INFLUENCE OF FINANCIAL MANAGEMENT ON PEFORMANCE OF COMMUNITY WATER SUPPLY PROJECTS IN KIENI EAST DISTRICT, NYERI COUNTY, KENYA

BY

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DECLARATION

This research report is my original work and to the best of my knowledge has not been presented for any award in any other University.

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I dedicate this piece of work to my brother Moses, my husband Bernard and my daughters Claire and Joy Maria for their profound assistance and encouragement throughout the study. I will forever be grateful for all that you have done.

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ABBREVIATIONS AND ACRONYMS

ASAL	Arial and Semi Arid Lands
CDD	Community Driven Development.
CMWP	Community Managed Water Projects
GoK	Government of Kenya
DSG	District Steering Group
IEA	Institute of Economic Affairs
KFSSG	Kenya Food Security Steering Group
MWI	Ministry of Water and Irrigation
MUS	Multiple use services
NGO	Non Governmental Organization
NWCPC	National Water Conservation and Pipeline Corporation
O.M	Operation and maintenance
PMC	Project Management Committee
SPSS	Statistical Package for Social Sciences
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WRUA	Water Resource Users Association
WSB	Water Services Board
WSTF	Water Services Trust Fund
MS	Microsoft

ABSTRACT

This study was carried out to determine the influence of financial management on performance of community water supply projects in Kieni East District, Nyeri County. The main objective of the study was to investigate financial management factors that influence performance of community managed water supply projects in Kieni East District, Nyeri County. Specific objectives included to establish the extent to which budgeting for operation and maintenance of water systems influences the performance of community water supply projects, the extent to which water tariffs contributes to the performance of community water supply projects and to assess financial administration and its influence on the performance of community water supply projects. This study will assist managers in government, private sector and local communities in the formulation of strategies aimed at promotion of good governance through implementation of functional water supply projects. The analysis will assist the Kieni East District Water Office to know whether the financial management strategies being used are working. The literature review intended to identify what other researchers have done in the area of financial management on performance of community water supply projects. Data was collected through questionnaires. The common type of water project was mainly gravity fed water projects. The main problems with the water projects were broken pipelines, damaged water intakes and siltation. Members of the community contribute towards the budget through cash, labour, and voluntary contributions. If there are adequate funds for operations and maintenance of community water supply projects then the performances is expected to be good. The main source of funds for carrying major repairs, and system expansion or augmentation was from water projects this clearly shows that water tariffs charged can influence the performance of community water supply projects. Records of funds collected were kept in various books such as members registers, ledger, minute and work attendance register books. The financial management skills of the water management committee were established to be of acceptable standards. Public meetings were held mainly twice a year; notice boards, reports and annual general meetings were used to inform community members about the income accrued from the water services and project expenditures. In conclusion it's important for community financial monitoring to be in place as it influences the performance of water supply projects.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The General Assembly of the United Nations drew critical attention to the importance of water to sustainable development and poverty alleviation by declaring 2003 the International Year of Freshwater with one of its aims being to reassert the Millennium Declaration Goal target for water of reducing by half the proportion of people without access to safe drinking water by the year 2015 and to stop the unsustainable exploitation of water resources.

Overall in spite of the universal recognition of the importance of safe water in poverty alleviation and socio-economic development access to safe drinking water remains low. Worldwide, Smith and Marin (2005) states that about 2 billion people struggle daily for access to clean and sufficient water. According to Yahaya (2004), Africa is the region that suffers most from inadequate access to water supply with only 62 percent of the population having access to potable water supply. Furthermore, of 55 countries in the world whose domestic water use is below 50 litres per capita per day, 35 are in Africa. In Kenya, estimates of piped water coverage provided by the Ministry of Water and Irrigation in 2006 stood at 47 percent nationally Republic of Kenya, (2007).

Kenya is classified as a water scarce country with surface water coverage of only 2 percent and registering a water scarce category of 647 cubic metres per capita against the global benchmark of 1000 M^3 , making it one of the most water scarce countries in Africa and the world (Republic of Kenya, 2005). Water scarcity is further aggravated by unreliable and changing rainfall patterns, degradation of water resources and periodic droughts and perennial floods. Out of a total area of 583 000 square km, only 20 percent is medium to high potential agricultural land while the rest is mainly arid or semi arid. In contrast, approximately 75 percent of the country's population lives within the medium to high potential agricultural land while 25 percent live in the arid and semi arid region.

The present institutional arrangements for the management of the water sector in Kenya can be traced to the launch in 1974 of the National Water Master Plan whose primary aim was to ensure availability of potable water, at reasonable distance, to all households by the year 2000, IEA, (2007). The water for all by the year 2000 programme which was to be achieved through the development of water supply schemes required the government to directly provide water services to consumers, in addition to its other roles of making policy, regulating the use of water resources and financing activities in the water sector, Mumma, (2005). Unfortunately soon after in the 1980s the Government begun experiencing budgetary constraints and it became clear that, on its own, it could not deliver water to all Kenyans by the year 2000 as promised. Attention therefore turned to finding ways of involving others in the provision of water services in place of the Government.

In 1983, the government policy of district focus for rural development became operational, shifting increased responsibility to districts in order to encourage local initiative and improve local capacities. This, together with harambee, the local spirit of working together which was introduced at independence in 1963, gives the general framework for community management of water supply systems in Kenya, Roy, (2005).

For nearly two decades, since the signing of UN Agenda 21 in 1992, the first formal, global commitment to sustainability, the world has struggled with how to integrate sustainability measures into development efforts, especially those of drinking water and sanitation. The large percentage of nonfunctioning water systems is a stark indicator of inadequate operation and maintenance and lack of sustainable services. In a survey of 11 countries in Sub-Saharan Africa, the percentage of functioning water systems in rural areas ranged from 35 - 80 percent, Sutton, (2004). A study in South Africa documented that as many as 70 percent of the boreholes in the Eastern Cape were not functional, Mackintosh and Colvin, (2003). In a survey of 7,000 wells and boreholes in Tanzania, on average, 45 percent were in operation, and only 10 percent of water supply systems that were 25 years or older were still functioning, Haysom,(2006).

Kenya has a strong culture of self help, which has been harnessed for many development activities, especially in rural areas. Looking specifically at the water sector in Kieni, of the One hundred and forty-seven self help water projects, 85 percent are community managed water supply schemes. Most of these schemes were developed by self help groups and the water is intended both for domestic consumption and for small scale agricultural production.

In the last 30 years community groups, government and other development partners in Kieni have in earnest been pursuing to increase water coverage levels in the district. To this end a great deal has been done and enormous amounts of money spent, however coverage levels according to the Department of Water are estimated at 45 percent only. Furthermore, according to the 2012 short rains assessment report by Kenya Food Security Steering Group (KFSSG) between 60 percent and 65 percent of all boreholes in Kieni either do not function at all, or operate significantly below design expectations, KFSSG, (2012). In addition an increasing amount of money is spent on the rehabilitation of water services which have previously been installed but which have fallen into disrepair. In view of this, progress towards reducing the proportion of people without access to improved water services in Kieni is likely to be reduced if services are falling into disrepair even as others are being constructed.

1.2 Statement of the Problem

Access to improved water and sanitation is important because it is the foundation for healthy communities, and results in significant health, economic, and social gains. According to Haysom (2006) improving the performance of rural water supplies has a number of positive outcomes. It ensures the ongoing provision of a service that is fundamental to improving health, reducing the burden of carrying water for long distances, and enabling users to live a life of dignity. Sustainability today invariably depends upon communities taking financial responsibility for their schemes, which if achieved will enable scarce resources from government and donors to be targeted specifically on areas where there is no improved water supply. The chances of achieving the Millennium Development Goals to half the proportion of people without access to

safe water by 2015 will be seriously lowered unless levels of sustainability can be greatly improved.

In the last 30 years a large number of water supply development projects have been implemented in Kieni. However, in spite of these efforts water shortage remains a major challenge in the area. On the other hand demand for additional water projects continues yet there is limited evidence on the current level of functionality and service coverage. According to Bolt and Fonseca (2001) financial management and transparency are among the more problematic aspects of community management. Furthermore the large number of failed, poorly functioning or unsustainable water supply systems raises critical questions about the success of community managed water projects in Kieni. This study therefore sought to investigate the influence of financial management on performance of the community water supply projects particularly in Kieni East District, Nyeri County.

1.3 Purpose of the Study:-

The purpose of the study was to investigate financial management factors that influence performance of community managed water supply projects in Kieni East District, Nyeri County.

1.4 Objectives of the Study:-

The study objectives were

1. To establish the influence of budgeting for operation and maintenance of water systems influences the performance of community water supply projects in Kieni East District, Nyeri County.
2. To determine the influence of water tariffs contributes to the performance of community water supply projects in Kieni East District, Nyeri County.
3. To assess financial administration and its influence on the performance of community water supply projects in Kieni east District, Nyeri County.
4. To explore the influence of community financial monitoring on performance of community water supply projects in Kieni West District, Nyeri County.

1.5 Research Questions

The research questions that guided this study were:-

1. How does budgeting for operation and maintenance of water supply projects influence performance of community water supply projects in Kieni East District, Nyeri County?
2. To what extent do water tariffs influence performance of community water supply projects in Kieni East District, Nyeri County?
3. In which way does financial administration influence performance of community water supply projects in Kieni East District, Nyeri County?
4. How does community financial monitoring of projects influence performance of community water supply projects in Kieni East District, Nyeri County?

1.6 Significance of the Study

This study can assist managers in government, private sector and local communities in the formulation of strategies aimed at creation of sustainable livelihoods, promotion of good governance and alleviation of poverty through implementation of functional water projects. The study will also contribute knowledge on factors that promote long term functionality of rural water supply schemes that will be of value to researchers and academics.

1.7 Delimitation of the Study

The study focused on water supply projects in Kieni East District, Nyeri County, Kenya. The study covered the forty seven community water projects and in each project, five water projects committee officials were chosen at random to a total of one hundred and seventy.

1.8 Limitation of the Study

The limitation of this research was time and resources. Some respondents were not available during the limited period scheduled for data collection. Another limitation might be the poor state of roads which could make it difficult to reach water projects that are located in remote parts of Kieni East District.

1.9 Assumptions of the Study

The study assumed that the respondents gave correct and truthful answers when responding to questions put before them; that the sample size chosen was adequate to help in drawing valid conclusions and that the data collection instruments were valid and measured the desired constructs. The study also assumed that the various Government Departments and stakeholders provided the required information.

1.10 Definitions of Significant Terms

Community: In this study community was defined as a group of people living in a distinct area that is served by a water supply project, common water facility or water scheme. Community responsibilities in a water project include providing required contribution, participating during project inception, implementation and monitoring of project tasks. Other community roles included attending meetings in order to give suggestions and ideas to improve the performance of the water project.

Financial management: Meant forecasting and planning, organizing, controlling and making decisions that enabled collection of water payments, including activities such as procurement, allocation and utilization of funds of the water project. It consisted of tasks such as setting tariffs, budgeting for water supply operations, recording financial transactions and informing water users about the water supply financial situation.

Budgeting for operations and maintenance (O and M): The process through which a water supply project develops its financial plan for a determined period of time. It involved on one hand establishing in advance the amount of money required to cover expenditure in respect to the everyday running and handling of a water supply including the cost of fuel, carrying out repairs and replacing worn out parts.

Water tariffs: Referred to the price at which users are charged for water. Tariffs can be set per volume of water consumed or standardized as one uniform price paid by all members of the community regardless of usage.

Financial administration: Involved developing and maintaining financial procedures that a water supply project employed in the implementation of its budget plan. It covered the keeping of all records, documents, information and books concerned with financial and accounting aspects of the community water supply. These measures also ensured that financial transactions are in accordance with the water project's rules and guidelines on how funds are collected and utilized.

Community financial monitoring: Is a regular and continuous process that seeks to establish the extent to which work schedules, budgets, other required actions and targeted outputs proceeded according to plan. It included making the water management committee accountable to the water users by stipulating that they regularly present financial reports during community meetings and publicize the financial situation of the water supply service. It also provided for the establishment of a community supervision committee that audited the accounts of the water project.

Performance in community water supply projects: The ability of a water supply facility to continue functioning properly and delivering the required quantity and quality of water for the entire period of time for which it was designed. In this study, performance also meant that the water system is managed by the community and its operation and maintenance costs are covered through user fees.

1.11 Organization of the Study

Chapter one covered background of the study**,** statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, delimitation of the study, limitation of the study, assumptions of the study and definitions of significant terms. Chapter two contains Introduction, Performance of community water supply projects, Operation and maintenance, Theoretical Framework, Financial Administration and Performance of Water supply projects, Community Financial Monitoring and Performance of Water Project, Water tariffs and Performance of Water supply projects, Theoretical Framework, Conceptual framework, Research Gap and Summary. Chapter three documents the methodology that was used in gathering data. It

covers Introduction, Research Design, Target Population, Operational definition of variables, Method of data collection, Validity, Reliability, Method of Data Analysis, Ethical issues and Sampling procedure. Chapter four contains data analysis, interpretation and presentation. Chapter five documents discussion of key data findings, conclusion drawn from the findings and recommendations made. It also covered areas of further research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews the relevant literature on influence of financial management on performance of community water supply projects. The literature is reviewed from global, African and local perspectives. The chapter also presents a conceptual framework and theoretical framework on which the study is based.

2.2 Performance of Community Water Supply Projects

According to Kimberly (1998), performance in water projects means, ensuring water supply services and interventions continue to operate satisfactorily and they generate benefits over time as expected. He further pointed out that, performance is all about ability to operate and maintain initial project service standards. However, to achieve this it has to be planned from the very beginning of the project, so as to ensure prerequisites for long term sustainability and strategies aimed at seeing that performance projects are in place and are in good working order are adapted.

Reasons for non-performance of most water projects in developing countries may include among others; lack of acceptance and non affordability of community contribution, lack of community ownership and lack of community education. In addition, lack of interest and motivation by management structures like caretakers and project committees also contributes to the high rates of poorly functioning or unsustainable water supply systems Harvey and Reed (2007)

Performance of rural water supply facilities is dependent on many factors. These actors include policy, legal and institutional framework, social factors such as demand for water, community participation and community organization; economic and financial factors such as ability to meet the cost of maintenance and ability to pay for services; technological factors such as technology choice, availability of spare parts and operation and maintenance and lastly management factors Harvey and Skinner (2002).

2.3 Operation and Maintenance Budgeting and Performance of Community Water Supplies

Operation and maintenance (OandM) covered the efficient day to day running of the water supply facilities, regular preventive maintenance and the assurance of proper use. The long term success, according to Mogane-Ramahotswa (1995) of any water project, depends almost entirely on effective maintenance although it is as an aspect that is very often neglected. It does not just entail having technical aspects but also encompasses social, gender, economics and many other aspects Brikke et al, (2003). Water supply is a service, and just like any service it involves manpower, repairs, spare parts, energy and other inputs. These services as argued by Boland and Whittington (2000) are not free and therefore in order to provide a safe and sustainable water supply, a cost recovery system has to be introduced.

Nyoni, J. (1999) argues that the tendency is to make beneficiaries pay for the water they use, in order to recover partially or totally the costs of supplying this service, and to give to the communities more responsibility in the actual management of the water supply system gathered momentum in the 1980s when governments especially in sub Saharan Africa faced greatest difficulties in meeting recurrent water provision costs.

Provision of potable water supply services involves costs which are incurred at the design, construction and operational stages of any water supply system Folifac and Gaskin (2011). However, the magnitude of these costs is utility specific and would depend in part on the type of technology used, management practices, and the geology. The costs associated with potable water provision can be classified according to the subunits of operation Whittington, (2003) which consists of: production costs such as reservoir, tanks, pumps and treatment plants; transportation costs for instance major pipelines and pumping facilities; distribution costs which include connection costs, metering and local reticulation; and administrative costs such as billing, collection and consumers relation.

Cardone and Fonseca (2003) differentiate investment costs associated with the development of water supplies from recurrent costs. They describe investment costs as the initial or sunk costs of the utility or the purchase of movable and immovable assets. These include, but are not limited to, all capital costs related to the purchase of land, the design and construction of the utility, the purchase of water treatment and office equipment, storage tanks, vehicles, pumping stations, distribution mains and pipes. These are the most tangible costs due to the fact that they have a market value. They are usually very huge and constitute the block of the costs associated with potable water supply. Capital expenditure has traditionally been financed by government grants and external aid packages, which suggests why these costs are not typically up for recovery unlike the operation and maintenance costs. On the other hand operation and maintenance costs are recurrent costs incurred in the daily operations of the water utilities.

An adequate understanding, identification and estimation of the operation and maintenance costs is critical for the sustainable delivery of potable water supply services. The components of these costs are typically wide, varied and utility specific and may include: cost of chemicals for water treatment, cost of electricity and other utilities, purchase of software and capacity building, cost of fuel for equipment and vehicles, personnel expenses, cost of support services, repair costs, rehabilitation and extension, costs of billing and collection, payment of contractors and suppliers. The pay back cost and depreciation costs of assets and equipment should also be accounted for in operation and maintenance costs so as to provide capital funds for future growth extension of distribution network, additional storage and pumping facilities, as well as replacement of equipment. The operation and maintenance costs constitute a key component of the costs involved in potable water supply because of the daily occurrence of these costs needed for the functioning of the utility and delivery of services Brikke and Rojas (2001).

A study by Harvey and Reed in 2004 which analyzed 20 sub-Saharan African countries with completed poverty reduction strategy papers (PRSPs) revealed that 85 percent of those countries had stressed the importance of community management and financing of rural water supplies in key national strategy documents, but this did not adequately

address the determination, nor affordability, of associated costs. According to Sami and Murray (1998) although operation and maintenance is critical to the sustainability of the water supply facilities, analysis of water supply systems revealed that inadequate arrangement for OandM is the major cause of failure. This is because few water supply agencies considered operation and maintenance a major priority. They instead consider construction of new facilities and systems expansion more important, due to the unmet backlog of communities that require new water supply facilities.

Effective operation and maintenance (OandM) of rural water supply systems is a crucial element for the sustainability of the water project. According to Cardone and Fonseca (2003) performance of a service is achieved when the community wants and accepts the level of service provided, is able to pay for it and the skills are available locally to service the system. As argued by Harvey and Reed (2007) the presumption that once a new water supply is constructed and handed over to the user community it can be sustained by community financing of Operation and Maintenance costs is over simplistic, especially since the long term Operation and Maintenance costs are neither calculated nor communicated to water users. According to Binder (2008) budgeting sufficient Operation and Maintenance funding for rural water supply systems is an important factor for performance and proper maintenance.

2.4 Water Tariffs and Performance of Water Supply Projects

Levying of water tariffs is generally subjected to two ideological views Whittington, (2003). On the one hand, water is viewed as a social good that should be provided for free and on the other hand, it is considered as an economic good that should be priced. However, in the past few decades, there seems to be a consensus that water should be priced despite increasing diversity on what is a fair price for water Raghavendra, (2006).

Water pricing in the form of water tariffs is based on user pays principle whereby users are charged for the services provided Nyoni (1999). World Bank (1993) and other international donors have argued that public or government funds can no longer provide for all the expenses associated with the provision of potable water services. According to

critics of free water supply, this practice promotes unsustainable use of water and is partly responsible for the poor financial stability of water utilities in many low income countries. They argue that with increasing competition and debt burden on state budgets, governments can no longer afford to provide water for free.

Davis et al (1993) argue that operation and maintenance costs money, whether it is done by the community or by the water supply agency. The question that is raised with community based Operation and Maintenance system is whether or not the poor rural communities can meet the full cost of operation and maintenance. Some actors in the water supply sector argue that beneficiaries can fully meet maintenance costs (WHO 1993), while others argue that meeting full costs of Operation and Maintenance by rural communities is difficult because of high poverty levels. Even in cases where the community members are willing to contribute financially to Operation and Maintenance they are hampered by lack of resources for Operation and Maintenance Briscoe and de Ferranti (1998).

Those who promote the idea that maintenance costs should be met by local communities argue that there is growing evidence that even the poorest and most under privileged segments of society are willing to pay for water supply as long as it is reliable McPherson (1994). Furthermore they argue that recent studies on water demand have generally found that people are willing to pay a higher proportion of their income for improved services than their rich neighbours UNCHS, (1997). Churchill (1998) also supports this view. He argues that although there are undoubtedly some areas in various countries where poverty is extreme, the review of global situation reveals that most rural communities can afford to pay for improved services, provided that appropriate technology is used. The reason for this argument is that people in rural areas are already spending large amount of time and energy in water collection.

Water tariffs can be implemented for different reasons under different structures. In most cases water pricing is implemented to provide revenue to utilities for the efficient delivery of potable water services. The recovery of at least the operation and maintenance

cost is essential for the financial performance of water utilities, adequate system maintenance, and hence the provision of quality services Brikke and Rojas, (2001). According to Magnusson (2004) water pricing promotes efficient and sustainable use of water. This is essentially a water demand management and resource conservation tool, aimed at fostering wise water use and demand driven service delivery.

Whittington (2003) suggests that water pricing promotes fairness and equity in access to water and water use. Based on the principles of user pays, it is argued that there is the need for equity and thus transparency in pricing. Brown and Holcombe (2004) said that a consumer who consumes twice as much water as another consumer should pay a bill that is at least twice as large as that of the latter. However Ruijs et al (2008) argued that fairness is more about pricing consumption on the basis of affordability and socio-economic characteristics of the household given that water is essential for human survival. Fairness in water pricing is essential to prevent negative externalities associated with the lack of access to safe and sufficient water supply.

Water tariffs can also be used to promote poverty alleviation. This seems to be a controversial objective at first sight considering that paying for water will reduce disposal income and could prevent access to other fundamental services. However the argument is that water tariffs will generate revenue for the extension of improved water supply services to the poor with relatively high social and economic returns World Bank, (1993).

The poor usually spend their limited finances on medical bills due to the consumption of water of poor quality, pay more for less to water vendors, waste productive time in the process of water collection, walk long distance to and spend long waiting time, at collection points, loss of productive time due to ailments caused by the consumption of unsafe water. Aiga and Umenai (2002), and Thompson et al. (2001) have documented that the presence of improved water sources within households in Manila and East Africa respectively freed up time for water collectors to engage in productive activities which generate revenue for their households, as well as reduced their medical bills due to improvement in health.

Brikke and Rojas (2001) states that decisions that need to be made when designing a system of cost recovery include deciding on appropriate rate and type of tariff to apply to water users. Tariffs can be set per volume of water consumed or standardized as one uniform price paid by all members of the community regardless of usage. The study further showed that the uses of community funds must also be well defined and the method of periodic funds collection must also be clear including: who, where and when monies will be collected.

2.5 Financial Administration and Performance of Water supply projects

Financial administration in water supply systems covers the keeping of financial records, documents, information and books concerned with financial and accounting aspects Bolt, E. and Fonseca, C., (2002). A simple but reliable system of financial records can greatly improve community management. The production of records, documents and information is necessary to: keep clear and accurate accounts about the resources needed to provide the water service, control income and expenditure, make decisions based on clear and accurate information, provide information to users who are interested in checking the financial management and in addition maintain the confidence and trust of users.

Transparency of financial management is a key issue in community management in water projects as argued by Appleton and Evans (1993). The whole structure of community management can fail rapidly if there is a suspicion that community funds collected for water supply services are being mismanaged or misappropriated. Adequate book keeping and regular review of accounts is therefore a major requirement, Lockwood, (2004).

Brikke and Rojas (2001) argue that the records must be clear, simple, complete and understandable. Clear, in the sense that they show the information without hiding anything; simple, because they have to be easy to carry out and appropriate for the type of administration; complete, in the sense that they provide enough information to make good decisions possible, and understandable, because they have to be easy to read and understand for all users, institutions, water committee members, and other stakeholders. Evans and Appleton (1993) recommend simple administrative structure for rural or peri-

urban areas where the following records could be used: user registration forms, a diary, minutes book, work attendance register stock and issue registers.

A high level of unaccounted for or non-revenue water is an indicator of poor efficiency. According to Moran and Waughray (2003) unaccounted for water is the difference between the volume of water produced or delivered into the network and the volume of water consumed, whether metered or not. Many factors can produce unaccounted for water: leakage, wastage, fraud, illegal tapping, inaccurate meter readings, poor billing, and poor identification of payment centres. These factors are not only of a physical nature, but also administrative, and hence are strongly related to the managerial practices of the organization running the service.

Levels of unaccounted for water can be as high as 30 to 50 percent. According to WHO (2000), control of unaccounted for water is a result of efficient management, which helps the organization managing the service to attain its objectives at the lowest cost. A programme to reduce levels of unaccounted for water must not only address faults, but also investigate their causes and ways to reduce them. The problem of unaccounted for water can be reduced by involving communities in identifying sources of wastage or leaks and promoting the benefits of conservation and the rational use of water.

McCommon and Yohalem (1990) pointed out that community management in water projects can only be sustained when there is a system of organizing the community. Community organization therefore entails that a community has the institutional capacity to manage the development and operation of the water supply facility. According to Mogane-Ramahotswa (1995) without proper community organization structures, effective community participation has no hope for sustainability. As a result Sami and Murray (1998) argue that the responsibility to manage water supply projects should not be transferred on the community structure that does not have the capacity to operate and maintain it.

As Yacubu (1997) pointed out marketing and total customer service can be effective ways to recognize customer needs and to stimulate their willingness to pay. Consumers have the right to receive a good service and to be informed about its quality including aspects such as quantity, tariffs structures, changes to tariffs contracts and other financial matters, and also have an obligation to pay for the service according to their ability to pay. Community organizations have an obligation to deliver those rights to users and to manage and operate the system in an efficient way.

2.6 Community Financial Monitoring and Performance of Water Project

Participatory community monitoring and evaluation practices are extremely important for learning about the achievement or deviation from original concerns and problems faced by local development projects being implemented, so that corrective measures can be taken in time White, (1981). One feature that is common to almost all village water schemes is the lack of regulation of those responsible for financial management. The term community management can be defined as the management through democratically elected representatives of the communities Wood, (1994). Schouten and Moriarty (2004) defined community management to mean that a community took on the full range of management tasks related to maintaining and in some cases developing a domestic water supply. These tasks include, setting tariffs and collecting payment, carrying out routine maintenance, and making decisions about system extension.

Wegelin-Schuringa (1998) considers community management as a form of community participation while McCommon and Yohalem (1990) distinguished community management from community participation by stating that community management is taken to mean that the beneficiaries of the service have responsibility, authority and control over the development of such services, performance and sustainability being the points of emphasis. All the authors have used different terminology in defining community management but conceptually they are describing the same thing: a bottom-up development approach where the community members have a say in their own development; and the community assumes control in the management, operational and maintenance in addition to taking responsibility for the development and running of their

water supply system through their elected representatives. According to van Wijk-Sijbesma (1989) community development is therefore operationalized through community management.

Appleton and Evans (1993) suggests that effective control and monitoring is an on-going regular necessity as part of financial management. This relies on accurate information, which will be mainly found in the records and books kept by the community. Control and monitoring are effective if they use clear, reliable, impartial and good quality information as a starting point.

According to Brikke and Davis (1995) one way to be impartial in the monitoring of community water projects is to establish a supervision committee to audit the accounts once a year. This committee should include members of the community. Parry-Jones et al (2006) recommended the use of community score card as a tool for monitoring the performance and efficiency of organizations such as service providers or community level committees as perceived by users. The main objective is to improve performance and governance more in general, by promoting dialogue and exchange between committees and users at public meetings. Sound control and monitoring also includes the use of indicators that provide a good overview of what is happening, without the possibility of misunderstanding or manipulation Ockelford and Reed, (2006).

The final objective of control and monitoring is to inform users about the financial situation of the water supply service. Control and monitoring has three stages: developing indicators and checking and analyzing information, presenting information to users, discussing information and decision making. Example of some indicators that can be used include: monthly revenue, payment received, Operation and Maintenance cost per user and expenditure per category. Monthly revenue: showed the capacity to recover costs, payment received: shows the rate of payment and therefore of non-payment; while average Operation and Maintenance cost per user: can be compared with the average tariff paid and level of expenditure per category: can help to detect abnormal expenditures.

Wong and Guggenheim (2005) argue that several Community Driven Development (CDD) programmes have systematically introduced participatory public expenditure management of micro projects. Community representatives are tracking the implementation of thousands of micro-projects in a number of countries. Ad-hoc committees are set up and in charge of overseeing implementation. Mechanisms used included information disclosure and transparency on project budget, financing, contracting and procurement; anonymous grievance procedures; and community monitoring of contracts and implementation. This information is discussed publicly in villages and displayed Narayan, (1993). Village committees established to oversee the project are required to report back regularly to the community. As a result community members are in a better position to influence local level planning and decision making.

2.7 Conceptual Framework

The interrelationship between the key variables identified for investigation in this study is shown in figure 1.

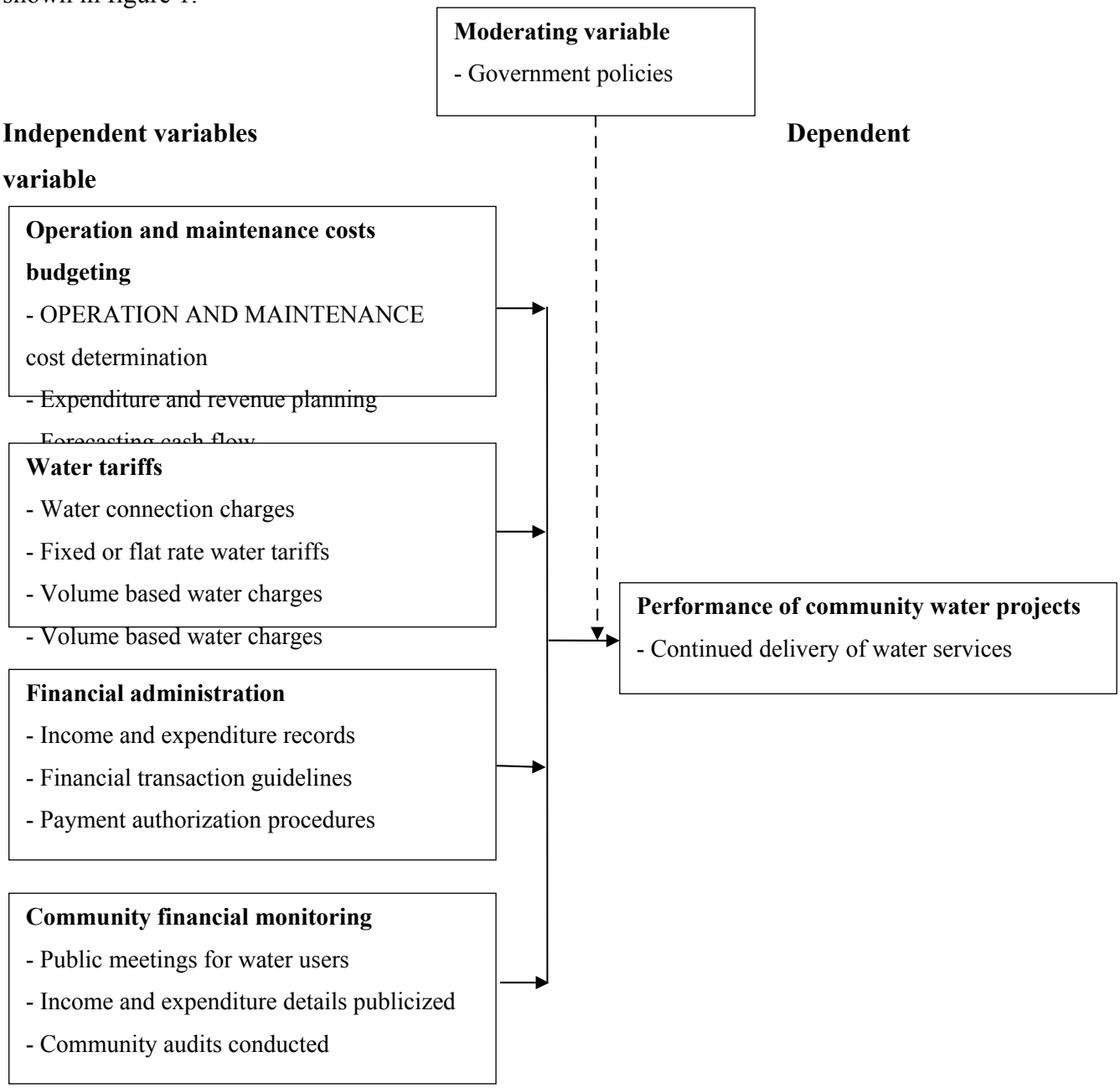

Figure 1: Conceptual Framework

In this study performance of community water supply projects was conceptualized as the dependent variable while budgeting for operation and maintenance expenses, water tariff structure, financial administration and community financial monitoring were the independent variables. Government policy was considered as the moderating variable.

2.8 Research Gap

Although a lot of research has been done about financial management factors that influence performance of community water supply projects, there is very little that has been done specifically targeting financial management influence on community water supply projects in this country. As noted elsewhere in spite of the universal recognition of the importance of safe water in poverty alleviation and socio-economic development access to safe drinking water remains low. In the last 30 years community groups, government and other development partners in Kieni East have in earnest been pursuing to increase water coverage levels in the district. To this end a great deal has been done and enormous amounts of money spent, however coverage levels according to the Department of Water are estimated at 45 percent only.

Furthermore, according to the 2012 short rains assessment report by Kenya Food Security Steering Group (KFSSG) between 60 percent and 65 percent of all boreholes in Kieni either do not function at all, or operate significantly below design expectations (KFSSG, 2012). In addition an increasing amount of money is spent on the rehabilitation of water services which have previously been installed but which have fallen into disrepair. In view of this, progress towards reducing the proportion of people without access to improved water services in Kieni is likely to be reduced if services are falling into disrepair even as others are being constructed. The few studies that have been done in this area have concentrated on Water and Sewerage Companies.

2.9 Summary of Literature

The literature has outlined the various aspects of performance of community water supply projects with regard to; operations and maintenance costs, budgeting, water tarifts, financial administration and community financial monitoring.

The literature highlights the importance of Operation and Maintenance, cost determination, Expenditure and revenue, planning, Forecasting cash flow, Water connection charges, Fixed or flat rate water tariffs, Volume based water charges, Income and expenditure records, Financial transaction guidelines, Payment authorization procedures, Public meetings for water users, Income and expenditure details publicized, Community audits conducted, Government policies, Training, Technical support and Continued delivery of water services.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research design chosen for the study. It outlines the target population, sampling procedure as well as the data collection methods that was employed. It explains how validity and reliability was enhanced and the data analysis methods that the study used. In the last part of the chapter an operational definition of variables table is presented.

3.2 Research Design

This study adopted a descriptive survey design. According to Mugenda and Mugenda (1999) survey research is one of the best method available to researchers interested in collecting original data for the purposes of describing a population which is too large to observe directly. The survey design also permits the gathering of information from respondents relatively quickly and inexpensively. This was a major advantage for this study considering that Kieni East District is an expansive area and the researcher had limitations in terms of time and resources.

3.2 Target Population

According to the Kenya Food Security Steering Group (KFSSG) short rains assessment report KFSSG, (2012), there are a total of 47 water projects in Kieni East District. Out of the those 47 water projects 30 are gravity fed piped water projects, 6 are boreholes and 11 are dams and water pans. Each of the 47 water projects has 5 Project Management Committee (PMC) members who constitute the executive committee. Consequently the target population for this study was 235 individuals. The decision to take this population to be sampled was based on the fact that the water PMC officials were more informed about the current status and operations of their relevant water schemes. Table 3.1. shows the target population by categories of the water systems.

Table 3.1 Population of the Study

Category	Number of water projects per category	Target population
Gravity fed piped water projects	30	150
Boreholes	6	30
Dams and water pans	11	55
Total	**47**	**235**

3.3 Sampling Procedure

The primary purpose of sampling is that by selecting some elements of a population the researcher can draw conclusions about the whole population. When populations vary, it is advantageous to sample each subpopulation or stratum independently. There are three categories of water projects in Kieni East district and therefore the researcher used stratified sampling method to divide the study population into homogeneous subgroups and then take simple random samples in each subgroup. Simple random sampling ensured that each individual water project has an equal chance of being selected and therefore avoid bias.

The sample size was determined through the use of the sample size calculator software developed by Rao Soft Business Incorporated Raosoft Inc. (2004). Raosoft sample size calculator takes into consideration four factors in determining sample size. These factors include the margin of error, the confidence level, the population and the response distribution. The Raosoft calculator is based on the normal distribution statistical method given by the formula.

$$X = Z (^{c}/100)^2 \, r \, (100 - r)$$

$$n- {}^{Nx}/((N-1) \, E^2 + x)$$

$$E = \sqrt{[^{N-n)x}/n(N-1)]}$$

Where n is the sample size, E is the margin of error, N is the population size, r is the fraction of responses of interest and Z (c/100) is the critical value for the confidence level c. Using the Raosoft online sample size calculator and entering the target population of 235, with a margin of error of 5 percent and 95 percent confidence level the

recommended sample size generated was 170. To obtain the proportionate sample size per stratum the desired sample size was weighed against the target population then multiplied by the target population per each stratum.

Table 3.2 Sample Size by Category of Water Project

Category	Target population	Sample size
Gravity fed piped water projects	150	109
Boreholes	30	22
Dams and water pans	55	39
Total	**235**	**170**

3.5 Method of Data Collection

Data was collected by use of self administered questionnaires. This research instrument was based on the objectives of the study and used both open and closed form of questions. The choice of this method of data collection was selected because questionnaires can reach a large group of respondents within a short time and with little cost, at the same time use of questionnaires enabled the respondents to remain anonymous and be honest in their responses Kasomo, (2007).

3.6 Validity of Research Instrument

In this study piloting was used to validate research instrument to determine accuracy, clarity and suitability of the instrument. The questionnaire was pre-tested using a sample of two water project management committees and two or three cases are sufficient for some pilot studies Mugenda and Mugenda, (1999). Based on analysis of the pilot study results, rectifications were made to the research instrument. Committees used for piloting were not included in the main study. Content validity was established by consultations and discussions with the research supervisor.

3.7 Reliability of Data Collection Instrument

A reliable instrument therefore, is the one that constantly produces the expected results when used more than once to collect data from two samples drawn from the same population. Reliability of the instrument was enhanced through a pilot test study which

used the split-half method in Laikipia East District whose inhabitants had similar characteristics as the study's target population. The split-half method was preferred because it was a simple and easy to perform method. The method is also time and cost effective because it made it possible to create two tests using a single test eliminating the need for multiple administrations. The Pearson's Product moment correlation coefficient formula was employed to compute the correlation coefficient in order to establish the extent to which the contents of the questionnaire were consistent in eliciting the same responses every time the instruments were administered. The questionnaires were accepted at a correlation coefficient of 0.84. According to Orodho (2004) a correlation coefficient of about 0.84 should be considered strong enough to judge the instrument as reliable for a study.

3.8 Method of Data Analysis

Kasomo, (2007) defines data analysis as the process of bringing order to data and manipulating it. It involves organizing data into patterns, categories and basic descriptive units. Data that will be collected was sorted, edited and coded. Data will be analyzed with the help of the SPSS and MS word programmes. Information from the analyzed data was presented using statistical techniques which included percentages and frequency distribution tables.

3.9 Ethical issues

The researcher sought permission to carry out the research from the relevant authority. All respondents were informed about the purpose of the study and the researcher guaranteed the participants confidentiality in the entire research process. The principle of voluntary participation was strictly adhered to and respondents were not coerced into participating in the research.

3.10 Operational definition of Variables

An operational definition specifies precisely how a concept was measured and therefore the purpose of operationally defining a concept was to make it measurable. Table 3.3

describes the variables that were used as indicators in the study and the corresponding measurement scales.

Table 3.3 Operationalisation of variables

Objective	Variable	Indicator	Measurement	Scale	Method of data analysis
To establish how budgeting for Operation and Maintenance influences performance of community water supply projects	**Independent variable** Operation and Maintenance budgeting	Frequency of community participation in Operation and Maintenance budget preparation process	- Never - Rarely - Occasionally - Always	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
To explore how pricing of water services contributes to performance of community water supply projects	**Independent variable** Pricing of water services	Water connection charges	- 10,000/= and below - 10,001 to 30,000/= - 30,001 to 50,000/= - 50,001 to 70,000/= - Above 70,000/=	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
		Projects with fixed water tariffs (Kshs/Month)	- No charges - 50 to 100/= - 101 to 150/= - 151 to 200/= - Above 200/=	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
To determine how financial administration practices influences performance of community water supply projects	**Independent variable** Financial administration practice	Type of financial records kept	- Budgeting records - User registration forms - Minutes book - Work attendance	Ordinal Norminal	Descriptive:- Mean Percentage Frequency

			register - Stock and issue registers		
Objective	**Variable**	**Indicator**	**Measurement**	**Scale**	**Method of data analysis**
To assess the influence community financial monitoring has on performance of community water supply projects	**Independent variable** Community financial monitoring	Public meetings for water users to discuss water project income and expenditure	- Never - Monthly - Quarterly - Half yearly - Annually	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
		Use of notice boards to publicise project income and expenditure statements	- Never - Half yearly - Annually	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
To determine the degree of performance of community water supply projects	**Dependent variable** Performance of community water supply project	Current level of operation of the water system	- Not functioning at all - Functioning with problems - Well functioning	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
		Water project service delivery rating	- Very inefficient - Inefficient - Moderately efficient - Efficient - Very efficient	Ordinal Norminal	Descriptive:- Mean Percentage Frequency
		Condition of the water project infrastructure	- Very poor - Poor	Ordinal Norminal	Descriptive:- Mean

			- Fair - Good		Percentage Frequency

3.11 Summary

The chapter discussed the research design chosen for the study; target population of the study; Stratified sampling technique was used in selecting the sample size. Method used to collect the data. Details of the data collection process were described as well as the ethical issues of the study. An operational definition of variables table that was used in the study was also presented.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter focuses on data analysis, interpretation and presentation. The objectives of the study are to establish the extent to which budgeting for operation and maintenance of water systems, extent to which water tariffs contributes to the performance, to assess financial administration and its influence on the performance and to explore the influence of community financial monitoring on performance of community water supply projects.

4.2 Response Rate

Table 4.1: Response Rate

Category	Frequency	Percentage
Returned questionnaires	147	86.5
Unreturned questionnaires	23	13.5
Total	**170**	**100**

Table 4.1 illustrates the response rate of the respondents who participated in the survey. The study targeted 170 respondents. However, out of 170 questionnaires distributed, 147 questionnaires which represent 86.5% response rate were completely filled in and returned. This complied with Mugenda and Mugenda (2003) who suggested that for generalization a response rate of 50% is adequate for analysis and reporting, 60% is good and a response rate of 70% and above is excellent. This response rate can be attributed to the data collection procedure, where the researcher personally administered questionnaires with the help of one research assistant and waited for respondents to fill in. The 13.5% of the questionnaires that were not returned were due to unavailability of respondents at that time of collection them. The response rate demonstrates a willingness of the respondents' to participate in the survey that the study sought.

4.3 General Information

In this section, the researcher looked at leadership positions and about their water projects.

4.3.1 Leadership Position in the Water Project Management Committee

In this section, the respondents were asked to indicate their leadership positions in the water project management committee. Their responses are shown in table 4.2.

Table 4.2: Leadership Position in the Water Project Management Committee

Category	Frequency	Percentage
Chairman	36	24.5
Secretary	55	37.4
Treasurer	33	22.4
Vice chairman	14	9.5
Vice secretary	9	6.1
Total	**147**	**100**

From the Table 4.2, 37.4% of the respondents said they were secretaries in their project management committees, 25.4% of the respondents were chairmen, 22.4% of the respondents were treasurers, 9.5% of the respondents were vice chairmen, 6.1% of the respondents were vice secretaries.

4.3.2Types of Water Systems

In this section, the respondents were asked to indicate the type of water system they had in their water project. Their responses are highlighted in Table 4.3.

Table 4.3: Types of Water Systems

Category	Frequency	Percentage
Gravity fed water projects	133	91.2
Borehole	9	6.1
Dams or water pans	4	2.7
Total	**147**	**100**

From the Table 4.3, 55.1% of the respondents indicated their water systems were community water systems, 36.1% of the respondents' water system was gravity fed water projects, 6.1% of the respondents used boreholes and 2.7% of the respondents had dams or water pans.

4.3.3 Reasons for non-functioning Water Projects.

In this section, the respondents were asked to indicate why the water projects were not functioning well and their responses are shown in Table 4.4.

Table 4.4: Reasons for non-functioning Water Projects.

Category	Frequency	Percentage
No response	39	26.5
Damaged water intake	30	20.4
Broken pipeline	33	22.4
Pump not working	11	7.5
Water source dried up	13	8.8
Siltation	17	11.6
Steep slopes	4	2.7
Total	**147**	**100**

From the Table 4.4, 22.4% of the respondents indicated that their water systems were not functioning well because of broken pipeline, 20.4% of the respondents' water projects were not functioning well due to damaged water intakes, 11.6% of the respondents water projects were not functioning well due to siltation, 8.8% of the respondents water projects were not functioning well due to dried water sources, 7.5% of the respondents water projects were not functioning well due to pumps not working and 2.7 of the respondents water projects were not functioning well due to presence of steep slopes thereby hindering the water flow. 26.5% of the respondents did not answer the question and it can be assumed that they did not know why the water projects were not functioning well.

4.3.4 Rating of Current Status of Water Project Infrastructure

The researcher asked the respondents to rate the current state of their water project infrastructure. Their responses are shown in Table 4.5.

Table 4.5: Current Status of Water Project Infrastructure

Category	Frequency	Percentage
Low quality	9	6.1
Quality	92	62.6
High quality	46	31.3
Total	**147**	**100**

From the Table 4.5, 62.6% of the respondents rated the current state of their water project infrastructure to be fair, 31.3% of the respondents rated the current state of their water project infrastructure to be good and 6.1% of the respondents rated the current state of their water project infrastructure to be poor.

4.4 Operation and Maintenance Cost Budget

In this section the researcher sought to address the first objective that looked at the extent to which budgeting for operation and maintenance of water systems influences the performance of community water supply projects in Kieni East District. The respondents were asked question regarding their contribution as part of community participation, degree of community participation, sources of funds, adequate funds and on community deliberations.

4.4.1 Contribution during Project Implementation or Construction

The researcher asked the respondents to indicate their contribution as part of community participation during project implementation or construction.

Table 4.6: Contribution during Project Implementation or Construction

Category	Frequency	Percentage
Providing labour	87	48.9
Providing cash	78	43.8
Providing local building materials	13	7.3

From the Table 4.6, 48.9% of the respondents indicated that their contribution towards community participation during project implementation or construction was on cash, 43.8% of the respondents indicated that their contribution towards community participation during project implementation or construction was on labor and 7.3% of the respondents indicated that their contribution towards community participation during project implementation or construction was on providing local building materials.

4.4.2 Sources of Funds for Operations and Maintenance of Water Projects

The researcher asked the respondents to indicate the sources of funds for operation and maintenance of their water projects. Their responses are shown in Table 4.7.

Table 4.7: Sources of Funds for Operations and Maintenance of Water Projects

Category	Frequency	Percentage
Government	2	1.2
Donor	14	8.4
NGO/FBO	11	6.6
Membership fee	108	64.7
Voluntary contribution/harambee	32	19.2

From the Table 4.7, 64.7% of respondents indicated that the source of funds for operations and maintenance of their water projects was membership fees, 19.2% of respondents indicated that the source of funds for operations and maintenance of their water projects was voluntary contribution/harambees, 8.4% of respondents indicated that the source of funds for operations and maintenance of their water projects was donors, 6.6% of respondents indicated that the source of funds for operations and maintenance of their water projects was NGOs/FBOs and

1.2% of respondents indicated that the source of funds for operations and maintenance of their water projects was the government.

4.4.3 Level of Community Participation in Public Meetings Deliberations

In this section the respondents were asked to rate the level of community participation in public meeting deliberations on financing methods for their water projects operations and maintenance services. Their responses are shown in Table 4.8 below.

Table 4.8: Level of Community Participation in Public Meetings Deliberations

Category	Frequency	Percentage
Low	19	12.9
Moderate	82	55.8
High	46	31.3
Total	**147**	**100**

From the Table 4.8, 55.8% of the respondents indicated that the level of community participation in public meeting deliberations on financing methods for their water projects operations and maintenance services was moderate, 31.3% of the respondents indicated their level of participation was high and 12.9% of the respondents indicated their level of participation was low.

4.5 Water Tariffs

In this section the researcher sought to address the second objective that looked at the extent to which water tariffs contributes to the performance of community water supply projects in Kieni East District. The respondents were asked questions on water connection/membership fees, payment of user fees, responsibility of setting water charges and source of money for carrying out major repairs, system expansion or augmentation of water projects.

4.5.1 Charges for Water Connection or Membership Fee

The researcher asked the respondents to indicate how much the water projects charge for water connection or as membership fee. Their responses are shown in Table in Table 4.9.

Table 4.9: Charges for Water Connection or Membership Fee

Category	Frequency	Percentage
None	8	5.4
Kshs 10,000 and below	18	12.2
Kshs 10,001 to Kshs 30,000	20	13.6
Kshs 30,001 to Kshs 50,000	44	29.9
Kshs 50,001 to Kshs 70,000	30	20.4
Above Kshs 70,000	27	18.4
Total	**147**	**100**

From the Table 4.9, 29.9% of the respondents indicated that the water projects charged Kshs 30,001 to Kshs 50,000 for water connection or as membership fees, 20.4% of the respondents indicated that the water projects charged Kshs 50,001 to Kshs 70,000 for water connection or as membership fees, 18.4% of the respondents indicated that the water projects charged above Kshs 70,000 for water connection or as membership fees, 13.6% of the respondents indicated that the water projects charged Kshs 10,001 to Kshs 30,000 for water connection or as membership fees, 12.2% of the respondents indicated that the water projects charged Kshs 10,000 and below for water connection or as membership fees and 5.4% of the respondents indicated that no charges were levied for water connection or as membership fees.

4.5.2 Amount Charged per Month as Water Project User Fees

The researcher asked the respondents to indicate how much in Kshs. per month the water projects charge as user fees. The responses are shown in Table 4.10.

Table 4.10: Amount Charged per Month as Water Project User Fees

Category	Frequency	Percentage
Kshs 50 to Kshs 100	38	25.9
Kshs 101 to Kshs 150	47	32.0
Kshs 151 to Kshs 200	52	35.4
Above 200	10	6.8
Total	**147**	**100**

From the Table 4.10, 35.4% of the respondents indicated that the water projects charge Kshs 151 to Kshs 200 as user fees, 32.0% of the respondents indicated that the water projects charge Kshs 101 to Kshs 150 as user fees, 25.9% of the respondents indicated that the water projects charge Kshs 50 to Kshs 100 as user fees and 6.8% of the respondents indicated that the water projects charge above Kshs 200 as user fees.

4.5.3 Sources of Funds for doing Major Repairs, System Expansion.

The researcher asked the respondents to indicate the sources of money for carrying out major repairs, system expansion or augmentation of water projects. Their responses are shown in table 4.11.

Table 4.11: Sources of Funds for doing Major Repairs, System Expansion.

Category	Frequency	Percentage
Government	25	14.7
Donor/NGO/FBO	43	25.3
Water projects	61	35.9
Voluntary contribution/harambee	41	24.1

From the table 4.11, 35.9% of the respondents indicated that the major source of money for carrying out major repairs, system expansion or augmentation was from water projects, 25.3% of the respondents indicate it was from donors/NGO/FBO, 24.1% of the respondents said it was from voluntary contribution/harambees and 14.7% of the respondents said it was from the government.

4.6 Financial Administration

In this section the researcher sought to address the third objective that looked at financial administration and its influence on the performance of community water supply projects in Kieni east District. The respondents were asked questions on who receives funds collected by the water projects, records of fund collection, types of financial records, rating of water management committee's financial management skills and effectiveness of the methods used by water projects in collection, management and use of collected funds.

4.6.1 Types of Financial Record Water Projects Keep

The researcher asked the respondents to indicate what types of financial records that the water project kept. Their responses are shown in Table 4.12.

Table 4.12: Types of Financial Record Water Projects Keep

Category	Frequency	Percentage
Members/Water users register	63	30.9
Ledger book	94	46.1
Minute book	25	12.3
Work attendance register	22	10.8

From the Table 4.12, 46.1% of the respondents indicated that they kept the ledger book, 30.9% of the respondents indicated that they kept the members/water users register, 12.3% of the respondents said they kept the minute book and 10.8% of the respondents said they kept a work attendance register. Funds collected are well recorded in various books.

4.7 Community Financial Monitoring

In this section the researcher sought to address the last objective explored the influence of community financial monitoring on performance of community water supply projects in Kieni East District, Nyeri County. The respondents were asked questions on how community members are informed about the income accrued from the water services and project expenditure, frequency of community meetings, how income and expenditure statements of water projects are

publicized and rating on the flow of information and communication on financial management issues.

4.7.1 Communication with Community Members

In this section the researcher asked the respondents how the community members are informed about the income accrued from water services and project. Their responses are shown in Table 4.13.

Table 4.13: Communication with Community Members

Category	Frequency	Percentage
Public meetings	74	50.3
Notice boards	17	11.6
Reports	56	38.1
Total	**147**	**100**

From the Table 4.13, 50.3% of the respondents indicated that the community members were informed about the income accrued from water services and project via public meetings, 38.1% of the respondents indicated that the community members were informed about the income accrued from water services and project via reports and 11.6% of the respondents indicated that the community members were informed about the income accrued from water services and project via notice boards.

4.7.2 Frequency of Community Meetings.

The researcher asked the respondents to indicate the frequency of community meetings during the last one year to discuss income and expenditure accounts of the water projects.

Table 4.14: Frequency of Community Meetings.

Category	Frequency	Percentage

No response	3	2.0
None	14	9.5
Once	51	34.7
Twice	77	52.4
Thrice	2	1.4
Total	**147**	**100**

From the Table 4.14, 52.4% of the respondents indicated that they had met twice during the last one year to discuss income and expenditure accounts of the water projects, 34.7% of the respondents said they had met once, 9.5% of the respondents said they had not met and 1.4% of the respondents said they had met thrice.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion of key data findings, conclusion drawn from the findings highlighted and recommendations made. The conclusions and recommendations drawn were focused on addressing the purpose of the study which was to investigate the influence of financial management on performance of community water supply projects in Kieni East District, Nyeri County. The summary of the findings are in line with the objectives of the study.

5.2 Summary of Major Findings

The first objective sought to establish the extent to which budgeting for operation and maintenance of water systems influences the performance of community water supply projects in Kieni East District. The findings of the study showed that 48.9% of the respondents indicated that their contribution towards community participation during project implementation or construction was on cash, 43.8% of the respondents contribution's was on labor and 7.3% of the respondents contribution's was on providing local building materials. 59.9% of the respondents rated the degree of community participation during project implementation to be moderate, 64.7% of respondents indicated that the source of funds for operations and maintenance of their water projects was membership fees, 19.2% of respondents indicated that the source of funds for operations and maintenance of their water projects was voluntary contribution/harambees, 8.4% of respondents indicated that the source of funds for operations and maintenance of their water projects was donors, 6.6% of respondents indicated that the source of funds for operations and maintenance of their water projects was NGOs/FBOs and 1.2% of respondents indicated that the source of funds for operations and maintenance of their water projects was the government. 55.8% of the respondents indicated that the level of community participation in public meeting deliberations on financing methods for their water projects operations and maintenance services was moderate.

The second objective of the study sought to establish to determine the extent to which water tariffs contributes to the performance of community water supply projects in Kieni East District. The findings showed that 29.9% of the respondents indicated that the water projects charged

Kshs 30,001 to Kshs 50,000 for water connection or as membership fees, 20.4% of the respondents indicated that the water projects charged Kshs 50,001 to Kshs 70,000 for water connection or as membership fees, 18.4% of the respondents indicated that the water projects charged above Kshs 70,000 for water connection or as membership fees, 13.6% of the respondents indicated that the water projects charged Kshs 10,001 to Kshs 30,000 for water connection or as membership fees, 12.2% of the respondents indicated that the water projects charged Kshs 10,000 and below for water connection or as membership fees and 5.4% of the respondents indicated that no charges were levied for water connection or as membership fees.

35.4% of the respondents indicated that the water projects charge Kshs 151 to Kshs 200 as user fees, 32.0% of the respondents indicated that the water projects charge Kshs 101 to Kshs 150 as user fees, 25.9% of the respondents indicated that the water projects charge Kshs 50 to Kshs 100 as user fees and 6.8% of the respondents indicated that the water projects charge above Kshs 200 as user fees. 35.9% of the respondents indicated that the major source of money for carrying out major repairs, system expansion or augmentation was from water projects, 25.3% of the respondents indicate it was from donors/NGO/FBO, 24.1% of the respondents said it was from voluntary contribution/harambees and 14.7% of the respondents said it was from the government.

The third objective sought to assess financial administration and its influence on the performance of community water supply projects in Kieni East District. 46.1% of the respondents indicated that they kept the ledge book, 30.9% of the respondents indicated that they kept the members/water users register, 12.3% of the respondents said they kept the minute book and 10.8% of the respondents said they kept a work attendance register. 51.0% of the respondents rated the effectiveness of the methods used by water projects in the collection, management and use of collected funds as good while 38.8% of the respondents rated the effectiveness of the methods used by water projects in the collection, management and use of collected funds as poor.

The last objective sought to explore the influence of community financial monitoring on performance of community water supply projects in Kieni East District, Nyeri County. 50.3% of

the respondents indicated that the community members were informed about the income accrued from water services and project via public meetings, 38.1% of the respondents indicated that the community members were informed about the income accrued from water services and project via reports and 11.6% of the respondents indicated that the community members were informed about the income accrued from water services and project via notice boards. 52.4% of the respondents indicated that they had met twice during the last one year to discuss income and expenditure accounts of the water projects, 34.7% of the respondents said they had met once, 9.5% of the respondents said they had not met and 1.4% of the respondents said they had met thrice.

5.3 Discussions

The study examined the types of water projects, level of operation and reasons for them not functioning well. Evidently the common type of water projects systems were mainly gravity fed water projects others included boreholes, dams and water pans most of which were functioning but with some problems in place. The main problems with the water projects were broken pipeline, damaged water intakes and siltation. Other reasons why the water projects were not functioning well were dried water sources, pumps were not working well and the presence of steep slopes that hindered the flow of water.

To answer the first research question that sought to find out how budgeting for operation and maintenance of water supply projects influence performance of community water supply projects in Kieni East District, it was noted that members of the community had been called upon to contribute towards the budget either in terms of cash, labour, or building materials. However, much of the funding for operations and maintenance of water projects was got from the membership fees while others were from voluntary contribution/harambees which combined with the community contribution. This was to some extent adequate to cover recurring operation and maintenance costs. This supports Boland and Whittington (2000) argument that water supply is a service, and just like any service it involves manpower, repairs, spare parts, energy and other inputs.

The second research question asked to what extent water tariffs influence performance of community water supply projects in Kieni East District and it was noted that a significant

amount of money was contributed as connection or membership fees and also user fees. The problem is that it was not established whether the amount contributed can sustain the community water projects. The recovery of at least the operation and maintenance cost is essential for the financial sustainability of water utilities, adequate system maintenance, and hence the provision of quality services Brikke and Rojas, (2001). The findings showed that the major source of money for carrying out major repairs, system expansion or augmentation was from water projects meaning that the money charged as connection, membership and user fees was sufficient enough. This clearly shows that indeed the water tarrifs charged can influence the performance of community water supply projects.

The third research question asked in which ways financial administration influence performance of community water supply projects in Kieni East District and it was noted that funds collected from the water projects was kept by various individual but most significantly they were kept by the treasurer. The good thing is that records of funds collected were kept in various books where some used the members/water registers, ledger, minute and work attendance register/books. Evans and Appleton (1993) recommend simple administrative structure for rural or peri-urban areas where the following records could be used: user registration forms, a diary, minutes book, work attendance register stock and issue registers. It was however, not established on the consistency of their records and if one register was used throughout the organization to record fund collection. The other contentious issue was on the financial management skills of the management committee, it was established to be of acceptable standards. This means that indeed the way finances are managed or financial administration had an influence on the performance of community water supply projects.

Finally the last research question sought to answer how community financial monitoring of projects influence performance of community water supply projects in Kieni East District and it was noted that public meetings which were held mainly twice a year, notice boards, reports and annual general meetings were used to inform community members about the income accrued from the water services and project expenditure. The expenditure statements of the water projects were mainly publicized via circulation of copies of treasurers reports. A good number of water project's expenditure statements were however, not publicized. This differs with Narayan (1993),

that information about water project budget, financing, contracting and procurement is discussed publicly in villages and displayed. It is important for community financial monitoring of projects to be in place as it influences the performance of water supply projects.

5.4 Conclusions

Budgeting for Operation and Maintenance costs of water systems enhanced performance and sustainability of community water projects as enhanced efficient running of the water supply because the budgeting process provided communities with a good assessment of the operation and maintenance costs associated with their water facility. It also ensured that regular service and preventive maintenance are carried out as planned and in a timely manner which in turn ensures that the water facility continued to work for a long time.

Deciding on appropriate rate and type of tariff to apply to water users boosted performance of community water projects since water tariffs generate funds required to operate the system, finance routine maintenance, buy spare parts and meet cost of repair which are crucial for the efficient delivery of water services.

Having in place a good and reliable system of financial administration greatly improved performance of community water projects given that the production of financial records, documents and information was necessary because it ensured that accurate accounts about the resources needed to provide the water service were kept, income and expenditure were well managed and decisions were based on clear and accurate information.

Community financial monitoring augmented performance of community water projects because by assessing the capacity and effectiveness of the financial management framework in place, monitoring was expected to increase revenue collection efficiency, financial accounting and transparency. Management issues made the difference between performance and non performance of water projects.

5.5 Recommendations

In light of the above findings the researcher recommends that the community should be encouraged more to contribute towards the community project during implementation and construction as this increases their support towards the project especially in terms of funding. They should also be encouraged to participate more during community deliberations as this ensure the project operations and maintenance services are conducted in a transparent and accountable manner.

The study also recommends that water connections, user fees and membership fees should be constantly reviewed by all the concerned stakeholders to ensure that they are enough to ensure that the project is sustainable instead of keeping on looking for external funding for relatively small expenditures such as repairs.

The study recommends that all the stakeholders should ensure that financial records are kept and they should hire people with sound financial management skills. This is because it is important to have financial resources well managed and minimize on misappropriation and consequently the collapse of the water projects

Last the study recommends that there should be frequent community meetings, expenditure statements of the water projects should be publicized preferably in public meetings so as to ensure there is transparency and accountability of all resources.

5.6 Areas of Further Research

The study recommends that more research needs to be done;

i On the influence of transparency and accountability of financial resources on the performance of community water supply projects in the country.

ii. The influence of Government in the management of community water supply projects.

iii. The influence of water distribution on the performance of community water supply projects in Kieni constituency Nyeri County.

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APPENDICES

APPENDIX 1: INTRODUCTION LETTER

UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION
DEPARTMENT OF EXTRA MURAL STUDIES
P O Box 598 - NYERI : Tel : 061-2030460

5 April 2013

TO WHOM IT MAY CONCERN

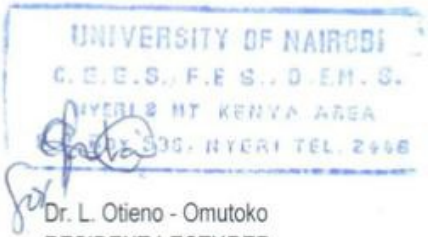
SUBJECT : INTRODUCTION LETTER
MARARO JANE WAIRIMU - REG. NO.L50/74544/2012

This is to confirm that the above named is a bona fide student of University of Nairobi pursuing a **Master of Arts Degree in Project Planning and Management** - in the **School of Continuing and Distance Education – Department of Extra Mural Studies.**

She has completed course work and is currently writing the **Research Project** which is a requirement for the award of the **Masters Degree.**

Her topic is ***" Influence of Financial Management on Performance of Community Water supply Projects in Kieni East District, Nyeri County, Kenya"***

Any assistance accorded to her will be highly appreciated.



Dr. L. Otieno - Omutoko
RESIDENT LECTURER
NYERI & MT. KENYA REGION

APPENDIX 2: A LETTER TO THE RESPONDENTS

Mararo Jane Wairimu

University of Nairobi
Dept of Extra Mural studies
P.O. Box 598 – 10101
NYERI.

Dear respondent,

RE: ACADEMIC RESEARCH QUESTIONNAIRE

I am a student at University of Nairobi pursuing a Master of Arts Degree in Project Planning and Management. This questionnaire is part of my research project for which I am collecting data on the influence of financial management on performance of community water supply projects in Kieni East District.

Your water project has been selected to provide the desired information. I would be grateful if you could answer truthfully the questions in the questionnaire.

Your timely response will be appreciated.

Yours faithfully,

Jane W. Mararo.
L50/74544/2012.

APPENDIX 3: QUESTIONNAIRE FOR WATER PROJECT MANAGEMENT COMMITTEES

This questionnaire is intended to collect data that will be used in a study to assess factors influencing the performance of water projects in Kieni East District, Nyeri County. In answering my questions, please remember that there are no correct or wrong answers. I am just after your honest opinion. I appreciate your contribution towards this study and look forward to your response. All your responses will be treated in confidence. If you have any questions, please do not hesitate to contact me.

Mark with a tick (√) where applicable or write your responses in the spaces provided.

SECTION A: GENERAL INFORMATION

1. Respondent information:-

a) Gender: Female ☐ Male ☐

b) Leadership position in the water project management committee

Chairman ☐

Secretary ☐

Treasurer ☐

Vice chairman ☐

Vice secretary ☐

2. About your water project:-

a) Type of water system:

1 = Gravity fed water project ☐

2 = Borehole ☐

3 = Dam or water pan ☐

b) What is the current level of operation of your water system?

1 = Not functioning at all ☐

2 = Functioning with some problems ☐

3 = Well functioning ☐

c) Why is the water project not functioning well?

1 = Damaged water intake ☐

2 = Broken pipeline ☐

3 = Pump not working ☐

4 = Water source dried up ☐

5 = Siltation ☐

d) How would you rate the delivery of water services by your water project?

1 = Very inefficient ☐

2 = Inefficient ☐

3 = Moderately efficient ☐

e) How would you rate the current state of your water project infrastructure?

1 = poor ☐

2 = Fair ☐

3 = Good ☐

SECTION B: OPERATION and MAINTENANCE COSTS BUDGETING

3. What was your contribution as part of community participation during project implementation or construction? (Indicate one or more based on your contribution)

1 = Providing labour ☐

2 = Providing cash ☐

3 = Providing local building materials ☐

4. How would you rate the degree of community participation during the project implementation or construction stage?

1 = None at all ☐

2 = Low ☐

3 = Moderate ☐

4 = High ☐

5. What is the source of funds for operation and maintenance of your water project?

1 = Government ☐

2 = Donor ☐

3 = NGO/ FBO ☐

4 = Membership fee ☐

6 = Voluntary contributions/harambee ☐

6. Does the water project have adequate funds to cover recurring operation and maintenance costs?

1 = No ☐

2 = To some extent ☐

3 = Yes ☐

7. How would you rate the level of community participation in public meeting deliberations on financing methods for your water project operation and maintenance services?

1 = None ☐
2 = Low ☐
3 = Moderate ☐
4 = High ☐

SECTION C: WATER TARIFFS

8. How much does the water project charge for water connection or as membership fee?

1 = None ☐
2 = 10,000/= and below ☐
3 = 10,001 to 30,000/= ☐
4 = 30,001 to 50,000/= ☐
5 = 50,001 to 70,000/= ☐
6 = Above 70,000/= ☐

9. Are community members paying any user fees to cover the water projects operations and maintenance costs?

Yes ☐ No ☐

10. How much in Kshs per month does the water project charge as user fee?

1 = No charges ☐
2 = 50 to 100/= ☐
3 = 101 to 150/= ☐
4 = 151 to 200/= ☐
5 = Above 200/= ☐

11. Who is responsible for setting the water charges?

1 = Government ☐
2 = Water committee ☐
3 = Community ☐

12. What are the sources of money for carrying out major repairs, system expansion of your water project?

1 = Government ☐

2 = Donors/NGO/FBO ☐

3 = Water project ☐

4 = Voluntary contributions/harambee ☐

SECTION D: FINANCIAL ADMINISTRATION

13. Who receives the funds that are collected by the water project?

1 = Chairman ☐

2 = Treasurer ☐

3 = Secretary ☐

4 = Committee member ☐

5 = Water project clerk ☐

14. Are there books that record funds collection?

Yes ☐ No ☐

15. What type of financial records does the water project keep?

1 = Members/water users register ☐

2 = Ledger book ☐

3.= Minutes book ☐

4 = Work attendance register ☐

16. How would you rate the water management committee's financial management skills?

1 = Very poor ☐

2 = poor ☐

3 = Fair ☐

4 = Good ☐

5 = Very good ☐

17. How would you rate the effectiveness of the methods used by your water project in the collection, management and use of collected funds?

1 = Very poor ☐

2 = poor ☐

3 = Fair ☐

4 = Good ☐

5 = Excellent ☐

SECTION E: COMMUNITY FINANCIAL MONITORING

18. How are community members informed about the income accrued from water services and project expenditure?

    1 = Public meetings ☐
    2 = Notice boards ☐
    3 = Reports ☐

19. What has been the frequency of community meetings during the last one year to discuss income and expenditure accounts of the water project?

    1 = None ☐
    2 = Once ☐
    3 = Twice ☐
    4 = Others (please specify) .....

20. How are income and expenditure statements of the water project publicized?

    1 = Not publicized ☐
    2 = Notice boards ☐
    3 = Circulation of copies of treasurers report ☐

21. How would you rate the flow of information and communication on financial management issues between the water committee and community members?

    1 = Very poor ☐
    2 = poor ☐
    3 = Fair ☐
    4 = Good ☐
    5 = Excellent ☐

THANK YOU VERY MUCH FOR YOUR TIME AND PARTICIPATION.