible to all. The goal for 2012 was to increase both access to safe water and sanitation in both rural and urban areas beyond present levels (Republic of Kenya [RoK], 2007).

Water Supply and Sanitation Services in Embu Municipality is the mandate of Embu Water and Sewerage Company (EWASCO) to supply an area of 972 $km^{2.}$ EWASCO, established under the Company's Act and renders services, is governed by Water Act 2002. Under the Water Act 2002 EWASCO operates through a Service Provision Agreement signed between Tana Water Services Board and approved by Water Services Regulatory Board (WASREB). The area currently supplied with water is estimated to be 447km^2, serving a total population of up to 89,000 people and targeting 160,000 people, living within the area of water supply. Further, EWASCO intends to; reduce non-revenue water from 38% to 20% by 2016; reduce operational costs in material and resources from 40% to 20% by 2016; and finally to increase the revenue collection efficiency from 85% to 95% by 2016 (EWASCO, 2012).

EWASCO, has been facing serious challenges, which have resulted to delays in the payment for water by their customers. In fact, the customers in Embu town are not able to promptly pay for water, which has resulted to accumulation of unpaid arrears by Water Service Providers (WSPs), who are supposed to remit it to Water Resource Management Authority

(WRMA) on behalf of the customers. For instance, from the fiscal year (FY) 2008 to FY 2012, the total amount billed by WRMA to all WSPs in Embu County was Ksh. 13,112,216, out of which Ksh. 9,406,542 was paid by the WSPs. This is to say that the total arrears unpaid for that period equals to 3,705,674, which translates to 28.26% of the total bill charged. The WSPs failed to settle the arrears owing to consumers' failure to pay promptly for water use. This has led to financial difficulties, which means reduction of water delivery, hence reduced access to water by Kenyan consumers. This renders water to cease from being a human right but a commodity for a few usually the economically able. (Kinuthia *et al.*, 2009). The failure to reliably and consistently supply water might paralyze the operations of the country.

Studies, journals and theories have shown payment of water is influenced by billing system, revenue collection system, cost of water, and water consumer behaviuor (Spohrer, 2008, Wilson et al., 2008, Kaseem, 2011). This study therefore, endeavored to establish whether these factors affect the payment of water bills in the case of EWASCO.

1.3 Statement of the Problem

In its Impact Report (A Performance Review of Kenya's Water Service Sector – 2010/20110) Issue No 5 0f 2012, WASREB (2012) reported that even though the Revenue Collection Efficiency, which is the total amount collected by a WSP compared to the total amount billed in a given period has improved overtime, ranging from 82% in 2009/2010 to 84% in 2010/2011, a range which is indicated in the same report as being unacceptable for Urban WSPs, the non-revenue water has remained at the same level of 45% for the same periods. Other performance indicator such as water coverage, which in essence means the number of connections have shown significant increase from 48% to 52% in the same period under consideration. With these increments, it would have been expected that revenue collection

would increase however, it has remained at the same level or has shown decrease over the same period by Urban WSPs resulting into accumulation of arrears. For instance, from the fiscal year (FY) 2008 to FY 2012, the total amount billed by WRMA to all WSPs in Embu County was Ksh. 13,112,216, out of which Ksh. 9,406,542 was paid by the WSPs. This is to say that the total arrears unpaid for that period equals to 3,705,674, which translates to 28.26% of the total bill charged. The WSPs failed to settle the arrears owing to consumers' failure to pay promptly for water use. This has led to financial difficulties, which means reduction of water delivery, hence reduced access to water by Kenyan consumers. Non-payment or delays in payments of water bills by customers to WSPs for water supplied to them has been cited as a major concern for sustainable, effective and efficient supply management in Kenya. EWASCO, a Water Service Provider in Embu Municipality, has been facing serious challenges as a result of non-payment for water supplied to their customers. As a consequence, EWASCO is not able to promptly pay for their bulk raw water charges to WRMA, which has resulted to accumulation of unpaid arrears. In the event, water ceases to be human right and becomes a commodity for a few usually the economically able, the operations of the country would be paralyzed (since water is life). Further, it would be very difficult for the country to achieve the Vision 2030, since water is vital for economic development (Kinuthia *et al.*, 2009) and touches all the three pillars (social, economic and political) of the vision 2030.

1..3 Purpose of the Study

The purpose of this study was to examine the factors that influence the lack of payment of water in Embu Municipality, Embu County.

1.4 Objectives of the Study

The study was guided by following specific objectives

1. To examine the influence billing system has on the non-payment of water bills by Water consumers of EWASCO in Embu Municipality.
2. To establish the influence of cost of water on the non-payment of water bills to EWASCO in Embu Municipality.
3. To determine the influence of revenue collections system on the non-payment of water bills to EWASCO in Embu Municipality.
4. To examine the influence of water consumer behavior on the non-payment of water bills to EWASCO in Embu Municipality.

1.5 Research Questions

The study answered the following questions:

1. To what extend does the billing system influence the non-payment of water bills to EWASCO in Embu Municipality?
2. How does the cost of water influence the non-payment of water bills to EWASCO in Embu Municipality?
3. to what extend does revenue collection system influence the non-payment of water bills to EWASCO in Embu Municipality?
4. How does consumer behavior influence the non-payment of water bills to EWASCO in Embu Municipality?

1.6 Significance of this Study

The findings from the study would enable the WSPs in Embu Municipality, Embu County and in Kenya as a whole to control the factors that influenced the payment for water by water

consumers. The study findings would help the WSPs to make prompt payments to WRMA and thereby avoiding penalties charged for late payments. The public image of WSPs would also improve. WRMA would benefit from this study by becoming financially sound; in policy formulation; making sound water allocation plans; improved water use efficiency and water use tariff adjustments. The Government of Kenya (GoK) would benefit in ensuring that water supply is sustained; use the information from the study to educate the stakeholders on the water governance, and make water policy which will ensure adequate clean water for all its citizens. The ministry of Water and Irrigation (MWI) would benefit from this study, by using the study finding to help in setting and reviewing water policy.

Other beneficiaries of this study were the academicians and scholars who would gain knowledge in the field of water supply and more specifically the project planning and management. Lastly, the study was an eye opener for further research, making it beneficial to researchers.

1.7 Delimitations of the Study

The present study was conducted to assess the factors that influence the payment of water by consumers in Embu Municipality with a view of making recommendations which would assist in ensuring prompt payment of water in Embu County and Kenya as a whole. It was carried out in Embu Municipality which is in Embu country. The study targeted all the people supplied with water by EWASCO in Embu Municipality

1.8 Limitations

This study was limited in some ways. Firstly, the time provided for the study was too short considering that the researcher has other activities to undertake, especially job requirements.

To avoid any inconveniences, the researcher worked extra time and engaged the services of research assistants to collect data and where necessary. Secondly it was costly to conduct the study. The researcher therefore opted to seek for loan from SACCOs savings to cover any deficit experiences.

1.9 Assumptions of the study

The basic assumptions of this study were that the respondents freely gave the correct and accurate information as required by the study; the sample population was a true representation of the whole population and that the ttechnological, social and economic conditions remained the same during the study.

1.10 Definitions of Significant Terms

Billing System in relation to water supply refers to systems, processes and methods employed by WSPs to prepare process and send water bills to customers.

Consumer Behaviuor in relation to a product or service is the manner in which the target consumers of a product or service react or behave towards the exceptional quality of that product or service as regards the satisfaction of the customer needs.

Customer in relation to water supply is an individual or entity connected to and supplied with water and obliged to pay for it.

Cost of Water is the amount of money as per the utility bills for the amount of water used comprising of the costs of buying the raw water; the costs of treating and distributing the water, and the wages for the utility's staff.

Payment of Water is the act of footing the water bills through either electronic or manual payments

Revenue Collection Systems are the procedures, processes and methods put in place by WSPs to facilitate the water consumers pay their water bills as revenue**.**

Tariff in relation to water supply means the price, or rate or charge set as being the price chargeable on a cubic letter of used water.

Water Bill is a demand notice to customer to pay for water used.

Water Billing is the act of preparing water bill and notifying the customers of the amounts due from them for the water they have used and demanding payment for the same.

Water Consumers are the clients supplied with water by WSPs under a contractual agreement.

1.11 Organization of the study

The study contains an introduction in chapter one, which gives a brief of the study background; the problem statement; study purpose and objectives; research questions, significance of the study; study delimitations; limitations of the study; assumptions made; and operational definitions of terms used. Chapter two, contains review of various literature relevant to this study. The study reviewed empirical literature which was about past studies found useful to the present study. During the review of empirical studies, the present study showed the relevance and identified gaps left out by the authors and how these gaps would be filled by the present study. The study also reviewed theoretical literature by exposing theories which were relevant to the present study. The theoretical framework helped to develop a conceptual framework to the present study. The study drew a conclusion based on the literature reviewed.

The research methodology is contained in chapter three which details research design, target population, sampling, data collection methods and techniques, pre-testing, operationalization of the study, data analysis and ethical considerations. Chapter four of the study is the research results and findings of the study. These are classified into descriptive analysis and content analysis, which were analyzed based on the study objectives. The results and findings are then discussed at the end of the chapter, giving a picture of the status of affairs with reference to the literature reviewed in chapter two. Summary of findings is obtained from chapter four results and conclusions are drawn from these findings.

The study presents the summary of findings, conclusions and recommendations in chapter five. The study made policy recommendations with regards to the study findings. Recommendations for further study were also made and contained in this chapter. Lastly, the study presents all the appendices relevant to the present study.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature pertinent to the study as presented by various researchers, scholars', analysts and authors. This chapter summarizes literature that has been reviewed and will be reviewed for the purpose of the study which is the payment of water by Consumers in Embu Municipality**.** The literature covers theoretical framework and an overview of the literature of previous studies, findings and recommendation showing the research gap to be filled. Lastly, the conceptual framework of the study and summary are provided.

2.2 Review of Empirical Studies

The present study reviewed various empirical studies, which were found beneficial to this study. These past studies were reviewed based on the study objectives. The review involved establishing the usefulness of these past studies to the present study and gaps left by past studies, which the present study will fill.

2.2.1 Influence of Billing Systems

The study proposes that the billing systems which are characterized by management style, affect the payment of water by customers in various ways. For instance when the steps involved in billing are many, the customer may find it difficult to adapt to this and at time get exhausted. Other factors of billing systems influencing payment of water by water users include bureaucratic controls, mode of billing, customer feedback, timeliness, and bill delivery. A number of empirical studies will be associated with billing system were reviewed to assist in regarding billing system as affecting water payment by consumers. Tidemand,

Steffensen, and Olsen (2007) conducted a study to identify the challenges for decentralized processing in local authorities compared to a centralized one. The study established that there was balance between non-sector local planning and sector planning and the related balance between central planning and budgeting and fiscal devolution and local budgeting, the balance between empowerment of locally elected councils and user (sector) specific groups for enhanced local participation and accountability, the financing system, local management of staff and HRM issues, coordination of service providers and Sector Reforms. This study was important in showing that the internal processes largely affected service delivery. It was therefore imperative that billing systems would influence the payment of water in Embu Municipality, making this study very helpful in relating billing systems to payment water. The study by Per Tidemand, Steffensen, and Olsen (2007) failed to establish the relationship between the billing systems and water payment using a statistical method, which is what this study will do.

The study by Pretorius and Schurink (2007) showed that delivery of services was influenced by the systems in place. In the process, the study established that there were challenges in systems, which hindered service delivery. These challenges included among others; effective systems. The information obtained from this study by Pretorius and Schurink (2007) will be very helpful in establishing the factors in billing systems, which influenced the service delivery. However, the study by Pretorius and Schurink (2007) did not test for a relationship between the factors and service delivery. This is the gap this study will fill, by testing the relationship between systems and processes and payment of water in Embu Municipality.

Baker (2009) conducted a study which found that water pricing system required being reforms within the WSPs. The study by Baker (2009) left very many gaps unfilled. For

instance it was not clear what should be done to ensure the WSPs had participated in billing. This study will relate the billing systems to the payment of water, which the study by Baker (2009) failed to do.

Locally, Moraa, Otieno and Salim (2012) established that water service providers needed to develop and manage water resources efficiently and effectively, and at the same time being accountable to consumers. They found that some challenges facing WSPs were related to billing system. It was established that good systems, were key to effective service delivery. Although the study by Moraa *et al.* (2012) did not clearly show how the billing systems affected the payment of water, it provided information linking billing systems to the payment of water. This study will fill the gap that the study by Moraa *et al*. (2012) did not fill, of related systems and processes to payment of water.

2.2.2 Influence of Cost of Water

The cost of water in Kenya has been identified as one the major constraints in facilitating access to safe and affordable water by all. Elsewhere in the world, many studies regarding the impacts of the cost of water against access have been conducted and they have presented various observations. It is in this regard that the present study reviewed various studies related to cost of water. For example, Baker (2009) conducted a study on water supply in Cambodia, Kenya, and Philippines, which found that water was supplied by fairly diverse groups, with substantial differences in their business operations and in financial sustainability. The prices for services varied considerably by type of provider. In particular, it was established WSPs lacked capacity on the cost of billing, which hindered service delivery. Such information provided a basis to consider cost of water as an important factor in influence the payment of water. Similarly, a study by Boakye and Nyieku (2010) found out

that the most important factor in cost of water was the appropriateness of the levels of service to the affordability, and the maintenance provided. The study argues that "*unless consumers are convinced of the need to pay for services, cost recovery will remain a problem, and the long-term sustainability of drinking water provision will be compromised. An increased trust and confidence, through better information and communication, can have a positive influence on user's satisfaction and willingness to pay*". It emphases on improving willingness to pay is improved service delivery and relationship between the consumers and WPSs. The paper by Boakye and Nyieku (2010) brought in a concept that would ensure that all the customers, rich and poor were served and the cost of recovery was ensured in determining cost of water. The objective of water management and reforms was to ensure that adequate, safe and affordable water was available to all. Increasing the tariffs would automatically eliminate the poor and the low income earners. To ensure that all were served, this study conceptualizes on the need to establish a relationship between the WSPs and the water consumers, to ensure that payment are made on time. This information will help to identify the factor to use in cost of water. Cost of water indicators includes water pricing, tariff adjustments, negotiations/ consultations. The tariffs are predetermined and the WSP cannot change these, as per the contract, which make it difficult to pay for the cost of water supply when the tariffs do not permit.

2.2.3 Influence of Revenue Collection Systems

According to Akech (2007) the main problems affecting water payment in the region are weak billing and revenue collection mechanisms, cost of water and heavy financial losses. Athi Water Services Board (2009) attributed the lack of payment of water to cost recovery and their financial base. Various studies were found useful in regarding revenue collection as a factor influencing payment of water by users. Mumma *et al.* (2011) showed that the WPSs

are suffering due to lack of centralized repository of data. They indicated that there is no detailed listing of which agency has what data (and at what cost). This means that water allocation decisions may be based on incomplete data or no data at all.

Where the WSP has revenue collection mechanism (such as few steps in revenue collection, number of pay points, mode of revenue collection,), the payment of water by consumers is prompt too. The generation of revenues by WSPs suffers many challenges attributable to billing system, revenue collection system, cost of water, and water consumer behaviuor (UN-HABITAT, 2011). To overcome some of the challenges so as to attain sustainability and be able to meet their financial sustainability, WSPs have an option of adjusting their tariffs to reflect cost of producing water. Average tariffs should at least be equal to the unit operation cost. Effort should at the same time be made to adopt pro-poor tariffs to ensure that services are afforded to the poor. A large number of WSPS were formed during the reforms and rely on tariffs that were gazette by the Ministry of Water and Irrigation in 1999. Since then no tariff adjustment were realized and most WSPs are struggling to pay basic inputs to production like electricity bills, chemicals, statutory deductions etc. The economic performance of Kenyan Water Service Providers is closely monitored by WASREB and made available in the Impact Report to encourage competition and spread best practices. Important indicators of economic efficiency are: collection rates, the level of non-revenue water, metering ratios and labour productivity. Most Kenyan Water Service Providers do not meet the benchmarks in these dimensions (WASREB 2009).

Another challenge is the Unaccounted for Water (UFWS), being the difference between the amount of water produced and the amount of water sold. Accompanying this is the UFW, which is mainly due to leakage from pipes, unauthorized use (illegal connections, unbilled consumers), authorized but unmetered connections, inaccurate master meters for industrial,

commercial and domestic purposes. This UFW is also referred to as non-revenue water (NRW). These challenges directly translate to the amount of money lost by WSPs, by extension in the entire water sector. Overcoming these challenges is crucial step in improving the financial base of water utilities and saving scarce water resources. (WASREB 2009). In addition to the fore mentioned problems in revenue collection by WSPs, there is the issue of the systems and processes that the WSPs have put in place to collect the revenue. These include the number and location of pay points; the mode, number and availability of the various methods of making the payments which may be either electronic or manual. EWASCO is not exempted from these problems and therefore this study will endeavour to establish to what extend these factors affect the payment of water bills. The study will evaluate their adequacy, effectiveness and efficiency.

2.2.4 Influence of Water Consumer Behaviour

As observed by Paine (2002), establishing consumer behaviour is one of the key to establishing successful business. While it is important to come up with a product or service with exceptional quality, having a clear grasp of how your target consumers react or behave and what factors affect their buying patterns and behaviour will enable you to address their needs and establish a more successful business (Paine, 2002). Very many different models on consumer behaviour have been advanced, for instance, the economic model of consumer behaviour focuses on the idea of getting the most benefits while minimizing costs. Thus, one can predict consumer behaviour based on economic indicators such as the consumer's purchasing power and the price of competitive products. Likewise, there is the learning model which is based on the idea that consumer behaviour is governed by the need to satisfy basic and learned needs such as food, clothing and shelter and fear and guilty respectively. Thus, a customer will have a tendency to buy things that will satisfy their needs and provide

satisfaction. There is too the psychological model which takes into consideration the fact that consumer behaviour is influenced by both the conscious and the subconscious mind. The three levels of consciousness discussed by Sigmund Freud (id, ego and superego) all work to influence one's buying decisions and behaviour.

Successful businesses understand how to leverage the different factors that influence consumer buying behaviour to effectively market their products or services and maximize sales (Kenrick, 2002). Studies have shown that there are generally four main factors that play a role in the consumer's buying behaviour. These factors are cultural factors, social factors, personal factors and psychological factors. The psychological factors that influence an individual's decision to make a purchase are further categorized into the individual's motivation, perceptions, learning and his beliefs and attitudes.

Perceived usefulness has been found to be significantly related to intention to accept the service. Perceived usefulness has been found to be a better predictor of intention to use compared to ease of use. Perceived usefulness was the driver of the intention to pay for the service. The study by Ramayah *et al* (2003) clearly portrayed perceived usefulness as the main behavioral aspect of the consumers which diversely determined the payment for the services. Although this study came out with findings that would help in construction of the variables to this research, it failed to exhaust all the aspects of the consumer behavior.

A study by Ibrahim *et al* (2006), revealed six composite dimensions of customer behavior to service delivery; provision of convenient/accurate operations; the accessibility and reliability of service provision; good queue management; service personalization; the provision of friendly and responsive customer service; and the provision of targeted customer service. Perceived usefulness, security and privacy are the main perusing factors to accept a service.

The study by Ibrahim *et al* (2006) embarked on perceived usefulness as regards appreciating a service and therefore conforming to it. The study gave insight information on the influence of usefulness of service provided by WSPs and therefore the willingness to pay for such services. Lastly, the study proposes that Consumers seek out to pay where they see best value for money and they are educated about it. The Customer Behavior is indicated by; awareness, willingness to pay, and reliability of supply (quality, frequency, quantity)

2.3 Theoretical Framework

The study developed a concept based on various theories. Certain theories best explain the role of water service providers in water management. For instance, the Agency theory contents with two participants; agent, and the stakeholders. According to Bhimani (2008), the theory requires a separation of ownership and control, where the stakeholder command the ownership as the agent ensure control. This way, the stakeholders expect the agents to act and make financial decisions in the interest of the stakeholders. The agent will work as per the expectations of the stakeholders with the aim of maximizing value of the stakeholders. With regard to water resource management, the WSPs are expected to pay for the water use to satisfy the demands of WRMA and maximize the value of WSBs. They are there to ensure that WRMA and WSBs successively sustained financial factor. This would only be made possible by ensuring that all the payments for water consumed are prompt. The WSPs should show their agency proficiency by collecting all the payments for water supplied to consumers at the appropriate time and efficiently.

Another theory, the Stewardship Theory, suggests the agents protect and make surpluses for the owners (Abdullah & Valentine 2009). It stresses that the agents must ensure that they operate the services to optimize financial performance, as they retain sufficient surpluses. The

theory demand for existence of a structure, which empowers the agents and allows for their autonomy, built on trust. The WSPs are actually agents, who provide service on behalf of WSBs. According to this theory, WSPs must ensure that the WRMA collect enough money to sustain the water management system in Kenya. The operations in these WSPs must ensure that there is optimization of their financial performance.

Thirdly, the study reviewed the cost-recovery paradigm as explained by Baker (2009), which is based on the economic theory and rests on a supply-side economics approach. Based on this theory, the WSPs are not able to sustain their operations without the capacity to charge prices which cover capital costs, variable costs, and maintenance costs, which means they are not able to engage in the sale of water to all customers without cost recovery. To reach the ideal of economically efficient provision, each unit of water should be sold at a price equal to its marginal cost plus fixed costs divided by the quantity supplied, and a certain quantum of profit may be added. This paradigm is consistent: the neoclassical economics, which insist that "efficient marginal pricing of all units leads to supply and demand meeting at a point of equilibrium; and since all people have a demand for a certain amount of water, all will be served at their equilibrium price. Water allocation based on such added value logic imperils the water usage of the poor thanks to the lower added value of their consumption; we must merely substitute the concept of "added value" for its functional equivalent, "capacity to pay". If the hypothetical industrial enterprise is able to sell its products on the market at ten times the value per litre of water used, and water is the only relevant input, then the enterprise's capacity to pay for water is equal to its added value, or ten times as high as that of the agricultural enterprise. Thereby, a greater quantity of water will be allocated by any profit-maximizing water supplier to the industrial enterprise; the supplier is here merely responding to effective demand. To a profit-seeking water company, the added value of supplying water to the wealthier citizen appears 10 times higher than that of supplying to the

poorer citizen. The water company will invariably and logically concentrate its resources on supplying water to the higher value added customer – even if this customer's consumption is part-luxury and the poorer customer's consumption is wholly at a subsistence level. From the supply-side perspective of a cost recovery-oriented firm, demand is only worth meeting if the firm is able to cover the costs of the supply. Any water connection built must therefore expectably cover at least its initial infrastructure costs plus the marginal cost of supply and upkeep".

The pricing theory shows that a surplus can obviously be obtained when one buys an asset at lower price and then sells the same asset at a higher price. According to the theory, the price of the assets changes up to equilibrium, when there are no more positive returns between the same assets and the possibility of profiting from arbitrage is gone. (Rorden and Kristofer, 2010). This theory was found very useful in explaining the cost recovery, which must ensure that there is sufficient surplus after recovering the cost of water.

Another theory, Parkinson theory was emphasized by Jochimsen, (2007) who indicated that that the service delivery to consumers in public sector is improved by designing effective mechanism. The theory stresses on improving the design of the mechanisms used in service delivery. It insists that improvement in such mechanism would invariably improve the service delivery. The theory suggests these improvements would be achieved by increasing the number of counters or service points where customers are served, which could reduce waiting time. Other improvement is with equipping service employees with relevant skills and knowledge. Further, the firm can increase service delivery by dividing up the task of servicing a particular client into several sub-tasks to ensure that clients deal with a number of service employees instead of one and ensuring effective and more supervision within the

office. This theory related service delivery to systems and process in the public service agency. It shows that service delivery is determined by the mechanisms, available at the service delivery location. This is to say that the revenue collection systems play a key role in payment collection from the water consumers by WSPs. With sufficient revenue collection locations and mechanisms, the WSPs would conveniently collect all water payments from the customers, which increase payment of water.

The main theory which plays a central role in addressing the customer behavior is Theory of reasoned action (TRA), a well-established social psychological model. This theory assumes that individuals are usually rational and will consider the implications of their actions prior to deciding whether or not to perform a given behavior. TRA postulates that an individual's consciously intended behavior is a result of his attitude towards performing the behavior and subjective norm (SN), which is the overall perception of what family, friends, and colleagues think the individual should or should not do. In the context of payment of water, the more positive the attitude towards payment of water by consumers and the greater the perception of social pressure (SN) towards paying, the stronger the intention to continue paying (Ibrahim *et al*, 2006)

2.4 Conceptual Framework

This study proposed that the payment of water in Embu Municipality is influenced by billing system, revenue collection system, cost of water, and water consumer behaviuor. In which billing system, revenue collection system, cost of water, and water consumer behaviuor are the independent variables and the payment of water is the dependent variable. However there are other variables which may influence payment of bulk raw water use charges by WSPs in Embu County. This study considers such variables as intervening variables. These included

the legal framework, economic factors, tariffs, and attitudes of water consumers. This concept is captured in Figure 1.

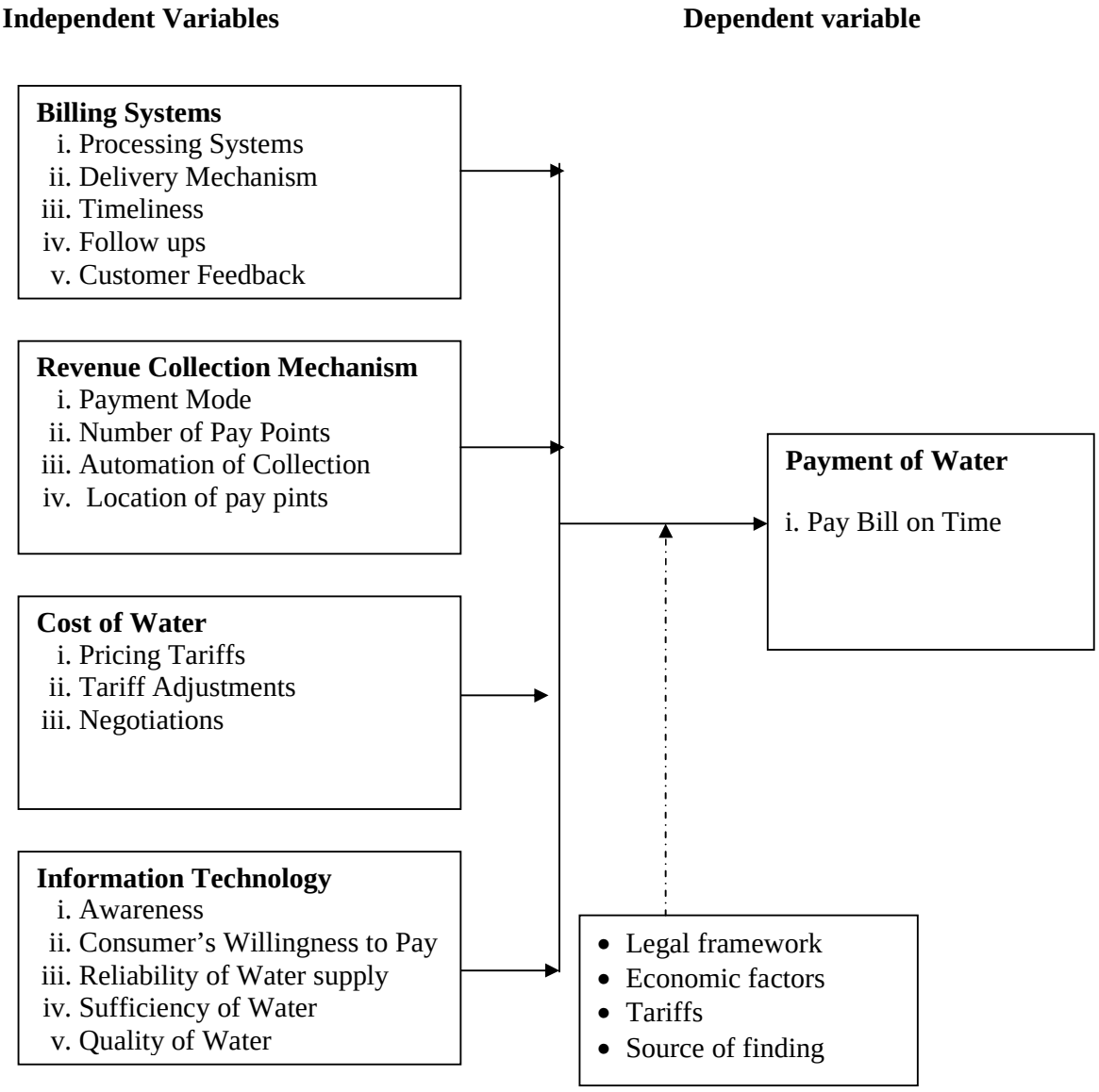

Figure1: Conceptual Framework

Note: Overall, the results of the relationships showed that the consumer behaviour had a positive effect on water bill payment; the cost of water had effect on their ability to pay; there was no relationship between revenue

collection mechanism and the non-payment of water bill and that there is a positive relationship between billing system, bill delivery mechanism; failure to produce water bills on time on the payment of water bills..

2.5 Summary.

Many studies were conducted on billing systems (Per Tidemand *et al.*, 2007; Pretorius & Schurink, 2007; Baker 2009; and Moraa *et al.*, 2012), revenue collection (Kaseem, 2011; Normand *et al*.., 2002, Jochimsen, 2007), Cost of water (Baker, Boakye & Nyieku, 2010; and Tiwari & Bonaya, 2011)). However, none of these studies addressed billing systems, revenue collection, and cost of water and, customer behavior jointly as factors influencing payment of water by customers. Further, very few studies, if any, related billing systems, revenue collection, cost of water and, customer behavior to payment of water using a statistical method. This is the gap the study filled.

CHAPTER THREE

RESEARCH DESIGN METHODOLOGY

3.1 Introduction

This chapter covers the research methodology, which gives direction to follow in order to get answers to issues that are of concern. The main contents of the methodology are research design, the target population, sampling, tools and techniques of data collection, pre-testing, validity, reliability, data analysis and ethical considerations.

3.2 Research Design

This study used a descriptive survey method to obtain information on the payment of water by consumers, which was used to analyze to establish the factors influencing water payments in Embu Municipality. First the study sought to explains the payment of water by consumers, phenomenon and provided insights into this problem by describing the variables of interest, which made descriptive a favourite. This study also sought to define, estimate, predict and examine all the relationships between the Independent Variables (IVs) and the dependent Variable (DV), where descriptive design serves well (Kombo &Tromp, 2006). The present study sought to provide useful and accurate information to answers the research questions based on when, and how. It used descriptive design to accurately obtain the answers, since descriptive design is used to answer question on who, what, when, and how.

3.3 The Target Population

The target population was the 8,836 water consumers in Embu Municipality and EWASCO. The target population of water consumers is captured in Table 3.1

Target population of the consumers

Table 3.1 Number of connected consumers per supply zone

Supply zone	Number of consumers
Njukiri	587
Blue valley	1,687
Spring Valley	584
Central Business District	1,083
Majengo	1,000
Dallas	2,380
Majimbo	1,050
Karurina	297
PIA	168
Total	**8,836**

Source: EWASCO 5th Annual General Meeting Report.

3.4 Sampling Size and Procedure

Owing to the size of the sample frame, the researcher used the Fischer sampling technique to obtain the sample size (Fisher, 1999). The formula is

$N=Z^2PQ/D^2$ where Z is the standard normal distribution = 1.96, P is the probability of selecting a unit which in our case is 0.5 and Q is the probability of not selecting a unit = 1-P = 1-0-5 =0.5. D is the confidence level (95%) i.e. 0.05.

Such that $N= 1.96^2 \text{ X } 0.5 \text{ X } 0.5/0.05^2 = 384$

The expected number of respondents was 384 but the researcher chose 400 respondents as a rounded number. The researcher collected data from the representative sample of 400 subjects consisting of water consumers in Embu Municipality. The sample population came from the nine supply zones of Embu Municipality area of supply namely Njukiri, Blue Valley, Spring Valley, Central Business District, Dallas, Majengo, PIA, Majimbo and Karurina. The study used stratified sampling to select the appropriate number of respondents from each area, making to a total of 400. Finally, the study used simple random sampling to select the respondents from each estate making a total of 400 respondents. Thus, simple random was used to select these consumers and thereby form the respondents

Sample size

Table 3.2 Sample Size

Supply zone	**Number of consumers**	**Sample size**
Njukiri	587	27
Blue valley	1,687	76
Spring Valley	584	26
Central Business District	1,083	49
Majengo	1,000	45
Dallas	2,380	108
Majimbo	1,050	48
Karurina	297	14
PIA	168	7
Total	**8,836**	**400**

Source: EWASCO 5th Annual General Meeting Report.

3.5 Tools and Techniques of Data collection

Data was collected from both primary and secondary sources.

3.5.1 Data Collection Tools

Primary data was collected using a structured questionnaire, which had closed ended questions. The structured questions are usually standardized to allow the respondents to reply to the same questions in a defined manner. The questionnaire was justified, as it will allow the intended respondents, who are all literate and hence able to understand the questions posed therein on their own, more time to reflect on their answers thereof. The researcher provided guidance and clarifications on how to answer the questions (Kombo & Tromp, 2006). The researcher conducted interviews to confirm and clarify issues arising during data collection (McNamara, 2009). This gave the respondents complete freedom of response and encouraged them to offer explanation.

Secondary data was collected from existing documents from the water resource management stakeholders. The main source of secondary information was published guides, journals and information from internal sources.

3.5.2 Data Collection Techniques

The researcher first obtained a letter from University of Nairobi approving and introducing him to the respondents. Before the data was collected, the study first conducted a pilot test on the research tool, where data for testing was collected from respondents who were not allowed to participate in the data collection for the study. During data collection, the researcher first sought an appointment with the Officer-in-charge or a senior manager of

EWASSCO, requesting to be allowed for the administration of the questionnaire within the area of operation. Arrangements were then made on when and how to conduct the data collection. When collecting primary data, the researcher and research assistants assisted the respondents to fill the questionnaire and at the end they confirmed any issues arising out of the data supplied (Kombo & Tromp, 2006).

The study sought the services of three Research Assistants (RAs), who assisted in data. They were thoroughly trained on the questionnaire and how to collect data. The RAs were the assigned different three areas to visit for data collection and directed on the respondents to administer the tool in each area. When collecting primary data, the researcher and research assistants visited the assigned area and sought audience with the respondents. They requested the respondents for permission to administer questionnaire to them. During the course of data collection, the RAs assisted the respondents to fill the questionnaire and at the end they confirmed any issues arising out of the data supplied. They also posed the questions in the interview guide and recorded the answers accordingly.

The EWASCO staff responded by providing secondary data using the Institutional Assessment Tool provided in Appendix III. The data collected was used to verify the answers provide by the water users (through the questionnaire). The EWASCO staff were provided with the Institutional Assessment Tools (IAT), which they filled and returned to the researcher after two days.

3.6 Pre-Testing

The study conducted a pre-testing through pilot test of the study instrument before administering it. The pilot testing was conducted in an attempt to test the reliability of the research tool. The pilot tests identified possible problems; clarify on the instrument and

appropriateness of the language during the main study. In fact, the purpose of the pilot exercise was to debug the study instrument so that subjects in the main study did not experience any difficulty in completing it (Kvale, 2007). The pilot also assessed the relevance of the research objectives, tested the respondents' understanding of the research questionnaires and any potential problems with unfamiliar terms used in the instrument, and got an idea of how long it would take to complete the questionnaires so as to fit that element into the data collection phase timetables.

3.7 Validity

Validity is the degree to which result obtained from analysis of the data actually represents the phenomenon under study. Validity of instrument which is the accuracy and meaningfulness of inferences was measured using content validity test. Content validity measures the degree to which data collected using a particular instrument represents a specific domain of indicators or content of particular concept. The present study assessed the content validity using experts; one from the water supply management, and the other from project planning and management (the supervisor of the project). The water supply management expert determined whether the sets of items can accurately measure the payment of water use charges by Water Consumers. The project planning and management Consultant, who is the project supervisor, assessed the tools to establish what concept the instrument was trying to measure. Expert opinion was requested to comment on the representativeness and suitability of questions and give suggestions on the structure of the tools. The experts commented on the representativeness and suitability of questions and give suggestions on the structure of the tools. This helped improve the content validity of the data that was collected.

3.8 Reliability

Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda and Mugenda, (2003). The pre-testing aims at determining the reliability of the research tools including the wording, structure and sequence of the questions. According to Kvale, (2007) the pilot test is conducted to detect flaws and weakness in design and instrumentation and to provide data for selection of a probability sample. Although the respondents do not have to be statistically selected, very small populations in pilot testing runs the risk of exhausting the supply of respondents and sensitizing them to the purpose of the study (Cooper and Schindler, 2008).

3.8.1: Reliability statistics

Table 3.3 shows that the overall cronbach alpha is 0.882, which is high and indicates a strong internal consistency among the four non-payment of water bills indicators. Essentially this means that respondents who tended to select high scores for one variable also tended to select high scores for the others.

Table 3.3: Reliability statistics

Cronbach's Alpha	No. of Items
0.882	4

3.8.2: Corrected Item-Total Correlation

Table 3.4 shows the corrected Item-Total Correlation It highlights the column containing the "Corrected Item-Total Correlation" for each of the items. This column displays the correlation between one variable and the sum score of the other three items. For example, the correlation between poor bill delivery mechanism and the sum of insufficient Number of Pay

Points, Pricing Tariffs, Failure to produce bills in time is r = .795. What this means is that there is a strong, positive correlation between the scores of poor bill delivery mechanism and the combined score of the other three (insufficient Number of Pay Points, Pricing Tariffs, Failure to produce bills in time).

Table 3.4: Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Poor bill Delivery Mechanism	5.9657	6.869	.795	.730
Insufficient Number of Pay Points	6.2929	8.149	.844	.891
Pricing Tariffs	5.4934	8.060	.763	.779
Failure to produce bills in time	5.7414	6.674	.874	.840

The pilot study was conducted on ten water consumers of three different consumer categories, who did not participate in the data collection. The research tool was administered to the respondents who were allowed one week to respond. The data was tested for reliability to establish issues such as data sources, methods of data collection, time of collection, presence of any biasness and the level of accuracy. The test for reliability established the extent to which results were consistent over time. The researcher improved the instrument by

reviewing or deleting inconsistent items from the instrument. To test for reliability, the study used the internal consistency technique by employing the Cronbach coefficient Alpha test for testing the research tools. Internal consistency of data is determined by correlating the scores obtained from one time with scores obtained from other times in the research instrument. The result of correlation is the Cronbach coefficient Alpha, which is value between -1 and 1. The coefficient is high when its absolute value is greater than or equal 0.7 otherwise it is low. A high coefficient implies high correlation between these items which means there is high consistency among the items and such items should be retained in the tools. This study correlated items in the instruments to determine how best they relate. Where the coefficient was very low, then the item was reviewed by either removing it from the tool or correcting.

3.9 Operational definition of variables

Table 3.5: Operational Definition of Variables

Variable	Type of variable	Indicators	Measure	Scale of Measurement	Tool of Analysis
Payment of Water bills by Consumers	Dependent Variable	- Disconnections - Prosecutions - Fines	Promptness in Payment of Water	Ordinal	Descriptive
Billing Systems	Independent Variable	- Processing Systems - Delivery Mechanism - Timeliness - Follow ups	Relationship between billing system and payment of Water by consumers	Ordinal	Descriptive
Revenue Collection Mechanism	Independent Variable	- Payment Mode - Number of Pay Points - Automation of Collection - Location of pay points	Relationship between Revenue Collection Mechanism and payment of Water by consumers	Ordinal	Descriptive
Cost of Water	Independent Variable	- Pricing Tariffs - Tariff Adjustments - Negotiations	Relationship between Cost of Water and payment of Water by consumers	Ordinal	Descriptive
Consumer Behaviour	Independent Variable	- Awareness - Willingness to Pay - Reliability of Water supply (quantity, quality and frequency)	Relationship between Consumer Behaviour and payment of Water by consumers	Ordinal	Descriptive

3.10 Methods of Data Analysis

The analysis of the present research was done by the use of programme, statistical package for social sciences (SPSS). The data was coded before running the analysis. The scale value was considered as the code for a particular statement. Further, suitable codes on variables for each tool were available after analysis through the SPSS. The calculated percentages, and product moment coefficient correlation of the billing systems were used for the analysis purposes. The analysis of correlation analysis was used to find out if there was a relationship between billing system and payment of water bills by running correlation matrices. The product moment correlation coefficient was evaluated to determine the strength of the relationship between independent and dependent variables.

3.11 Ethical Issues

Ethical considerations in research can be defined as ensuring that the researcher conforms to the standards of conduct of the authorities in the area of research. Examples of ethical issues that may arise are voluntary participation of respondents, deception to participants, anonymity and confidentiality of information given, analysis and reporting, harm or danger to participants and any other professional code of ethics expected. To ensure that the research was done in an ethical manner according to the expectations of all authorities, a letter from the university was obtained. The researcher first obtained an introductory letter from the University of Nairobi to collect data from the organization. The researcher held a moral obligation to treat the sensitive information with utmost decorum. The researcher informed the respondents that the instruments being administered was for research purpose only and the respondent's identity would be kept confidential. For those respondents who were reluctant to disclose some information, the researcher reassured such respondents of use of the information and the confidentiality of identity of the informants.

3.12 Summary

This study has been designed to use descriptive design survey targeting a sample of 400 consumers as respondents sampled from an estimated 89,000 sample size. Data will be collected using a both open and closed ended questionnaire as well as interviewing of the respondents after which the data will be analyzed using both descriptive and content analysis and presented in the form of tables and charts.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter covers analysis of data, presentation and interpretation of the study results, obtained using the collected data on the assessment of the factors that influence the lack of payment of water in Embu Municipality, Embu County. The focus was on how the billing system affected payment of water; how the revenue collection system was effecting the water payment by water users; the cost of water and the consumer behavior and their contribution to the failure to pay water bills on time. Other factors such as economic factors, pricing tariffs, and the ability of the consumer to pay on time were also considered. Both qualitative and quantitative data analysis results are presented.

4.2 Data analysis and presentation

The data analysis was based on the research objectives and is presented here. The data was analyzed using descriptive analysis of quantitative data and content analysis of the qualitative data. Inferential analysis was done to establish whether the independent variables actually measure the dependent variables is also presented.

4.2.1 Respondent Response Rate

The survey fieldwork was conducted in the months of June and July 2012.The questionnaire was administered by the researcher on 400 respondents and 393 respondents replied and therefore the return rate was 98.25%. The researcher read and interpreted to the respondents each of the questionnaire items when requested. The questionnaire provided a list of potential areas of challenges facing the payment of water by water consumers which the respondent rated. The results on Table 4.3 show the study response rate. From the results, there was a

response rate of 98.25%, which was very high (very good) according to Mugenda and Mugenda (2003) who said that a response rate of over 69% was very good. The high response rate may be attributed to fact that the research assistants assisted the respondents most of the times during the filling of the questionnaire. In only a few circumstance that the respondents were left to fill the questionnaire alone. The high response rate may be attributed to the approach used in data collection and the respondents' willingness to participate.

4.2.2 General characteristics of the respondents

An assessment of the kind of water customers connected to EWASCO, gave the results as shown in Table 4.1. This table shows that majority of water consumers in Embu municipality (79.4%) are individual or households, followed by Business/private institutions at 13.2% and least water consumers was Government institutions at a mere 7.4% of the total water consumption in Embu municipality. The assessment for the various water consumers were as tabulated below

Table 4.1: Category of consumers

Category of Customers	**Frequency**	**percentage**
Government Institutions	29	7.4
Business/ Private	52	13.2
Individuals	313	79.4
Total	**394**	**100**

4.2.3: Relationship between period of stay and Period Used Water from EWASCO

The study undertook to establish how long the water consumers had been connected with water supply and how long have they been using water. This was t ascertain the duration of their experience is using water from EWASCO. The results are tabulated in Table 4.2. Among those who participated in the study, most of them had stayed in Embu Municipality for over 7 years, as shown in Table 4.2. Those who had used water from EWASCO for over 7 years were the majority, forming 28.00% of the total response. They were closely followed by those who had only used water from EWASCO for less than 2 years, who made up 26.70% of the total response. Those who had used water from EWASCO for between five and seven years formed 25.70% of the total response. The least were those who had used water from EWASCO for between two and four years. They formed 19.60% of the total response. The close percentages show the popularity of EWASCO as a water provider to the residents of Embu municipality.

Table 4.2: Period of using water from EWASCO

Period of using water from EWASCO	**Frequency**	**Percentage**
Less than 2 years	105	26.6
2 to 4 years	77	19.5
5 - 7 years	102	25.9
Over 7 years	110	27.9
Total	**394**	**100**

4.3 Non-payment of water bills analysis

Using the indicators for no-payment of water bills, a single variable called no-payment of water bills was developed and analyzed and presented as follows.

4.3.1 Regular Water Disconnections

Table 4.3 shows that about 60.7% of the respondents said that they had observed water disconnections in their area, while about 34.7% disagreed that there were no regular water disconnections. This high rate of water disconnections can be attributed to nonpayment of water bills on time.

Table 4.3: Respondent assessment of Regular water disconnections

Respondent Assessment	**Frequency**	**Percentage**
Strongly agree	78	19.7
Agree	208	52.8
Neither	3	4.6
Disagree	112	28.4
Strongly disagree	23	5.8
Total	**394**	**100**

4. 3.2: Frequency of prosecutions of water payment defaulters

The consumers were questioned on the frequency of water disconnections as a result of water bills payment default and their answers are as presented in Table 4.4.

Table 4.4 shows that 56% of the respondents said that there are no prosecutions of water bills payment defaulters and about 31.7% said there is a prosecution. 12.2% were neutral, meaning that they were not aware whether water bills defaulters are usually prosecuted. This apparent

lack of information and high rate of non-prosecutions of water bills payment defaulters could explain why the residents do not pay their water bills on time.

Table 4.4: Frequency of prosecutions of water bills payment defaulters

Respondent Assessment	**Frequency**	**Percentage**
Strongly agree	6	1.5
Agree	119	30.2
Neither	48	12.2
Disagree	183	46.4
Strongly disagree	38	9.6
Total	**394**	**100**

4.3.3: Frequency of fines for water bills payment defaulters

The consumers were questioned on the frequency of fines for water bills as a result of water bills payment default and their answers are as presented in Table 4.5. This Table shows that majority of the respondents (77.2%) either disagreed or strongly disagreed that the water supplier always charges fines for water bills payment defaulters and about 16.2% either agreed or strongly agreed. 6.6% of the respondents were neutral. This is another factor which shows that the water consumers in Embu municipality do not see the urgent need to pay water bills on time.

Table 4.5: Frequency of fines for water bills payment defaulters

Respondent Assessment	Frequency	Percentage
Strongly agree	8	2.0
Agree	56	14.2
Neither	26	6.6
Disagree	245	62.2
Strongly disagree	59	15.0
Total	**394**	**100**

he water supplier always charges fines for water payment default

4.3.4: Frequency of bribes to evade disconnections or fine or prosecutions

The consumers were questioned on the frequency of bribes to evade disconnections or fines as a result of water bills payment default and their answers are as presented in table 4.6. This Table show that about 56.6% of the residents said that the staff of the water supplier asks for bribes from water consumers to evade disconnections or fine or prosecutions. Another 26.4% said that the staff of the water supplier does not ask for bribes to evade disconnections or fine or prosecutions. About 17% did not either agree or disagree. This shows that water consumers in the municipality could delay payment of water bills for as long as they are willing to part with a bribe to avoid water disconnections.

Table 4.6: Frequency of bribes to staff

Respondent Assessment	**Frequency**	**Percentage**
Strongly agree	40	10.2
Agree	183	46.4
Neither	67	17.0
Disagree	65	16.5
Strongly disagree	39	9.9
Total	394	100

for to evade disconnections or fine or

4.4: Relationship between billing systems and non-payment of water bills

The residents asked to say whether weak water bill processing systems had any influence in the payment of water bills and their answers are as presented in Table 4.7.

4.4.1: Frequency of Water Bill Processing Systems

Table 4.7 show that 67.8% of respondents said that a Weak Water Bill Processing Systems causes delays in water payment. Weak Water Bill Processing Systems causes delays in water payment. Another 27.5% either disagreed or strongly disagreed that a Weak Water Bill Processing Systems causes delays in water payment. The respondents who were neutral formed 4.6%. This shows that water consumers do not receive their water bills on time and this causes delays of payment of water bills.

Table 4.7: Water Bill Processing Systems

Respondent Assessment	Frequency	Percentage
Strongly agree	52	113.2
Agree	215	54.6
Neither	18	4.6
Disagree	102	25.9
Strongly disagree	7	1.8
Total	**394**	**100**

4.4.2: Correlation of non-payment of water bill and Water Bill Processing Systems

The relationship between the water bills processing systems and non-payment of water bills was subjected to a correlation calculation and the results are as shown in table 4.8.

This Table shows that there is a positive relationship between nonpayment of water bill and a weak Water Bill Processing Systems .This shows that there is a positive relationship between nonpayment of water bill and a weak Water Bill Processing Systems. The correlation coefficient($r=0.193$), $p=0.000$, which is statistically significant.

Table 4.8: Water Billing Processing System Correlations

		Nonpayment	Weak Water Bill Processing Systems causes delays in water payment
Nonpayment	Pearson Correlation	1	.193**
	Sig. (2-tailed)		.000
	N	392	390
Weak Water Bill Processing Systems causes delays in water payment	Pearson Correlation	.193**	1
	Sig. (2-tailed)	.000	
	N	390	390

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

4. 4.3: Frequency of bill Delivery Mechanism

The relationship between frequency of water bills delivery mechanism and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.9. This Table indicates that about 51.9% of the respondents said that poor bill Delivery Mechanism lead to delayed payments of water bills. Another 42.5% did not agree that poor bill Delivery Mechanism lead to delayed payments of water bills. Only 5.6% were neutral. This shows that an improvement in the bill Delivery Mechanism is needed so that the water consumers can pay their water bills on time.

Table 4.9: Bill Delivery Mechanism

Respondent Assessment	Frequency	Percentage
Strongly agree	32	8.1
Agree	172	43.7
Neither	22	5.6
Disagree	141	35.8
Strongly disagree	26	6.6
Missing System	1	0.3
Total	394	100

4. 4.4: Correlation of non-payment of water bill and Poor bill Delivery Mechanism

The relationship between the non-payment of water bills and poor water bills delivery mechanism was subjected to a correlation calculation and the results are as shown in Table 4.10. This Table shows that there is a positive relationship between nonpayment of water bill and Poor bill delivery Mechanism. The correlation coefficient(r=0.0.161), p=0.001, which is statistically significant indicating that poor bill delivery mechanism is associated with nonpayment of water bills.

Table 4.10: Bill Delivery Mechanism Correlations

		Nonpayment	Poor bill Delivery Mechanism lead to delayed payments of water bills
Nonpayment	Pearson Correlation	1	.161**
	Sig. (2-tailed)		.001
	N	392	390
Poor bill Delivery Mechanism lead to delayed payments of water bills	Pearson Correlation	.161**	1
	Sig. (2-tailed)	.001	
	N	390	390

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

4. 4.5: Frequency of Failure to produce water bills in time

The relationship between the failure to produce water bills in time and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.11. This Table shows that about 52.7% either disagreed or strongly disagreed that failure to produce water bills in time causes delays in payment of water. About 42.7% agreed that failure to produce water bills in time causes delays in payment of water. This shows that water consumers were divided on this opinion and therefore the water provider seems to be doing well on producing water bills in time.

Table 4.11: Failure to produce water bills in time

Respondent Assessment	Frequency	Percentage
Strongly agree	37	9.4
Agree	130	33.0
Neither	18	4.6
Disagree	166	42.1
Strongly disagree	40	10.2
Missing system	3	0.8
Total	**394**	**100**

4.4.6: Correlation of non-payment of water bill and Failure to produce bills in time

The relationship between the failure to produce water bills in time and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.12. This Table shows that there is a positive relationship between nonpayment of water bill and failure to produce water bills in time. The correlation coefficient(r=0.0.151), p=0.003, which is statistically significant indicates that failure to produce water bills in time is associated with nonpayment of water bills in time.

Table 4.12: Failure to produce bills in time Correlations

		Nonpayment	Failure to produce bills in time causes delays in payment of water
Nonpayment	Pearson Correlation	1	.151**
	Sig. (2-tailed)		.003
	N	392	387
Failure to produce bills in time causes delays in payment of water	Pearson Correlation	.151**	1
	Sig. (2-tailed)	.003	
	N	387	387

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

4. 5: Frequency of Lack of follow ups

The relationship between lack of follow-ups and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.13. This Table 4.13 results indicate that about 44% of the respondents said that lack of follow ups results into delays in payment of water bills whereas about 46% disagreed that lack of follow ups results delays in payment of water bills

Table 4.13 Lack of follow ups results delays in payment of water

Respondent Assessment	Frequency	Percentage
Strongly agree	29	7.4
Agree	145	36.8
Neither	36	9.1
Disagree	146	37.1
Strongly disagree	37	9.4
Total	394	100

4. 5.1: Correlation of non-payment of water bill and Lack of follow ups

The relationship between lack of follow-ups and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.14. This Table shows that there is a no relationship between nonpayment of water bill and lack of follow ups. The correlation coefficient(r=0.0.057), p=0.263, which is not statistically significant indicates that lack of follow ups is not associated with nonpayment of water bills in time. This indicates that water consumers are ready to pay their water bills without any follow ups to pay.

Table4.14 Lack of follow ups Correlations

		Nonpayment	Lack of follow ups results delays in payment of water
Nonpayment	Pearson Correlation	1	.057
	Sig. (2-tailed)		.263
	N	392	392
Lack of follow ups results delays in payment of water	Pearson Correlation	.057	1
	Sig. (2-tailed)	.263	
	N	392	392

4.6: Relationship between ineffective mode of paying bills and non-payment of water bills.

The relationship between ineffective mode of paying bills and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.15.

4.6.1: Frequency distribution of ineffective mode of paying bills

Table 4.15 results indicate that a majority of the respondents (73.6%) said that "There are ineffective mode of Paying bills which discourages them from paying water promptly" whereas about 22.7% either disagreed or strongly disagreed ineffective mode of Paying bills discourages them from paying water bills promptly . A mere proportion of 3.6% were neutral.

Table 4.15: Ineffective mode of Paying bills

Respondent Assessment	Frequency	Percentage
Strongly agree	65	16.5
Agree	223	56.6
Neither	14	3.6
Disagree	81	20.6
Strongly disagree	8	2.0
Total	394	100

4.6.2: Correlation of non-payment of water bill and ineffective mode of paying bills

The relationship between ineffective mode of paying bills and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.16. This Table shows that there is a no relationship between nonpayment of water bill and ineffective mode of Paying bills .The correlation coefficient(r=0.0.066), p=0.193, which is not statistically significant. This indicates that ineffective mode of paying bills is not associated with nonpayment of water bills in time. This shows that irrespective of the mode of water bill payment consumers are willing to pay their water bills.

Table 4.16: Ineffective mode of paying bills Correlations

		Nonpayment	There are ineffective mode of Paying bills which discourages me from paying water promptly
Nonpayment	Pearson Correlation	1	.066
	Sig. (2-tailed)		.193
	N	392	385
There are ineffective mode of Paying bills which discourages me from paying water promptly	Pearson Correlation	.066	1
	Sig. (2-tailed)	.193	
	N	385	386

4.7: Frequency distribution of "insufficient Number of Pay Points"

The relationship between insufficient Number of Pay Points and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.17. This Table results indicate that about 64% of the respondents said that "There are insufficient Number of Pay Points which discourage them from paying water bills" whereas about 33% either disagreed or strongly disagreed that there are insufficient Number of Pay Points which

discourage them from paying water bills .This shows that the management need to take action to speed up payment of water bills on timely.

Table 4.17: Insufficient Number of Pay Points

Respondent Assessment	Frequency	Percentage
Strongly agree	67	17.0
Agree	184	46.7
Neither	13	3.3
Disagree	111	28.2
Strongly disagree	18	4.6
Total	394	100

4.7.1: Correlation of nonpayment of water bill and insufficient Number of Pay Points

The relationship between insufficient Number of Pay Points and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.18. This Table show that there is a no relationship between nonpayment of water bill and insufficient Number of Pay Points. The correlation coefficient(r=-0.001), p=0.0.980,which is not statistically significant. This indicates that insufficient number of Pay Points is not associated with nonpayment of water bills in time. This shows that irrespective of the insufficient Number of Pay Points consumers are willing to pay their water bills in time.

Table 4.18: Insufficient Number of Pay Points Correlations

		Nonpayment	There are insufficient Number of Pay Points which discourage me from paying bills
Nonpayment	Pearson Correlation	1	-.001
	Sig. (2-tailed)		.980
	N	392	387
There are insufficient Number of Pay Points which discourage me from paying bills	Pearson Correlation	-.001	1
	Sig. (2-tailed)	.980	
	N	387	388

4.7.2: Inaccessible Location of pay points

The relationship between frequency distribution of "Location of pay points are not easily accessible which make me not paying water bills and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.19. The results in this table indicate that about 65.3% of the respondents said that "Location of pay points are not easily accessible which make them not to pay water bills promptly" whereas about 30.4% said that the "location of pay points are not easily accessible which make them not to pay water bills promptly" .This shows that the management need to find a more accessible means of water bills payment to encourage water consumers to pay water bills on time.

Table 4.19: Inaccessible Location of pay points

Respondent Assessment	Frequency	Percentage
Strongly agree	78	19.7
Agree	208	52.8
Neither	18	4.6
Disagree	112	28.4
Strongly disagree	23	5.8
Total	**394**	**100**

4.7.3: Correlation of nonpayment of water bills and location of pay points

The relationship between Locations of pay points is not easily accessible and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.20. This table shows that there is a no relationship between nonpayment of water bill and the location of pay points is not easily accessible". The correlation coefficient(r=0.020), p=0.0.702, which is not statistically significant. This indicates that the inaccessibility of pay points is not associated with nonpayment of water bills in time. This shows that irrespective of the location of pay points consumers still pay their water bills.

Table 4.20: Location of pay points are not easily accessible Correlations

		Nonpayment	The Location of pay points are not easily accessible which make me not paying water bills promptly
Nonpayment	Pearson Correlation	1	.020
	Sig. (2-tailed)		.702
	N	392	386
The Location of pay points are not easily accessible which make me not paying water bills promptly	Pearson Correlation	.020	1
	Sig. (2-tailed)	.702	
	N	386	387

4.8: Frequency distribution of failure to automate revenue Collection

The relationship between the failure to automate revenue Collection and non-payment of water bills was subjected to a correlation calculation and the results are as shown in table 4.21. This table results indicate that about 72% of the respondents said that “The failure to automate revenue Collection reduces chances of paying for water bills promptly” whereas about 22% either disagreed or strongly disagreed that there are the failure to automate revenue Collection reduces chances of paying for water bills promptly .This shows that the management need to embrace technology to speed up payment of water bills on timely.

Table 4.21: The failure to automate revenue Collection

Respondent Assessment	Frequency	Percentage
Strongly agree	88	22.3
Agree	197	50.0
Neither	23	5.8
Disagree	73	18.5
Strongly disagree	12	3.0
Total	**394**	**100**

4.8.1: Correlation of non-payment of water bill and failure to automate revenue Collection

Table 4.22 show that there is a no relationship between nonpayment of water bill and failure to automate revenue Collection. The correlation coefficient(r=0.093), p=0.0.069, which is not statistically significant. This indicates that the failure to automate revenue Collection is not associated with nonpayment of water bills in time. This shows that irrespective of the failure to automate revenue Collection consumers still pay their water bills but possibly late.

Table 4.22: Failure to Automate Revenue Collection Correlations

		Nonpayment	The failure to automate revenue Collection reduces my chances of paying for water promptly
Nonpayment	Pearson Correlation	1	.093
	Sig. (2-tailed)		.069
	N	392	386
The failure to automate revenue Collection reduces my chances of paying for water promptly	Pearson Correlation	.093	1
	Sig. (2-tailed)	.069	
	N	386	387

4.7: Relationship between Cost of Water and prompt payment of water bills.

The relationship between the **Cost of Water** and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.23.

4.7.1: Frequency distribution of the price of water affordability

Table 4.23 results indicate that about 61.3% of the respondents said that "The price of water is not affordable which affects my ability to pay for water bills" whereas about 33.8% said that "The price of water is being unaffordable does not affect their ability to pay for water bills" .This shows that the respondents felt that the cost of water was expensive to most of the consumers in Embu municipality.

Table 4.23: The price of water is not affordable

Respondent Assessment	**Frequency**	**Percentage**
Strongly agree	56	14.2
Agree	182	46.2
Neither	18	4.6
Disagree	109	27.7
Strongly disagree	22	5.6
Total	**394**	**100**

4.7.2: Correlation of non-payment of water bill and the price of water

The relationship between the price of water and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.24. This table shows that there is a positive relationship between nonpayment of water bill and the affordability of the price of water. The correlation coefficient(r=0.130), p=0.0.011, which is statistically significant. This indicates that the affordability of water is associated with nonpayment of water bills in time.

Table 4.24 The price of water Correlations

		Nonpayment	The price of water is not affordable which affects my ability to pay for water
Nonpayment	Pearson Correlation	1	.130*
	Sig. (2-tailed)		.011
	N	392	387
The price of water is not affordable which affects my ability to pay for water	Pearson Correlation	.130*	1
	Sig. (2-tailed)	.011	
	N	387	388

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

4.7.3: Frequency distribution of Pricing Tariffs

The relationship between the pricing tariffs and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.25. This table results indicate that about 35.4% of the respondents said that Pricing Tariffs influence the ability of consumers to pay water bills whereas about 56% said that the price tariffs do not affect their ability to pay water bills .This shows that the respondents felt that the price tariffs of water were following the proportion distribution

Table 4.25 Pricing Tariffs are not friendly

Respondent Assessment	Frequency	Percentage
Strongly agree	16	4.1
Agree	121	30.7
Neither	33	8.4
Disagree	153	38.8
Strongly disagree	64	16.2
Total	**394**	**100**

4.7.4: correlation of non-payment of water bill and the Pricing tariffs

The relationship between pricing tariffs and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.26. This table shows that there is a positive relationship between nonpayment of water bill and the water price tariffs. The correlation coefficient(r=0.191), p=0.0.000, which is statistically significant. This indicates that the higher the price tariffs the more the water bills payment delays and defaulters.

Table 4.26: The Pricing tariffs Correlations

		Nonpayment	Pricing Tariffs are not friendly and this influence my ability to pay water
Nonpayment	Pearson Correlation	1	.191**
	Sig. (2-tailed)		.000
	N	392	386
Pricing Tariffs are not friendly and this influence my ability to pay water	Pearson Correlation	.191**	1
	Sig. (2-tailed)	.000	
	N	386	387

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

4.8: Relationship between Awareness of water bills payment and prompt payment of water bills

The relationship between Frequency Distribution of awareness and prompt payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.27. This table results indicate that about 74.9% of the respondents said that" Lack of Awareness of water bills payment leads to them not paying water bills promptly" whereas about 17.7% said that lack of awareness leads to nonpayment of water bills. This shows that there is need to communicate effectively on the appropriate time and bills to be paid on time.

Table 4.27: Awareness of water bills payment

Respondent Assessment	Frequency	Percentage
Strongly agree	63	16.0
Agree	229	58.1
Neither	29	7.4
Disagree	57	14.5
Strongly disagree	12	3.0
Total	**394**	**100**

4.8.1: Correlation of non-payment of water bill and lack of awareness

The relationship between lack of awareness and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.28. This table shows that there is a no relationship between nonpayment of water bill and lack of awareness. The correlation coefficient(r=0.053), p=0.0.294, which is not statistically significant. This indicates that lack of awareness is not associated with nonpayment of water bills.

Table 4.28: Lack of Awareness of water payment Correlations

		Nonpayment	Lack of Awareness of water payment leads to my not paying water bills promptly
Nonpayment	Pearson Correlation	1	.053
	Sig. (2-tailed)		.294
	N	392	388
Lack of Awareness of water payment leads to my not paying water bills promptly	Pearson Correlation	.053	1
	Sig. (2-tailed)	.294	
	N	388	390

4.9: Frequency distribution of willingness to pay for water bills

The relationship between willingness to pay for water bill and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.29. This table results indicate that majority of the respondents (84%) said that they are not willing to pay for water use services provided by Embu municipality. Another 11% said that are willing to pay for water use services provided by Embu municipality .This shows that there is need to educate the residents to appreciate the services offered and change their attitude towards paying their water bills. This would greatly improve the rate of water bills payment in the municipality.

Table 4.29: Willingness to Pay for water use

Respondent Assessment	Frequency	Percentage
Strongly agree	78	19.7
Agree	208	52.8
Neither	18	4.6
Disagree	112	28.4
Strongly disagree	23	5.8
Total	**394**	**100**

4.9.1: Correlation of non-payment of water bill and willingness to pay for water bills

The relationship between willingness to pay for water bills and non-payment of water bills was subjected to a correlation calculation and the results are as shown in Table 4.30. Table 4.30: show that there is a no relationship between nonpayment of water bill and willingness to Pay for water bills. The correlation coefficient(r=0.028), p=0.0.584, which is not statistically significant. This shows that irrespective of the residents' attitude most of them still pay for their water bills.

Table4.30 willingness to pay for water bills Correlations

		Nonpayment	My willingness to Pay for water use is very low
Nonpayment	Pearson Correlation	1	.028
	Sig. (2-tailed)		.584
	N	392	387
My willingness to Pay for water use is very low	Pearson Correlation	.028	1
	Sig. (2-tailed)	.584	
	N	387	389

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the summary of research findings, discussions on the findings based on the literature review, conclusions and recommendations made by the study. The summary of findings follows the research objectives and the discussions draw references for the theories and empirical studies reviewed in the present study. Conclusions are derived from the summary for findings and recommendations drawn from the same thereafter. The recommendations are derived from the findings and recommendations for further research.

5.2 Summary of findings

The study results showed that there was a very high response (98.25%), which was very high and very good since it was over 69%. Most of the respondent had been using water supplied by EWASCO for over 7 years (28.00%) although a relatively smaller number only used water from EWASCO for less than 2years (26.70%). The summary of the findings inrelation to the study objectives are as tabulated in Table 5.1.

Table 5.1: Summary of Findings

No.	Study objective	Findings
1	Influence of Billing Systems on non-payment of water bills	Overall, the billing system affected the payment of water at EWASCO. This was due to poor bill processing and late bill delivery. However there was no relationship between lack of follow ups and nonpayment of water bills.
2	Influence of Revenue Collection Mechanism	Overall revenue collection had no effect on water bills non-payments. The pay points, revenue system automation, the revenue collection mechanism, the mode of paying and location of pay points did not discourage the respondents from paying water promptly.
3	Influence of Cost of Water on non-payment of water bills	There was a relationship between price of water, pricing tariffs and non-payment of water bills. Overall, the respondents showed that the cost of water had effect on their ability for promptly pay water bills
4	Influence of Consumer Behavior on non-payment of water bills	There was lack of awareness of water payment. However, this did not affect their promptness in paying water. It is also shows that the respondents indicated that they had low willingness to pay for water use. Overall, the respondents showed that the consumer behaviour had effect on water bill payment.

5.3 Discussions

The discussions on the findings of the study are based on the literature review, conclusions and recommendations made by the study. The discussions draw references for the theories and empirical studies reviewed in the present study. They are presented as below.

5.3.1 Findings on Water Bills Non-Payment

The results obtained showed that the indicators of payment of water were reliable and they were found to measure moderately. This was an indication that there were average cases of water default at Embu Municipality. This is to say that on average or about 50% of the population avoided paying water in time. However, the study established that there were measures taken to counter the default as demanded for by the stewardship theory (Abdullah & Valentine, 2009). The WSP used such measure as disconnections, fines, and prosecutions on water defaulters. The fines/penalties were the most commonly modality of penalizing the water defaulters. The WSPs used these measures to ensure that they collected enough money as demand for by the stewardship theory.

5.3.2 Findings on the Influence of Billing Systems on Non-Payment of Water Bills

The system of delivering bill to customer had negative effects on the water bill payment. The same applied to the bill production mechanism, follow up system, and customer feedback mechanism. The bill delivery system was not efficient, bills were not ready in time, there were no proper follow up system and the customer feedback was poor. Overall, the billing system had a negative on the payment of water at EWASCO. The finding by the present study confirmed the findings by the study conducted by Per Tidemand *et al.* (2007), which established a relationship between billing systems and water payment. The study by Per Tidemand *et al.* (2007) showed that the internal processes largely affected service delivery,

which was the same as found in the present study. The results were also in agreement with the findings by Pretorius and Schurink (2007) and Baker (2009), which found that effective billing system resulted to increase in payment of water by consumers. Gladly, the findings confirmed the study by Akech (2009) that weak billing system led to lack of prompt payment of water by user. The present study findings showed that WSP seemed to lack proper application of the Parkisons theory (Jochisem, 2007). The theory insists on the improvement of the service delivery mechanism through the design on modern and more appropriate effective mechanisms to ensure customer satisfaction.

5.3.3 Findings on Revenue Collection Mechanism Influence on the Non-Payment of Water Bills

It was found that the revenue collection mechanism had little or no effects on water bills payments. The respondents actually disagreed with proposition that revenue collection mechanism had a negative effect on water bill payments. Form the results, the mode of paying did not discourage them from paying water promptly, the number of pay points did not discourage them from paying water promptly, revenue system automation status did not affect their paying water promptly, and location of the pay points did not influence their paying water promptly. The indication was that the revenue collection mechanism had a positive effect on water payment, since the respondents did complain of any factor of revenue collection. Such findings verified the study by Mumma *et al.* (2009) , which found that incomplete and inefficient revenue collection system deters prompt payment of water by user, on the other side. This study shows that effective revenue collection system increases the payment of water by users while the study by Mumma *et al.* (2009) shows that inefficient revenue collection system decrease promptness in water payment. The results echoed the

findings by Moraa *et al*. (2012), which indicated that good system led to effective service delivery, which was the case with revenue collection system at EWASCO.

5.3.4 Findings on the Influence of Cost of Water on Non-Payment of Water Bills

There was a moderate effect of the cost of water on ability for prompt water payment by the water users. Although the price of water had little or no effect on the ability to pay water bill the tariffs moderately affected their ability to pay water bill. The other time that adversely affected the failure to pay water promptly was lack of negotiation terms for water payment. This affected their water payment by the users. The findings are further confirmation of the study by Baker (2009), which found out that lack of capacity on the cost of billing adversely affected the payment of water in time. This status of affairs makes the cost of water very important issues in supply of water by WSPs. To make the point clear, the study by Boakye and Nyieku (2010) indicated that cost of water was an issues especially when to came to the low income earners. It showed that the low income required to be informed the need to pay for water service for them to actively pay water on time. The findings of the present study provide a basis for need of disseminating information about water as the need to pay for water as argued by Boakye and Nyieku (2010).

5.3.5 Findings on the Influence of Consumer Behavior on the Non-Payment of Water Bills

UN-HABITAT (2011) showed that the consumer behaviour adversely affect the promptness in payment of water bills negatively, a status earlier indicated by Paine (2002). The two studies had shown that the water consumer had various models of behaviour, which in one way or the other affected their readiness to pay for the water. They cited the economic behaviour, where economic factors were the catalyst to lack of paying water bills. The study

by Ramayeh *et al.* (2003) cited the perceived usefulness as hindering factors to pay water on time. Ibrahim *et al.* (2006) brought a broader perspective and instead classified the customer behaviour into six dimensions, which the present study studies exhaustively. The present study found that there was no lack of awareness of water payment and as such it did not affect their promptness in paying water. It was also found that the users had willingness to pay for water use. They were ready to pay even when they relocated to other estate. However, irregular supply of water, and lack of sufficient water contributed moderately to their paying of water bills promptly. Interestingly, the quality of water did not affect the prompt payment of water bills. The respondents showed that their financial status contributed moderately contributed to their t on water bill payment. These results were in total agreement with the findings by Paine (2002), Ramayeh *et al.* (2003), Ibrahim *et al.* (2006), and UN-HABITAT (2011) but from different perspectives.

5.3.6 Estimation of study Model

The study established that at the 5% level of significance using correlation analysis, there existed enough evidence to conclude that the independent variables; Billing Systems, Cost of water, and Consumer Behaviour had a positive relationship with nonpayment of water bills. This shows that they were useful as indicators of the dependent variable, non-payment of water bills by consumers. However Revenue Collection Mechanisms had no relationship with nonpayment of water bills.

5.4 Conclusions

Although EWASCO experienced considerable water default by the consumers, running to almost 50%, they had measure in place that would have ensured the recovery of unpaid water

bills. However, the measures did not seem to be very effective to match the rate of default and ensure recovery of the unpaid bill.

The bill delivery mechanism was below average in its performance and this led to delays in arrival of bills to the respective customer. The system used in production of bill was less effective and this adversely affected the preparation and delivery bills to the customer. Further, the WSP lacked efficient follow ups which caused delays in payment of water. Customer Feedback systems were very poor and this inconsistency affected payment of water negatively. Overall, the bill system left a lot to be desired.

The revenue collection system was effective and did not have any negative effects on the water payment by water users. The system seemed to have been managed very well to the point that it supported and enhanced the prompt payment of water bills.

The cost of water exposed itself as one the main reasons that the water users failed to pay water promptly. The respondent seemed to blame the high tariffs and the economic situation on their inability to fail to pay water promptly. The truth of the matter was the lack of sufficient information on the need to pay for the services rendered. The respondent lacked information on the need for paying for water services.

The consumer behavior, although appearing a bit ‘silent’, contributed immensely to the failure to pay water bills on time. The most pronounced factors were the perceived usefulness of the water service delivery and the economic factors. The respondent felt that the service delivery was poor and therefore did not deserve appreciation in terms of payment. The consumers blamed the failure of prompt payment to the economic times.

The intervening variables seemed to have considerable negative effects on the prompt payment of water. Economic factors, pricing tariffs, and the ability of the consumer to pay had diverse effect of the ability to pay on time. Although the legal framework did not seem to have an influence on the water user in promptness of water bill payment, the consumers did not seem informed the contents of this framework

Lastly, all the four independent variables; Billing Systems, Revenue Collection, Mechanisms, Cost of water, and Consumer Behaviour could significantly predict dependent variable; payment of water bills by consumers.

5.5 Recommendations

The study suggested recommendation based on the study findings as outlined below:

1. EWASCO should strengthen its water bill payment policies to include other existing modalities such as the use electronic payment through Mpesa, credit card and online payments which would increase the level of water bill payment considerably,
2. EWASCO should up their investment in information technology, and especially in their billing system such as online billing and enquiry system, to ensure matching the demand by their customers' needs. EWASCO should organize forums to inform the water consumer of the need to pay for water service and why it is necessary.
3. EWASCO would need to sensitize the water consumer on the institutional and legal framework on water service delivery.
4. Another study should be conducted to establish the actual effects of legal and institutional framework on the payment of water.

5.6: Suggestions for further study

The study recommends that further study should be conducted on the payment of the water by WSPs. It was not clear whether the WSPs were prompt in paying for the water used or not. The argument here is the study did not establish whether the default were due to failure by the consumers to pay of it was due to the delays by the WSPs to submit their collection.

Another study should be conducted to establish the actual effects of legal and institutional framework on the payment of water. The respondents did not seem to clearly understand the legal and institutional framework on water services.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

TO WHOM IT MAY CONCERN

Dear Sir/ Madam

RE: LETTER OF INTRODUCTION

I am a student of the University of Nairobi, Department of Extra Mural Studies currently pursuing a Masters of Arts Degree in Project Planning and Management. I am glad to invite you to participate in my research study on assessment of the factors that influence the payment of water bills in Embu Municipality. The study is a part of my Masters degree in Project Planning and Management. The researcher has established that there is a knowledge gap in this field of the water resource management which has aroused his desire to carry out this study. This is expected to identify the skills gap and shed some light on this problem with a view to determining its extent and offering possible solution(s).

To enable me to examine this phenomenon, I therefore, request you to complete this questionnaire. I assure you that the information you give will be handled with highest confidentiality. Your responses will only be used for the purpose of the study and will also be held confidentially. Kindly respond sincerely to the issues in the questionnaire.

Thanking you in advance for your cooperation and participation.

Yours Truly;

MWANIKI BONIFACE MBEU, Reg No. L50/60872/2011

School of Continuing and Distance Education (SCDE)

University of Nairobi

APPENDIX II: QUESTIONNAIRE

This Questionnaire is meant to collect data from the water users of Embu municipality. Any information provided in this Questionnaire will be used for purposes of research only and will not be divulged or availed to unauthorized persons

Tick the correct answer in the boxes provided against the questions where provided.

Write brief answers where explanation is required.

You need not write your name on the questionnaire.

Please answer the questions as accurately as possible.

SECTION A: RESPONDENTS' DEMOGRAPHICS

1. Please indicate the type of consumers you are by ticking  in the appropriate box

Type	Tick
Government Institution	
Business/ Private Institution	
Individual consumer	

2. How long have you been using water from EWASCO?

Less than 2 years ( )

2 to 4 years ( )

5-7 years ( )

Over 7 years ( )

SECTION B: PAYMENT OF WATER

3. Please indicate in your opinion the level of agreement or disagreement with each of the following statements as payment of water by consumers. Tick  **the correct answer in the space corresponding to the answer.**

Scale: Strongly Disagree =0; Disagree = 1; Neither =2; Agree = 3; Strongly Agree = 5

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
(a)	I have observed regular water disconnection in my area.					
(b)	There always prosecutions of water payment defaulters.					
(c)	The water supplier always charges fines for water payment default					
(d)	The staff of the water supplier ask for bribes to evade disconnections or fine or prosecutions					

SECTION C: BILLING SYSTEMS

4. **Please put a tick**  **on the space corresponding to the correct answer in each question below. Indicate your level of agreement or disagreement with the following statements as regards the Billing Systems in relation payment of water by you**

Scale: Strongly Disagree =0; Disagree = 1; Neither =2; Agree = 3; Strongly Agree = 5

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
(a)	Weak Water Bill Processing Systems causes delays in water payment					
(b)	Poor bill Delivery Mechanism lead to delayed payments of water bills					
(c)	Failure to produce bills in time causes delays in payment of water					
(d)	Lack of follow ups results delays in payment of water					
(e)	Poor Customer Feedback systems affects payment of water negatively					

SECTION D: REVENUE COLLECTION MECHANISM

5. Please indicate in your opinion the extent to which you agree or disagree with each of the following Revenue Collection Mechanism statements as regards payment of water by you. Tick the correct answer in the corresponding space.

Scale: Strongly Disagree =0; Disagree = 1; Neither =2; Agree = 3; Strongly Agree = 5

	Revenue Collection Mechanism indicator	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
(a)	There are ineffective mode of Paying bills which discourages me from paying water promptly					
(b).	There are insufficient Number of Pay Points which discourage me from paying bills					
(c)	The failure to automate revenue Collection reduces my chances of paying for water promptly.					
(d).	The Location of pay points are not easily accessible which make me not paying water bills promptly.					

SECTION E: COST OF WATER

6. In your opinion, please indicate the extent to which you agree or disagree with he following statements regarding the Cost of Water. Please tick on the space corresponding to the correct answer.

Scale: Strongly Disagree =0; Disagree = 1; Neither =2; Agree = 3; Strongly Agree = 5

	Feature of Cost of Water	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
(a)	The price of water is not affordable which affects my ability to pay for water					
(b)	Pricing Tariffs are not friendly and this influence my ability to pay water					
(c)	The water suppliers do not allow for negotiation to paying water					

SECTION F: CONSUMER BEHAVIOUR

7. **In your opinion, please indicate by a tick ,the extent to which you agree or disagree with the following statements regarding Consumer behavior**

Scale: Strongly Disagree =0; Disagree = 1; Neither =2; Agree = 3; Strongly Agree = 5

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
(a)	Lack of Awareness of water payment leads to my not paying water bills promptly.					
(b)	My willingness to Pay for water use is very low					
(c)	The unreliability of Water supply deters my willingness to pay promptly					
(d)	Lack of Sufficient of Water discourages my paying promptly					
(e)	I do not pay promptly due to low quality of Water supplied to use					
(f)	Lack of funds makes me delay paying the water bills					
(g)	I don't pay water bills when I relocate to other estate					

SECTION G: INTERVENING VARIABLES

8. **Please put a tick on the space corresponding to the correct answer in each question below. Indicate your level of agreement or disagreement with the following statements as regards the intervening variables in relation payment of water by you**

Scale: Strongly Disagree =0; Disagree = 1; Neither =2; Agree = 3; Strongly Agree = 5

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
(a)	The unclear water charges laws causes me to fail to pay for water in time					
(b)	Economic factors caused my delayed payments of water bills					
(c)	High water Tariffs result delays in payment of water					
(d)	My Source of finance affects my delays in payment of water					

Thank you for participating

APPENDIX III: INTERVIEW GUIDE

1. In your Opinion, what do you think causes the delay in your paying for water bill?
2. What issues do you have with billing systems which affect payment of water and what kind of influence do these issues have?
3. What challenges are brought about by the existing revenue collection mechanisms, which influence the payment of water by you?
4. Do you think that the cost of water influences your ability to pay water bills? Please explain how?
5. How do the consumers and your attitude and behaviour influence delays in payment of water?

APPENDIX IV: INSTITUTIONAL ASSESSMENT TOOLS

Please fill in the following as accurately as possible.

Indicator		**2008/2009**	**2009/2010**	**2010/2011**	**2011/2012**	**2012/2013**
Disconnections						
Penalties/ Fines						
Prosecutions						
Revenue collections	Projected					
	Achieved					
	Variance					