AN EVALUATION OF VALUE FOR MONEY IN PUBLIC FUNDED PROJECTS. A CASE STUDY OF WATER DEVELOPMENT PROJECTS IN BUSIA COUNTY

BY

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UNITED STATES INTERNATIONAL UNIVERSITY –AFRICA

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AN EVALUATION OF VALUE FOR MONEY IN PUBLIC FUNDED PROJECTS. A CASE STUDY OF WATER DEVELOPMENT PROJECTS IN BUSIA COUNTY

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UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

SUMMER 2019
STUDENT DECLARATION

I declare that this is my original work and has not been presented to any other college, university or other institution of higher learning other than United States International University Africa

Signature: ………………………  Date: ……………………………

Ayuko Valentine C (651142)

This thesis proposal has been submitted for examination with my approval as the appointed supervisor

[Signature]

Signature: …………………  Date: ……………………………

Dr. Maurice Mashiwa

Signature: …………………  Date: ……………………………

Dr. Martin C. Njoroge

Dean, School of Humanities and Social Sciences

Signature: …………………  Date: ……………………………

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ABSTRACT

This thesis is organized in the following manner: First, chapter one presents the background of the study, the problem statement and research objectives the study is seeking to answer; justification of the study, and the scope of the study. It covers the background of Busia County, one of the 147 counties of Kenya and its County Water Department. The chapter also introduces the concept of Value for Money in project planning and management.

Chapter two of this proposal examines available literature by different scholars for each of the research objectives, while at the same time, presents the theoretical framework that will support the analysis of the study. Chapter three presents the study methodology that was adopted, including research design, sampling, data analysis, and presentation.

Chapter four shall report the findings of the study from the field, addressing every objective and clearly showing the representations of the findings. Chapter five eventually records the recommendations from carrying out this study and the summary of the findings.
ACKNOWLEDGEMENTS

This research has been made possible through the help and support of many people. I hence dedicate my acknowledgement of gratitude to the following significant contributors.

First and most important to my parents, Mr. and Mrs. Oriko Ang’ana who gave me the opportunity to pursue my Masters. Their support is highly appreciated.

I also extend sincere gratitude to my supervisor and reader, Mr. Maurice Mashiwa and Mr. Dan Odaba respectively, for taking the time to develop the concept of my research and guidance through the writing of this thesis. I also extend gratitude to the team in Busia County Water Department led by Mr. Oriko Ang’ana. Their cooperation is highly appreciated.
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<tr>
<td>CWSUSSP</td>
<td>County Water Supply and Urban Sewerage Strategic Plan</td>
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<td>CWSSF</td>
<td>County Water Sector Stakeholder Forum</td>
</tr>
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<td>DWIA</td>
<td>Department of Water, Irrigation and Agriculture</td>
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<td>GoK</td>
<td>Government of Kenya</td>
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<td>IWRM</td>
<td>Integrated Water Resource Management</td>
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<td>PPP</td>
<td>Public Private Partnerships</td>
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<td>LCCA</td>
<td>Life Cycle Cost Approach</td>
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<td>LVFO</td>
<td>Lake Victoria Fisheries Organization</td>
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<td>LVWB</td>
<td>Lake Victoria Water Basin</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SROI</td>
<td>Social Return On Investment</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>VFM</td>
<td>Value for Money</td>
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<td>WARIS</td>
<td>Water Regulation Information System</td>
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<td>WASREB</td>
<td>Water Service Regulatory Board</td>
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<td>WASH</td>
<td>Water Sanitation Health</td>
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<td>WSP</td>
<td>Water Service Provider</td>
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<td>WSSP</td>
<td>Water Sector Strategic Plan</td>
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<td>WRMA</td>
<td>Water Resource Management Authority</td>
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<td>WWS</td>
<td>Water and Sanitation Sector</td>
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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Background of the Study

The United Nation’s Sustainable Development Goals provide countries with a mandate to focus on socially equitable and environmentally sustainable growth. Economic growth, social inclusion and environmental sustainability are the three dimensions of sustainable development which align with an ecosystems services approach which ensure that environmental services such as clean air, water and nutritious food are made accessible for generations to come (United Nations, 2015).

Water resources have been an area of concern not only in the SDGs mandate but also in the Devolution Planning in Kenya. The use of water has been growing almost twice as much the population for over a century now (UN Program, 2017). To address this already huge demand for water, some parts of the world have already gone beyond sustainable limits of water withdrawal from rivers and groundwater aquifer.

Water shortages already hit the headlines all over the world. One third of the population globally, especially those found in developing countries live in basins where the water deficit is larger than 50 percent. About 700 million people in 43 countries face water stress, unable to obtain the minimum need of 1,700 cubic meters of water per person per year (UN Program, 2017). The water challenge has been aggravated by climate changes, irregular rainfall patterns in such parts of the world. Irrigated agriculture accounts for more than 80 percent of water use in developing countries. Yet, feeding more people and coping with the changing dietary demands from a richer population and climatic changes will require more
efficient water use. Without sufficient water, future economic progress could be severely constrained.

The Ministry of Devolution and Planning in Kenya and the United Nations Development Plan, UNDP, share the same unique transformation agenda that involves every county in Kenya under the Devolution Plan embracing the pursuit for progressive and sustainable development. There has also been direct financial development assistance from international actors for some projects in certain counties, for example the United States of America through United States Agency for International Development (USAID) has continually funded projects in Busia County through the Kenya Integrated Water Sanitation and Hygiene (KIWASH) program (Strategic Plan Busia 2, 2017).

Value for money (VFM) is extracted from the optimal balance of benefits and costs. For public funded projects to run, there has to be public procurement which refers to the government’s activity of purchasing goods, works and services needed to carry out its operation.

The nature of public procurement is such that it involves decision-taking on behalf of government at all levels. Value for money is therefore not a choice of goods or services which is based on the lowest cheapest bid price but a choice based on the whole life costs or long lasting aspect of the project. It is all about striking a balance between economy, effectiveness and efficiency as it shall be later discussed in the paper.

The concept of Value for Money (VFM) in layman is understood as not paying for goods or services at a cost that its quality doesn’t justify, in most cases at a higher cost for less quality. In relation to public projects and funding, the concept of Value for Money
means a concern with cost minimization, which is basically economy, increasing output for a given input which is efficiency and successfully achieving the intended outcome which is effectiveness.

Value for Money is therefore not synonymous with either cost minimization or increasing output. It is about finding the right balance between the economy, effectiveness and efficiency. Value for Money has often been misunderstood as a concept of cutting down costs for services or projects, yet if resources for a project are very cheap, the project runs efficiently but doesn’t achieve results, there is no Value for Money achieved. Similarly, if the effectiveness of a project is notably reduced because of small cost savings, Value for Money is reduced. Therefore, the quality of the outcome is vital to understanding whether something is providing value.

Among the three components of VFM, which are economy, effectiveness and efficiency, on each of them a challenge arises especially in developing countries. Economy is the easiest component to achieve as it involves cutting costs, which in public projects is easy to handle by both the county and national government. This in most cases will involve setting an expenditure budget that is minimal and or for procurement choosing the least quoted tenderer for supplies.

Efficiency is more difficult to achieve as it is concerned with increasing output for a given input thereby maintaining a certain quality. Efficiency and economy have some relationship although economy can be achieved without efficiency and so can efficiency be achieved without economy. Ideally, it is important at the onset of a project to establish quantity and quality so that the quantity of the resources is not minimized at the expense of
the quality of the output and the quality of the output or achieved objectives are not exaggerated causing an exceeded expenditure.

Thirdly, is effectiveness, this involves successfully achieving the intended outcome or the aims of the policy makers. This is the problematic component of VFM for starters because it can be difficult at both county and national level to establish acceptable objectives by both levels of government. Secondly, some objectives recognized by individuals are impossible to measure while those ones appropriate for communities are more complex for conceptual matters and there are no criteria for them which are generally applicable (Glendinning, 1988).

Value for Money is therefore not a tool or a method, it is a way of thinking that involves using resources well. With the Sustainable Development Goals agenda, Value for Money has become very prominent especially in the development community. The development community for a long while has been driven by a criteria of performance which is not similar with those in the public spending. This criteria of performance has given much attention to how much is spent instead of the fundamental goal, what these funds achieve. Value for Money has also become prominent because public participation/involvement and transparency have become vital factors in development and governance, hence aid donors together with the government are obligated to understand and demonstrate the Value for Money to funders for public projects such as tax payers. The validity of aid has also been a debate in the international system with some groups posing that aid for developing states is more a burden than a gift, Value for Money can prove otherwise that aid is valid and can be efficient and effective.
There is confusion and misinformation about Value for Money especially about its value and relevance in development. Value for Money has been dismissed as impractical and irrelevant even though policy makers have always pushed the idea to use numerical evidence to ensure the best Value for Money in all government expenditures (Jackson, Value for money and international development, 2012).

Access to safe and sufficient water became a basic human right in Kenya after the promulgation of the 2010 constitution, and as a result of the devolved government level, this has become a responsibility of all the elected forty seven counties in the country (Busia County Water, 2015). All counties up to and including Busia county are required by the law of Kenya to allocate budget for water and sanitation and to also come up with governance frameworks that can be sustained and can bring about development. Busia County has put these two together in the Busia County Water Supply and Urban Sewerage Strategic Plan (CWSUSSP), which seeks to look beyond the pure infrastructure investment requirements and to take into account the interventions needed for ensuring that this very infrastructure provides the desired service for the whole preparations (Busia County Water, 2015). There is therefore fitness for purpose of the goods and services to meet user’s requirements.

The most important characteristic of CWSUSSP strategic plan is that it uses the Life Cycle Cost Approach (LCCA) in planning. It hence primarily focuses on ensuring that the impact of the projects to the communities is felt and at the same time take up the responsibility of ensuring that sustainable aspect of the project is taken into consideration. The plan in other words highlights that the three components of Value for Money should be taken in consideration, that is, a workable budget that guarantees quality – economy, ensuring that the intended outcomes are achieved successfully-effectiveness and lastly, ensuring an
increased output for the given infrastructure which is efficiency. By relying on both qualitative and quantitative data, I will seek to explore if the Value for Money has been achieved in the already undertaken water development projects in Busia County.

1.3 Statement of the Problem

Development funds should be used as effectively as possible, be it donor money, government and taxpayer funds, partner country funds or public private partnerships. The main underlying objective is usually that these funds achieve the objectives of doing a project in the first place. If Value for Money is taken in consideration in the planning and undertaking of a project, sustainable and progressive development can be felt.

The public sector forms the largest element in national economies in the Third World countries more than it does in the Western Industrial states. In the Third World states, especially former British colonies, most of the economic activities fall in the category of public utilities such as railways, ports, roads and irrigation just but to mention a few. These catalytic sectors such as manufacturing, agriculture and extractive industries in these Third World countries have been run usually as parastatals (Glenning, 1988). While the Western Industrial states such as Britain have managed to achieve the best Value for Money in their publicly funded projects, most Third World countries have not successfully achieved that. This according to Glenning is because the Western Industrial states have managed to build frameworks and policies within fairly highly developed systems of government established over a long period of time and by decision makers with experience.

The Third World countries are characterized by administrative frameworks that are less developed, less experienced decision makers and frequent accusations of mismanagement of funds. The Constitution of Kenya under article 178 however outlines
several objectives of the devolution government that mandates communities a right to manage their own affairs and to further their own development. Busia County like other counties has exercised this right, especially under the Busia County Water Supply and Urban Sewerage Strategic Plan (CWSUSSP), which has strategized on policies that benefit the community, drafted economical budgets and set projects running. The question that remains unanswered is have these projects achieved Value for Money?

This paper’s aim is not to do a Value for Money audit but an evaluation of what Busia County Water Supply and Urban Sewerage Strategic Plan (CWSUSSP) under the Department of Water, Environment and Natural Resources has achieved so far and if there is Value for Money.

1.4 Objectives of the study

1.4.1 General objective

The general objective of this study is to evaluate what Busia County Water Supply and Urban Sewerage Strategic Plan (CWSUSSP) under the Department of Water, Environment and Natural Resources has achieved so far and if there is Value for Money in the water projects management.

1.4.2. Specific Objectives

This study will be guided by the following specific objectives

1. To examine the ease of water accessibility in Busia County

2. To examine if the county uses water services to turn around agriculture

3. To examine progress and sustainability in the water sector in the county
1.5 Research Questions

This study will be guided by the following research objectives

1. What is the ease of access of water in Busia County?
2. Does the county use water services to turn around agriculture in the county?
3. What is the progress made and is there sustainability of water projects in the county?

1.6 Justification of the Study

As highlighted earlier, Value for Money has become prominent now in development communities because of the gap identified that how much is spent on projects most often overshadows the real question that most donors or taxpayers need to know. The question of what do the funds achieve? Even with this gap identified, Value for Money has not gotten a constructive discussion in publicly funded projects (Jackson, Value for money and international development, 2012).

This study is important in that it will expand body of knowledge and existing literature on the importance of Value for Money in public funded projects. This will in turn help to address the confusion around Value for Money as being synonymous with economy and or efficiency. This study shall also contribute significantly to promoting a more constructive discussion on Value for Money, analyse if the concept has been employed in the running of projects, specifically the water projects in Busia County, if not why? If it has been employed, the study shall also seek to find out how Value for Money was achieved in project management and the effects of employing the concept in projects.
1.7 Scope of the Study

In examining if Value for Money has been embedded in the management of water development projects in Busia County, this study not only seeks to examine the ease of access to water in the county that is the question of, is the public benefiting? The study shall also investigate if and how the county uses water services to turn around agriculture in the county. The study also seeks to examine and provide evidence for sustainability in the already handled and ongoing water development projects. To determine the use of the concept in the projects, the Value for Money Assessment framework, involving the 4 E’s (Economy, Efficiency, Effectiveness and Equity) shall be used.

The study shall also be limited to Busia County and its seven sub-counties of Samia, Bunyala, Butula, Matayos, Nambale, Teso North, Teso South and the 35 wards there within.

1.8 Chapter Summary

This chapter has presented the background of the study, the statement of the problem and the research questions that the study seeks to answer. The justification and the scope of the study is also provided. This proposal is divided into three chapters. Chapter one has introduced the topic of the study, giving an overview of what the study intends to achieve, chapter two will present literature reviews from different scholars’ perspectives on the topic and the theoretical framework, while chapter three shall present the methodology that shall be used to collect, analyse and present data and findings for the study.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature by various scholars on the concept of Value for Money and how employing the concept of VFM in project management has shaped development projects. Since the study’s scope is within Busia County, first the chapter shall cover a strategic overview of Busia County, outlining the nature and boundaries of water policies, water supply schemes, key developments, strategic outcome areas, budget and financing.

The paper shall then seek to expound various knowledge on the concept of Value for Money, explaining the need for VFM in managing projects, the concept of VFM in development projects and the assessment framework in evaluating Value for Money.

2.2 Strategic Overview of Busia County

Busia, situated at the extreme western region of the country, is one of the forty seven counties of Kenya. It borders three other counties; Kakamega County to the east, Bungoma County to the north and Siaya County to the south west. Part of Lake Victoria is in Busia County on the South East, the same lake is shared with the Republic of Uganda to the West.
The county relies on predominantly crop farming although livestock farming is done in small scale. The county’s socio economic structure is structured with many self-help groups, youth groups and women groups that participate in various community development projects including water projects. The main crops grown in the county are maize, cassava, beans, millet, sorghum, sweet potatoes, sweet bananas, rice and cow peas among others. On top of that, the Ministry of Agriculture, Livestock and Fisheries Development has been on the fore front in promoting Fish farming through the Economic Stimulus Program (Busia County Department of Water, 2015).

Apart from agriculture, various mining activities also take place in the county. On-going mining activities are in sand harvesting brick making, ballast mining and quarrying. According to the 2009 Kenya Population and Housing Census, 343,531 people engaged in gainful employment. A larger percentage of this were those employed in family farms. According to the report on Wellbeing in Kenya, (Standards, 2009), the poverty level in the County was projected at 64.2% by 2015 compared to the national level at 45.9%

The county has one registered Water Service Provider (WSP) which is Busia County Water and Sewerage Company and an unknown number of Water User Associations and Water Management Committees. It is possible that a second water company could be formed to deal with rural area water provision (Busia County Department of Water, 2015). Protected spring water, protected well water, borehole, piped water and rain water collection are improved sources of water, while unimproved sources of water include ponds, lake, rivers, water vendors, unprotected wells and unprotected springs among others. 61% of the residents in Busia County use improved sources of water and the rest rely on unimproved sources of water. Butula and Nambale sub counties have the highest number of residents using
improved sources of water, each at 73%. This rates Butula and Nambale at 27% higher than Teso North which is lastly rated with a low percentage of residents using improved sources of water. At the very top is Marachi Central ward that has 93% of the residents using improved sources of water (Busia County Department of Water, 2015).

2.3 Water Supply Schemes and Key Developments

All the seven sub counties have operational Water Supply Schemes. There is extension of water distribution network at Mabunge water project, expansion of Mungatsi water project and the completion of the rising and distribution mains at Igara Musokoto (Busia County Department of Water, 2015). Even with such infrastructure being developed, break downs are still prone. There is an urgent need to therefore rehabilitate systems, protect existing ones including springs and upgrading of piped systems.

According to the County Water Supply and Urban Sanitation Strategic Plan (CWSUSSP), there is a continued need to build capacity of the management of community water projects or seek for models based on professional operation management to ensure efficiency and effectiveness of water projects in rural areas.

So far, the county has made key developments such as the World Vision is working in Teso North. Alpha North has a component of WASH program in the county too. The county also has three operational small gravity schemes, in as much as the topography in Busia doesn’t favor application of gravity schemes at large scale. According to the County Water Supply and Urban Sanitation Strategic Plan (CWSUSSP), the Water Department in the county plans in the second phase, on doing a borehole piped and powered by solar. The county also partners with schools on rain water harvesting.
Financially, the county relies largely on funding from the national government. Even though the strategic plan outlines that Public Private Partnerships shall be pursued, the main challenge to that has been a lack of conducive environment for investments as politics takes center stage. Therefore, the county government raises funds through taxes, rates, levies. There is no straight data of people paying for rural water services (Busia County Department of Water, 2015). According to the Water Point Mapping studies of Netherlands Development Organization (SNV), wide variations of between 13-82% not paying for water is shown. The financial stability of the Water Service Provider in the past depended on subsidies for the cost of electricity and chemicals. It is however not clear according to the Strategic Plan how the county shall handle this in the future. One of the key financial challenge in Busia is financing daily operations and management.

2.4 Strategic Outcome Areas

These in Busia County are organized around five themes; water service governance, water service management, water service infrastructure, capacity development and resource mobilization. These are derived from the Busia County Water Supply and Urban Sanitation Strategic Plan (2015-2019) Part B.

a) Water Service Governance

This includes political, social, economic and administrative systems that are in place to regulate and manage the development and management of water resources and the provision of water services within different levels of society in the county. Water governance depends on specific institutions that are mandated to govern water and also overall governance context in which water issues are placed. For example in Busia County, there is one Water Service Provider (WSP), the Busia County Water And Sewerage Company. The
WSP has an organization structure that deals with water governance, following parameters set forth by WASREB, the Regulator and WRMA, the Authority responsible for water resource management.

As of now, the Lake Victoria North Water Services Board oversees the water governance at WSP. It demands that WSP completes design water performance indicator reporting system on quarterly basis on matters such as; water production, quality, infrastructure state, demand levels and accessibility to consumers (LVNWSB, 2013). The tariff used is also approved by WASREB to ensure that it is a cost-recovery tool and that the price of water is affordable to the residents.

The county has also drafted the County Water Policy, formulating by-laws and providing details that the Water Act 2002 did not provide. The county has a drafted County Water Bill 2014 that has borrowed heavily from the National Water Bill 2014, which has necessary stipulations that value equity, sustainability, and the people’s needs.

b) Water Service Management

After water provision was devolved to the county government, the management of water service at the county government has therefore become the responsibility of a Water Service Provider. The responsibility of managing water resources and service delivery are split into separate bodies, so are policies and regulations. The Water Service Regulatory Board (WASREB) is responsible for the regulation of the water and sewerage services. Its mandate also includes licensing, quality assurance, tariff guideline publication. In other words, the body is to guarantee efficient, affordable and sustainable services (Busia County Department of Water, 2015).
The Regulator also uses the Water Regulation Information System (WARIS) to collect and analyze operational data of Water Service Boards and Water Service Providers. This enables the Board to assess their performance in the delivery of water services. Busia County at its present is considering different mid-term solutions model for water and urban sanitation (WASREB, 2013). The model will also provide details on operational modalities, provide clarity on the options for contracts that will be available for private sector participation among other things.

c) Water Service Infrastructure

The Strategic Plan, (Busia County Department of Water, 2015), of the water department has been to quantify the ambition of the County in terms of infrastructure. The starting point was the target population that needed to be served new or improved water and urban sanitation facilities. The framework was clearly based directly for impact. The County also chose to strategically rehabilitate infrastructure whenever possible as a priority to improve equitable access to water. The second strategic choice was that the County focusses on moving people up on the service demand by genuinely responding to a people’s demand of water accessibility.

The Busia County Water Supply and Urban Sanitation Strategic Plan (2015-2019) says little about infrastructure considering the financial gap that engulfs the department.

d) Capacity Development

The Busia County Water Supply and Urban Sanitation Strategic Plan (2015-2019) outlines that changes in responsibilities and roles shall be expected for all stakeholders. Capacity development plan that included organizational development, staff of water service
authority were finalized by 2015. The first capacity development annual progress report was released in 2016.

e) Resource mobilization

Since financing of water and sanitation services in Busia County comes traditionally from three types of sources, the county has had to make the public, politicians and technical staff aware of the sector financial status and how to get support from all stakeholders. Next to the traditional sources: government funding, often tax, donor agencies, consumers (tariff), the county is seeking private sector funding. The structured PPP framework intends to provide Busia County an opportunity to do business with private investors (WASREB, 2013).

2.5 Busia County Water and Urban Sanitation Budget and Financing

Financial sustainability of water services can only be ensured when a right mix of finances for all key expenditure categories are ensured. Based on the infrastructure targets, an estimate was made of how much one-off capital investments would require for new infrastructure. The costs are calculated yearly by the county water department (Irrigation, 2005). Budgets for different expenditures are based on a good analysis of the costs of running water services in Busia County. The initial budgets for water were based on using the unit costs as have been calculated in the 2005 Ministry of Water and Irrigation report and translated to the values of 2014, however they again were recalculated by using the similar unit costs as defined by the water department of Busia County, which are slightly higher than the latter (Busia County Department of Water, 2015).
On how the different expenditures should be financed, the county uses the cost categories of the Life Cycle Costing Approach (LCCA). The cost categories are outlined as follows:

**Capital Expenditure (CapEx):** a large part comes from traditional sources for example taxes, donor programs and government programs. Some may also be financed through both national and international philanthropy and investments by the private sector.

**O&M Expenditures (OpEx):** for the period 2015-2019, the overall OpEx for all water services is 2,030,000,000 KES (Busia County Department of Water, 2015). This would lead to a tariff range from 42-105 KES per head and per month at full cost-recovery and payment rate of 70%.

**Capital Maintenance Expenditure (CapManEx):** for the period 2015-2019, the overall CapManEx for Busia was estimated at 945,000,000 KES. At full cost recovery this approximates to 9-40 Kes per month and per head depending on service levels.

**Direct Support Cost:** this is an annual direct support costs that are usually estimated at 156,500,000 KES per year.

The biggest challenge for the County is to get to a point of agreement concerning an average water tariff, between 50 and 145 KES per head and per month. Determining if this is a practical and achievable tariff level and coming up with a joint model to convince the public, technical staff and politicians to work towards such a level in order to achieve sustainable water service delivery has been quite a challenge.

Regardless, Busia County has managed to make key developments in water service delivery. The policies structured and frameworks set appear to have the same goal of
sustainability and meeting people’s needs. However like many other counties, Busia County faces hindrances of finances and implementation. The overview proves that the objectives of the Water Department in the County are to provide the best Value for Money while managing development projects. Hence this paper shall seek to examine if the ongoing projects and the already completed projects have achieved VFM.

2.6 The Concept of Value for Money

According to the UK’s Her Majesty’s Treasury Value for Monet Assessment Guide; the foundational definition of Value for Money that shall be used in this study is;

*Value for Money is the optimum combination of whole life costs and quality; also known as fitness for purpose of the good or service to meet user requirement.*

VFM aids public agencies in determining if to pursue projects as traditional procurement or to also incorporate projects as Public Private Partnerships. The HM’s Treasury Value for Money report emphasizes on accounting for the costs and savings throughout the lifetime of a project in order to determine this value. Arthur Andersen and Enterprise LSE (2000) surveyed various public agencies and came up with drivers to VFM. The following are;

- Risk transfer: conducted by allocating the risks to the party best able group to manage them over the contract period.
- Output based specification: this includes linking the quality of output of a project to quality and timing of delivering this output. The question of was it worth the time? Is it up to standard?
• Long term nature of contracts including whole life costing: the contracts lifetime should be long enough to recover the initial investment. Long contract periods also allow for alternative approaches to be developed for service delivery and it also allows a focus on whole life costing.

• Performance measurement and incentives: these act as means to ensure that standards and specifications put in place through the project are implemented. This is like the watchdog to ensure quality is achieved.

• Competition: a high level of competition among bidders may cause improvement in pricing and other alternatives of achieving VFM.

• Private sector management skills: the survey highlights that the private sector’s ability to effectively manage delivery and operations of a project were critical to the success of attaining VFM.

2.7 The 4 E’s of Value of Money

The 4E approach to VFM is the most common conceptual framework conceptualized by DFID, whose analysis is shaped by Economy, Efficiency, Effectiveness and recently Equity, based on the notion that development is only of value if it’s fair. Below is a diagram showing the relationship between inputs, outputs, outcomes and impact in a project where VFM has been considered.

Economy in this sense refers to the degree to which inputs or resources are being purchased in right quantity and prices. Efficiency assess how the project is delivering its output; considering the rate at which intervention inputs are converted into outputs and its cost efficiency. Effectiveness is all about assessing the rate at which outputs are converted
into outcomes and impacts and cost effectiveness of the conversion. Lastly equity is to ensure that the results are distributed equally. The table is adapted from (Saxena, 2012)

![Value for Money - The 4Es](image)

**Figure 1:** Value for Money - The 4E's

### 2.8 VFM in Project Management

Project management is considered as one of the areas of prime concern for any entity, regardless of its size, as there are always new undertakings being pursued (Passenheim, 2009). One of the key functions of project management is ensuring that programme objectives are met and that operations are run in a cost effective manner. In other words, project management ensures that value for money is realized in every undertaking. The idea behind Value for Money is to minimize costs while maximizing output to ensure efficiency and effectiveness (Glendinning, 1988). It is not just a procedure or technique, but involves a change in mind-set to a line of thought that is concerned with the proper use of resources (Jackson, Value for money and international development, 2012).
VFM improves a project managers’ judgement as it equips them with the requisite skills that will enable them know how they will achieve the required quality at the best price. This is because VFM gives the manager a deeper understanding of what drives costs. VFM is increasingly becoming crucial in project management for a number of reasons. First, the traditional criteria for evaluating performance is a flawed process since it focuses more on the amount spent on a project rather than what the financial resources are able to achieve.

Secondly, there is an increased need to be accountable to project financiers whereby managers have to demonstrate that the funds allocated were able to meet the needs being addressed by that specific venture. VFM is also essential in decision making as it enables making evidence based decisions by knowing what works and what doesn’t. Lastly, VFM is aimed at getting the best results. If the efficacy of a project drops drastically due to minimal cost cutting, value for money has not been achieved. The desirability of the results is key to better understand if an undertaking is bringing value. The goal of being effective is to minimize inefficiencies in the way a project is managed, which will eventually lead to good results.

2.9 Challenges in applying VFM

Evaluating the quality of Value for Money is one of the major difficulties in applying this concept. This is because in some cases the data available is of bad quality to produce a dependable assessment (Jackson, Value for money and international development, 2012). Such situations usually arise in fields which have limited amounts of historical research done, therefore a limited number of metrics are available for high quality evaluation. There is also a bone of contention as to whose Value for Money has been achieved. Is it the entity’s that is running the project or is it the immediate beneficiaries’ value for money?
According to (Besley, 2015), challenges for applying VFM to development programs include; outcomes for projects could be intangible and difficult to ascribe value. There is also different perspectives of value hence settling on one idea could be difficult. Often, the pathway between deliverables and achievements of an impact is lengthy hence challenging. Lastly, value for some projects takes time to deliver especially at scale.

2.10 Theoretical Framework

This study shall be guided by the conceptual framework adapted from (Saxena, 2012).

Figure 2: Theoretical Framework
CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter seeks to provide a detailed analysis of how this study will be conducted. The target population for this study will be highlighted in this chapter, followed by the study design, and how data will be collected, analyzed and presented. This chapter will conclude by providing the research procedures that will be adopted to conduct the study.

3.2 Research Design

This study shall use descriptive survey and it shall also employ a cross-sectional survey that shall be used to evaluate Value for Money in water development programs in Busia County. A descriptive research obtains information on a phenomena and in possible circumstances, it draws conclusions that are valid from the facts collected. According to (Paulin, 2007), descriptive studies are based on a previous understating of the nature of a research problem like in this instance Value for Money in publicly funded projects. The design shall seek to capture both qualitative and quantitative aspects.

3.3 Population and Sampling Design

3.3.1 Target Population

Target populations is the entire group of individuals and or objects a researcher is interested in generalizing conclusions from (Paulin, 2007). The target population for this study shall include the policy makers in the County Water Department and or administrators in the same department, water service providers and the beneficiaries of all water
development projects in the County. The water department in Busia County caters for water needs of all the seven sub-counties and 35 wards. According to (Standards, 2009)

**3.3.2 Sampling Design**

Sampling is selecting a given number of subjects from a defined population to be a representative of that population (M Saunders, 2007). When sampling, statements made about the samples should match that of the whole population. Purposive sampling will be used in sapling the policy makers, administrators and water service providers for they can give accurate information. Stratified sampling shall however be used upon the beneficiary respondents. This shall be conveniently done due to different experience and also levels of literacy across the seven sub-counties.

According to (Standards, 2009) the population of Busia county is 743,946. This population is distributed among 7 sub-counties. Putting in consideration the time restraints and other limitations to the study that shall be explained further in the paper, this study shall narrow down to handling 30 households per sub county. Thereby handling 210 households all together.

**Sample used:**

<table>
<thead>
<tr>
<th>Sample Used</th>
<th>Number of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators/ Ministry of Water</td>
<td>2 interviews</td>
</tr>
<tr>
<td>County Government Officials</td>
<td>3 interviews</td>
</tr>
<tr>
<td>Lake Victoria North Water Services Board</td>
<td>2 interviews</td>
</tr>
<tr>
<td>Water vendors</td>
<td>3 interviews</td>
</tr>
</tbody>
</table>

Table 1: Sample Used
Sub counties

<table>
<thead>
<tr>
<th>Households</th>
<th>210 questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Busia County Residents</td>
<td>3 FGDs of 8 participants each in Teso North, Bunyala and Funyula sub counties.</td>
</tr>
</tbody>
</table>

Table 2: Household Sample

3.4 Data Collection Methods

For this study, secondary data sought shall remain scholarly materials written in journals, and books; newspaper editorial, and opinion columns on the concept of Value for Money and policy, strategic plans, project plans and deliverables for water projects in the County. Primary data shall also be collected according to the type of research question and data required. Semi structured interviews were conducted with key stakeholders, 3 Focus Group Discussions shall be held in the the three most populated sub counties; that is Funyula, Teso North and Bunyala. Questionnaires shall be used to carry out household surveys.

3.4.1 Interviews

Semi structured interviews were carried out amongst the administrators from the Ministry of water, County government officials in the water department, officials from the Lake Victoria North Water Services Board and water vendors in the county. The interview questions focused on the objectives and strategic outcome areas for each department as far as water accessibility, water for agriculture and improvement of water services is concerned in the county. The interviews also focused on investigating the resources and funds put in place
to steer the water department. And the whole process of resource mobilization in the water department.

The purpose of semi structured interviews was to gain a deeper understanding of the Busia County Water Department goals and objectives when it comes to water supply/accessibility, water for agriculture in the county and if these services have improved ever since devolved government. This was also to dig deeper in finding out the resource mobilization and financial input that the government has put in to the water projects in Busia County.

Interviews were recorded using a smart phone device. The interviewer also took notes which were later transcribed to help in analyzing the data collected. The interviews were carried out using semi structured questionnaires divided into three sub sections: the first section entailed demographic data such as age, sex, years working for the water department and position in the County Water Department. The second part looked into the set objectives and strategies for the County Water, resources mobilization tactics used by the county together with financial input put in by the government to fund the county water projects. The third part explored alternative methods to achieve the not yet met objectives of County Water Department and other water providers and alternative methods of funds and resource mobilization.

3.4.2 Questionnaires.

A questionnaire is a research tool containing a series of questions for the purpose of collecting information from respondents. It can be structured or semi structured or unstructured, whereby a semi-structured contains both open ended and closed ended questions and can collect both quantitative and qualitative data (Gay, 1996). This study
employed a semi-structured questionnaire to investigate water accessibility in the area, if water has been used to turn around agriculture in the area and if there is improvement at all ever since the devolved government. The questionnaires were physically administered by the researcher and compiled using Excel Sheets.

3.4.3 Focus Group Discussions

This is a useful method of collecting data on the attitudes and opinions of research participants in a supportive environment (Gomm, 2009). Focus Group discussions were carried out among the residents of Teso North, Bunyala and Funyula sub-counties. This was aimed at investigating how accessible water services are in these three areas, if water services provided by the county has been instrumental in agriculture and lastly if there is improvement at all in water service provision. The interaction brought about by focus group discussions provides a constructive feedback as participants are allowed to challenge each other’s views, thus revealing a more detailed perspective of a situation than can be gained from individual interviews (Bryman, 2012). The participants in the focus group discussions were sampled randomly to get 8 participants from residents of Teso North, Bunyala and Funyula sub-counties. A recommended size for an effective and manageable focus group is six to eight participants (Bryman, 2012).

3.4.4 Observation

Observation is a data collection tool involving listening, reading, smelling and touching. When used in scientific research, observation includes the full range of monitoring behavioral and non-behavioral activities and conditions (Bryman, 2012). The researcher used direct observation in the study to capture pertinent information regarding the current situation in Busia County. The data to be collected was guided by an observation checklist
which contained a list of things that could be observed to ensure detailed and relevant information was captured. Some of the things the researcher was looking for include water sources, water pipes, state of water kiosks, color of the water and distance covered to access the water source, state of agriculture i.e. farms and how close water points were to farms.

3.5 Validity and Reliability of Research Instruments

Based on the data collecting instruments, the researcher made conclusions for this research. It was very vital to ensure that the data collecting instruments are of high quality. The instruments were hence tested for reliability and validity.

3.5.1 Validity of research instruments

Validity refers to whether the research truly measures that which was intended to measure or how truthful the research results are (Joppe, 2000). Validity can also be defined as the extent to which the instruments will capture that which they were supposed to measure (Dooley, 2003). Validity ensures accuracy of information gathered. Validity of instruments is critical in all forms of research and acceptable level is largely dependent on logical reasoning, experience and professionalism of the researcher.

3.5.2 Reliability of research instruments

Reliability is the degree to which an assessment tool produces stable and consistent results. It is a measure of the degree to which a research instrument yields consistent results after repeated trials. The tendency towards consistency found in repeated measurement is referred to as reliability (Dooley, 2003). Reliability hence is about stability and equivalence of results; this means that the results are consistent after repeated tests of the same object with the same instrument. The researcher improved reliability by standardizing the conditions under which
the measurement takes place and using the service of trained and motivated research assistant.

3.6 Data Analysis Methods

This is the systematic examination of raw or secondary data for emerging facts and observations that shall eventually answer the research questions (Hassard, 2005). Data from questionnaires was checked for completeness, consistency, errors and omissions. The data was then coded and analyzed quantitatively and qualitatively. Considering the nature of data collected, the data was coded and analyzed using Microsoft Excel Sheets. The first part entailed qualitative data that was sought into themes, categories and patterns. The data contents were then summarized and the information was used as a starting point in analysis. Similarities and differences in secondary and primary data were examined in order to draw conclusions just as argued by Kothari, 2014 content analysis can be qualitative or quantitative and may involve the contents in secondary material and those of other verbal material either spoken or printed or recorded. Content analysis in analyzing qualitative data was vital since the body of material or human communication is systematically examined in order to detect general patterns, themes or biases that are of importance in drawing conclusions (Hassard, 2005). The content was analyzed and presented according to themes derived from the research objectives in order to respond to the purpose of the study. Secondly, quantitative data from questionnaires was also coded manually for analysis. Thirdly, after these data had been analyzed, to determine Value for Money, these data was analyzed over a Social Return On Investment (SROI) analysis where the objectives of the County Water Department and other Water Service Providers were run against the outcomes to determine the Value of Money as seen in chapter four.
3.7 Research Ethics

Research ethics are universally accepted code of conduct of carrying out a study (Hassard, 2005). These ethics include objectivity in collecting of data and reporting of the findings, seeking permissions where necessary among others. The researcher followed ethical guidelines to ensure that there was no physical or emotional harm to the participants. The researcher got approval from the relevant authority to collect data, explained to the participants that the study is/was for academic purposes only and adhered to voluntary participation by the respondents, confidentiality of data, objectivity and integrity in carrying out her research, respect to property and tried as much as possible to be accurate and avoid falsification of data.

3.8 Limitations of the Study

The challenges presented with this kind of study is that some data; especially secondary data necessary in evaluating VFM in the water projects was limited. As a common challenge in evaluation of VFM in projects, the perspective of value could be different and varying even among respondents. Lastly, evaluating for VFM in water development projects was limiting in circumstances where value in some projects could take a while.

3.9 Chapter Summary

The research methodology was presented in this chapter. A mix of qualitative and quantitative study design was presented highlighting how each approach will help realize the objectives of this study. The study population, and sampling design was also presented. Finally, data collection tools, research methods, data analysis methods, reliability and validity of data collection tools and the limitations of the study.
CHAPTER FOUR

RESULTS AND FINDINGS

4.1 Introduction

This chapter deals with the presentation and analysis of the data collected from the field. It discusses the findings from the 210 questionnaires issued, where 205 were returned completed by the residents/households of Busia County, 3 Focus Group Discussions from the residents of Teso North, Bunyala and Funyula sub-counties, and 10 interviews from senior government officials in the Busia County Water Department and the Ministry of Water at County level. The general objective of this study was to evaluate what Busia County Water Supply and Urban Sewerage Strategic Plan (CWSUSSP) under the Department of Water, Environment and Natural Resources has achieved so far and if there is Value for Money in the water projects management.

The specific objectives dialed down to examining the ease of water accessibility in Busia County, examining if the county uses water services to turn around agriculture and lastly to examine progress and sustainability in the water sector in the county. Examining these three objectives will henceforth lead to an analysis of Value for Money by assessing the findings using the Social Return On Investment method which is one of the ways to measure VfM as applied by DFID.
The 210 questionnaires were issued, 30 per subcounty. 3 questionnaires were returned not fully completed and 2 questionnaires got lost in the process. Therefore, this study shall use the 205 completed questionnaires from the households to draw analysis. Thus, over 80% of the questionnaires were returned and as stated by Mugenda (2003), above 50% return of questionnaires is acceptable. 3 FDGs were held in the highly populated sub counties in order to reach more people at comfortable and conducive environments. 10 interviews from senior government officials from the County Water Department were also held.

4.2 Demographics

This section covered the respondents age, gender, sub county and household income if any. Though not central to the study, it helped in the contextualizing of findings and in the formulation of recommendations later in the paper.

Figure 3 below shows the gender distribution of the respondents. The study comprised of male and female participants taking part in the study. As indicated, 60% of the participants were female and 40% were male suggesting a higher number of female respondents than the male from the study area. This also is because more women were willing to take part in the study as opposed to men hence the results, and also more women were easily found at home during the day as opposed to men. Figure 1 also includes other respondents that is from the 10 interviews from senior government officers in the water department and water vendors.
Figure 3: Gender Distribution of respondents

Figure 4 shows the distribution of the respondents by age groups. The findings show that this was a fairly middle aged population, where the female respondents dominated most of the age groups. The age of participants ranged from 18 years to over 55 years. The majority of the respondents in the study were in the 25-35 age groups with the rest of the respondents being distributed in the other age groups.
Figure 4: Age distribution

Figure 5 shows the distribution of respondents by household income. The findings show that this is a middle income population, which a majority having an income of between Ksh. 10,001 to 30,000.
From the figures above, the information shall be used to assess a few things. For example, if the billing of water is fairly done, hence why income data was collected. The objectives shall also be compared across the different sub county levels. The rest of the information though not central to the study was also collected.

4.3 Findings

This section presents the findings of the research as per the three research questions and is therefore organized into three parts, the first part focusses on water accessibility to residents of Busia County in terms of availability when needed, is it contamination free, is it accessible on premises. The second part focuses on if water services have aided in agriculture in the county and thirdly, if there are indicators to show improvement in water services.

These three parts cut across all respondents, from the questionnaire respondents, FGD participants and interviewees. On every objective, emphasis was stressed on the respondents’ likely give the necessary data.
4.3.1 Water Accessibility Across the Sub Counties.

The SGD goal 6 calls for achieving universal and equal access to safe water for drinking and water that is affordable to all. The indicator used by the Millennium Development Goals to measure water accessibility was the percentage of population using safely managed water which is located on premises, and available when needed, and free of faecal and chemical contamination (World Health Organization, 2017). This means that in order to meet the criteria, a water source must meet the following conditions;

a) Is the water source available when needed?
b) Is it free of faecal or and chemical contamination?
c) Is it accessible on premises?

The criteria also highlighted that if a water source does not meet the above criteria but then a round trip of collecting water sums up to 30 minutes or less, then that is just a basic drinking water service that is not safe. If a water source still doesn’t meet the three requirements and takes more than 30 minutes to access it, then it is a limited source.

To determine if a water source is safe or contaminated. The questionnaires sought to determine the kind of water sources in every sub county. This was to find out if the sources were of protected or unprotected well, springs and if they were drinking surface water such as rivers, dams, lakes, streams, or if they were modern sources such as irrigation canals, chlorine dispensers and piped schemes.

In terms of availability, the questionnaires sort to determine the following scenarios.

a) Is a water source in the homestead or compound and is it available?
b) Is water in the homestead but not available?
c) Is water outside home and available?

### 4.3.1.1 Water Sources and Access.

According to the 10 interviews held with the senior water government officers and water vendors, Busia County has two main water supply schemes. These include; the Sio River Water Supply and the Bunyala Supply Scheme. The Sio River Water Supply serves Busia town and its environment whereas the Bunyala Supply Scheme serves Port Victoria Town. The National Government recently launched Kocholia Irrigation Scheme on River Malakisi with the aim of supplying water to 10,000 people and Ang’ololo Scheme on River Malaba to serve residents of Kenya and part of Uganda. However, the main water sources in Busia remain to be surface water, ground water and run off water. There are three main rivers, Malakisi, Nzoia and Sio. Other sources include springs, dug well or rural piped schemes. Close to Busia County is Lake Victoria which is also an important resource for the people of Busia.

According to the interviews with the government officials, the county review reports that the main source of drinking water in Busia County in percentage is borehole (46%) while other sources include: rivers (19.1%), springs (22.3%) and piped water (12.5%). Most of the water is not clean, therefore most people treat their water with chlorination being the most preferred method around the County. Other methods for treating water also used include boiling and decanting, which seems affordable for the residents.

The interview findings also report that the Busia County Water department has managed to reduce averagely the distance from homesteads to water sources from 1.5 km to 1.0 km. Water points in each subcounty are shared as highlighted in the table below.
<table>
<thead>
<tr>
<th>Subcounty</th>
<th>People per water source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Matayos</td>
<td>800 people</td>
</tr>
<tr>
<td>2. Funyula</td>
<td>860 to 900 people</td>
</tr>
<tr>
<td>3. Nambale</td>
<td>860 to 900 people</td>
</tr>
<tr>
<td>4. Teso South</td>
<td>1100 people</td>
</tr>
<tr>
<td>5. Teso North</td>
<td>1200 people</td>
</tr>
<tr>
<td>6. Bunyala</td>
<td>1200 people</td>
</tr>
<tr>
<td>7. Butula/ Samia</td>
<td>600 people</td>
</tr>
</tbody>
</table>

Table 3: People per water source in a sub-county

The above table represents an average number of people that share one water source in every subcounty. The differences are explained by a couple of factors. First, every subcounty is populated differently, hence there has to be instances where a water source is shared according to the population of the area. Secondly, the topography of Busia region is not equal. There are sub counties where there is no water source that can be harnessed. With the expensive cost of water production, for example drilling boreholes, some sub counties become disadvantaged. This explains why an area like South Teso, North Teso and Bunyala have a higher number of people sharing a water source. Central parts of the county however have rivers and springs which can be harnessed to safe water points. Bunyala sub county, though close to Lake Victoria has a higher population of 1200 people sharing a water source. This happens to be so because the lake’s water is not safe for drinking, therefore the available
safe water source is shared by a huge number of people, despite the fact that it borders the lake.

Compared to the national statistics, Busia stands at accessibility stands at 42% with 81.6% being improved water sources, 18.4% unimproved water sources and 75% functional sources. 47% of water points do not have specific maintenance structures and 25% of the sources have defined ownership as either institutional, national government or community run and operated (Department of Water, 2018) Yet, the department has managed to provide piped water 4 days a week, to areas that have piped water.

The chart below represents the average findings of the respondents from all the sub counties concerning the availability of water sources.

Figure 6 below shows the availability of water sources and precisely what water sources in each subcounty. Every subcounty had a total of 30 households interviewed. However only 205 questionnaires were completed. Bunyala subcounty submitted 25 questionnaires.
Figure 6: Available water sources in each sub county

According to Figure 6 above, boreholes are the main water source in Busia County whereas river sources are less used by the residents of Busia County. Bunyala sub county stood out to have respondents use the lake as a source of water. This is explained geographically as Bunyala borders Lake Victoria. Tap water though not least in the list was noted to be scarce. This was further explained in the FDGs that it is because tap/piped water is available on certain days.

Figure 7 below addresses the question of availability of water sources in the homestead. Again, Bunyala subcounty had 25 completed questionnaires. The findings revealed that two sources of water were highly available inside these homesteads. These were wells/boreholes and piped water.
Figure 7: Water sources available in the homestead

The next diagram sought to investigate if aside from in the homestead, is there a water source outside and how long it would take to access a shared water point. This was measured using the WHO indicator that if a round trip sums up to 30 minutes or less, then it is just a basic drinking water service and if it went to over 30 minutes away from the residential area, then that source would be termed limited (World Health Organization, 2017). This is how the respondents responded in Figure 6 below.
Figure 8: Time taken to access a shared water point

The figure 8 above shows that most households access a shared water between 1 to 30 minutes. Therefore, there is available basic drinking water services for the residents of Busia County. Teso South, Teso North however seem to be more affected with more people taking more than 30 minutes to access a water point. The differences are explained by a couple of factors from the interviews. Every sub county is populated differently, hence there has to be instances where a water source is shared according to the population of the area. The topography of Busia region is not equal. In Teso North and South, no water source can be harnessed. With the expensive cost of water production, for example drilling boreholes, some sub counties become disadvantaged. This explains why an area like South Teso, North Teso residents take a longer time to access a shared water source. In the case of Bunyala, even though it borders the Lake Victoria, access to the shared water source which is a borehole takes a longer time because even though the lake is present, only the borehole provides water that is safer for drinking.
4.3.1.2 Water free from contamination

According to World Health Organization (2017), drinking water should not contain any microorganisms known to be pathogenic that are capable of causing diseases or any bacteria indicative of faecal pollution. Water should therefore be examined regularly. There are scientific methods of examining water contamination. This research however shall not indulge in the nitty grities of that. It shall however employ basic indicators to address if the water sources in the county are free of contamination. First, it shall analyse the nature of water sources; if there are unprotected wells and or built springs, drinking surface water i.e river, dam, lake and natural streams. According to the data collected, both protected and unprotected sources of water are available in the county. The interviews reveal that piped water is also a source of water in the county. The researcher then sought to investigate if the providers ensure methods of disinfection are used.

Disinfection is very necessary for surface waters after treatment and for protected groundwater sources. Chlorine in one form that is most commonly used to disinfect worldwide. When chlorine is used as a disinfectant in a piped distribution system, it is desirable to maintain a free chlorine residual of 0.2–0.5mg/litre throughout, to reduce the risk of microbial regrowth and the health risk of recontamination (Organization, 1997). Chlorine can be easily monitored and controlled as a drinking-water disinfectant, and regular, frequent monitoring is recommended wherever chlorination is practiced.

According to the interview with the Deputy County Director of water, the County Water Supply ensures that random monthly surveillance on the water sources is done in conjunction with Busia County Public Health. Deep drilled boreholes water is also quarterly disinfected with chlorine at storage level. In the FDGs, respondents reported that they mostly
disinfect their water with Water Guard, a brand of water disinfectant that easily available in shops. Respondents that access tap/piped water also highlighted that tapped water accessed has chlorine in it. Other than basic lake or river water, respondents affirmed that protected sources of water are usually free from faecal and chemical contamination.

**4.3.2 Water services aiding agriculture in Busia County**

Water use in agriculture is at the peak of any discussion around water and food security. According to World Bank (2017) agriculture accounts for on average 70% of all the water withdrawals globally. Worldwide, over 330 million hectares are equipped for irrigation. In fact, 20% of the total cultivated land is represented by irrigated agriculture (Schonberger, 2017). The World Bank report (2017) projects that competition for water resources is expected to increase in the near future with a particular pressure on agriculture. Therefore, there is a constant need for inter-sectoral water allocation to support sustainable economic growth. Population is expected to increase to over 10 billion by 2050, and for both urban and rural, this population will need food as a basic need (Schonberger, 2017).

To support this expansion, agriculture will have to intensify. Given that irrigated agriculture is, on average, at least twice as productive per unit of land, provides a chance against increasing climate variability, and allows for more secure crop diversification, it is certain that irrigation will continue to play a key role in ensuring global food and nutrition security. Looking at it, on one hand, there is a need to use less water in agriculture, but on the other hand, more intensive use of water in agriculture is a key element of sustainable intensification of food production. Resolving shall require a thorough reconsideration of how water is managed in the agricultural sector, and how the water sector can assist to ensure both sustainable water accessibility and sustainable food production.
The step to improve water management in agriculture is constrained by perverse policies, major institutional performance, and financial limitations from the agriculture sector. According to Andre (2019), critical public and private institutions including agricultural and water ministries, basin authorities, irrigation managers, water user and farmer organizations generally lack the authorizing environment and capacities to carry out their functions effectively. In most cases, the institutions charged with developing irrigation often limit themselves to capital issues, larger scale schemes, and they tend to rely on public sector approaches rather than develop opportunities for private financing and management. This study however did not focus on how the agriculture sector in Busia County has managed to allocate water for agricultural purposes, but to investigate if the water department aids in agriculture in the county.

Figure 9 below shows overall what the respondents from the households from the 7 sub counties had to say concerning if it is evident that the water services in the county have aided in agriculture. These were the results from the 205 households.

![Figure 9: Does the county water service aid in agriculture](image-url)

- Yes: 34.15%
- No: 21.95%
- I am not sure: 43.90%
From Figure 9 above, 43.90% of the respondents stated that they were not sure if the water services have helped turn around agriculture in the county. This was further explained that such information was more likely to be known by the administrators and water vendors. 34.15% of the respondents stated no. This was further explained that the farmers depended a lot more on rain rather than water supplied by the county government. 21.95% of the respondents stated yes. This was explained further that the water department has aided in providing dam water as water tracks have been seen around cattle dips/dams and that water services have aided in providing for irrigation. The two methods where water services have aided in agriculture are hence represented in the Figure 8, where out of the Yes response, 48.9% stated that dams were a way water services aid in agriculture and 51.1% stated that irrigation was a way that water services have used to turn around agriculture.

![Figure 10](image.png)

**Figure 10:** ways water services has used to turn around agriculture

From the interviews with the senior county officers and water vendors, the researcher also sort out to find out how water services have aided agriculture in the county by investigating if irrigation is conducted, the technology used and the distribution of water
services to the farmers. The information collected brought a conclusion that the water sector in the county has aided agriculture to some extent. For example, small dams have been constructed for small scale irrigation across the county but particularly in Teso North and Butula. Earth pans have also been constructed to help in small scale irrigation on horticulture and livestock drinking. The deputy county director of water also explained that Busia County is in a rainfall zone hence it experiences rainfall mostly, that is long rains in the months between March to May and short rains between October and November. Therefore, this is a region that is highly dependent on rainfall water for agriculture except a few seasons where irrigation is really necessary. On the question whether water is given directly to farmers for agricultural purposes, the director explained that that is not done because it is not easy to differentiate if it is agriculture water, for industrial use or for domestic purposes.

4.3.3 Indicators on improvement of water services in Busia County

In this section, the researcher set out to find out if there has been any improvement in water accessibility in the county since the begin of devolution government in the year 2013 to date. Both quantitative and qualitative data shall be used to assess this. This means that apart from the data collected by the researcher, reports written by the County Water Services shall also be used to assess this. To assess this, the indicators used include:

a) The percentage of households with year round access to water.

b) The percentage of recurrent costs of water supply services.

c) The percentage of constructed water supply system operated and maintained.
4.3.3.1 The percentage of households with year round access to water

Access to a water source means that the household/home/compound is connected directly to a piped water system or to a public fountain, well, or stand post that is located within 200 meters of the home or not more than 30 minutes away from home. Year-round means that water is available during the time(s) of the year when the water supply is least reliable. For this case, since Busia County is in a rainfall area zone, all year is all year. No particular level of water quality is implied, but access must be to water used for drinking, cooking, cleaning and bathing. Unimproved surface water sources, such as rivers, lakes, and streams, were not counted.

**Calculation:**

\[
x = \frac{188}{205}
\]
\[ x = 0.92 \]

\( x \) multiplied by 100\% = \% of households with year round access to water

This is 92\%

4.3.3.2 The percentage of recurrent costs of water supply services

Recurrent costs refer to all operations and maintenance costs of the water supply system which services the community including preventive maintenance and repairs.

**Calculation:**

Monthly recurrent costs for water supply services provided by the community

Total monthly recurrent costs for water supply services

The data information for this indicator was obtained from county bank records and payment records. The full operations and maintenance costs were determined for a specified period of a year. This was the basis for determining monthly costs.

4.3.3.3 The percentage of constructed water supply system operated and maintained

Constructed water supply systems refers to those water supply systems constructed by the projects in the county. Data was collected from each sub county with a constructed system through review of project and county records, interviews with county water officials and observation and inspection data of the county water supply system.
Calculation:

Number of constructed water supply systems operated and maintained by the county

Number of constructed water supply facilities

According to a report handed over to the researcher, the County Water department has managed to make a few improvements as of 2018-2019. These include the following:

- Increased distribution networks of piped water by 150 km in two years;
- Rehabilitated 120 hand pumps, 70 shallow wells, 35 springs and four water pans;
- Constructed solar powered boreholes is ongoing across the county;
- Rehabilitated most of the water catchment areas in the county; and
- Purchased two water boozers to facilitate distribution of water to off grid areas

4.3.3.4 General indicators of improved water accessibility and services in the County

An interview with the Deputy County Director of Water highlighted that by the turn of devolution in 2013, the county of Busia had a water network coverage of 42%. Developed water systems concentrated in the urban centers of Busia Municipality, Port Victoria Township, Funyula Town, Bumala, Butula, Namable Amukura and Malaba Kocholia Centers. This can be attributed to mainly these centers having acted as divisional headquarters in the pre-devolution period.
As of 2019, there are over 4650 developed water points in the county and 86% of them are protected. These include protected springs, built up shallow wells, drilled deep wells and river and lake intakes. Water quality has been ensured through chlorine dispensers, full treatment, sedimentation and filtration. Majority of water distribution is now through pipe network, electrical pumping, solar systems mechanical hand pumps and traditional pot or pan mechanisms. Six years after devolution the county has even put strategies to increase access to 60% through the following;

- Development of Busia Water Act.
- Sector development plan
- County integrated plan
- Set up service provider to run water provision. [Busia Water And Sewarage Co. Ltd.]

The Deputy Director also highlights other achievements as of 2019 as;

- An increase in pipe networks by 200 km.
- An increase in storage facilities by 700 cubic liters
- An introduction or green power as an alternative force to drive turbines/water engines
- An improve on maintenance of resources [repairs carried out on 200 stalled units].
- Reduced distance taken to collect water [from 1.5 to 1.0 KM averagely].
- Quality and quantity of water has improved.
• Reliability of piped water has increased. [water supply improved from 3 days in a week to 5 days]
• 120 deep boreholes drilled and equipped with solar pumps.
• 70% of institutions of learning connected to clean water.
• Development of dams and pans to improve on agriculture has been enabled.
• The dams and pans have increased land under arable farming.
• Food security at family level has been enhanced through irrigation.

4.4 Evaluating Value for Money using the Social Return on Investment (SROI) method.

There are six main methods that can be used to assess VfM. Each group examines the relationship between costs and benefits in a particular way. These methods include;

• Cost Effectiveness Analysis (CE analysis)
• Cost Utility Analysis (CU analysis)
• Cost Benefit Analysis
• Social Return on Investment (SROI)
• Rank correlation of cost versus impact
• Basic Efficiency Resource Analysis (BER analysis)

This study however has chosen to employ the Social Return on Investment method particularly because it measures social, environmental and economic costs and benefits. Just like the Cost Benefit analysis, SROI can be used when comparing programs with different goals or in different sectors. SROI also evaluates whether a program is beneficial in an
absolute sense. The method monetizes outcomes and allows for comparison of programs with different objectives or from different sectors. The researcher in this case was interested in measuring social costs.

The advantage of this method is that it can contribute to participatory decision making as stakeholders are called upon to identify and value program outcomes. This become beneficial in this case especially where sustainable water accessibility and services is an objective to be achieved. The disadvantage of this method however is that cost data can be disputed as different evaluators use numerous and sometimes conflicting methodologies to derive value.

Social Return on Investment (SROI) is an outcomes-based measurement tool that organizations use to understand and quantify the social, environmental and economic value they are creating in a sector. SROI was developed from cost-benefit analysis. SROI is a participative approach that can capture in monetized form the value of a wide range of outcomes and whether these outcomes already have a financial value or not. This analysis gives a breakdown of how an organization can create value in the course of making change in the world and a ratio that states how much social value (say in £) is created for every £1 of investment.

SROI has a set of principles that are designed to ensure that process is transparent, and informed by stakeholders. This analysis shall use a six-step methodology to determine value and social impact. These steps include;

1. Establishing scope and identifying key stakeholders. Clear boundaries about what the SROI will cover, and who the will be involved are determined in this first step.
2. Mapping outcomes. Through engaging with stakeholders, an impact map, or theory of change, which shows the relationship between inputs, outputs and outcomes is developed.

3. Evidencing outcomes and giving them a value. This step first involves finding data to show whether outcomes have happened. Then outcomes are monetized, this means putting a financial value on the outcomes, including those that don’t have a price attached to them.

4. Establishing impact. Having collected evidence on outcomes and monetized them, those aspects of change that would not have happened anyway (deadweight) or are not as a result of other factors (attribution) are isolated.

5. Calculating the SROI. This step involves adding up all the benefits, subtracting any negatives and comparing them to the investment.

6. Reporting, using and embedding. Easily forgotten, this vital last step involves sharing findings and recommendations with stakeholders, and embedding good outcomes processes.

There are two types of SROIs. Evaluative SROIs are conducted retrospectively and based on actual outcomes that have taken place over a given evaluation period. These are most useful where a project is already up and running and there is good outcomes data available. Forecasted SROIs predict how much social value will be created if activities meet their intended or most likely objectives. Forecasted SROIs are used when a project is still in the planning stages to assess its likely impact or in instances where there is a lack of
outcomes data. A forecasted SROI can be followed with an evaluative SROI to verify the accuracy of the predictions. This study shall employ an evaluative SROI.

This SROI shall offer the following potential benefits:

- **It will help the County Water Department understand what social value it’s projects creates in a robust and rigorous way and so manage its activities and relationships to maximize that value.**

- **The analysis shall open up a dialogue with stakeholders, helping to assess the degree to which activities are meeting their needs and expectations.**

- **SROI puts social impact into the language of ‘return on investment’, which is widely understood by investors, commissioners and lenders. There is increasing interest in SROI as a way to demonstrate or measure the social value of investment, beyond the standard financial measurement.**

- **Where it is not being used already, SROI may be helpful in showing potential customers that they can develop new ways to define what they want out of contracts, by taking account of social and environmental impacts.**

- **SROI shall also be used in strategic management and planning. The monetized indicators can help management analyze what might happen if they change their strategy, as well as allow them to evaluate the suitability of that strategy to generating social returns, or whether there may be better means of using their resources.**

Lastly, SROI was developed initially for use in the third sector. It has now been used by a range of public and third sector organizations of varying sizes. A number of funding
schemes, such as the Department of Health Social Enterprise Investment Fund (SEIF), have stipulated the use of SROI as the measurement approach (Dijk, 2012).

In as much as SROI is beneficial, there are potential limitations to conducting this evaluation. These limitations are but are not limited to:

- SROI comes with a danger of focusing narrowly on the ratio. The ratio is only meaningful within the wider narrative about the organizations or project. For example, just as a donor would not make a financial decision based on just one number, the same practice applies to this social measurement tool. Therefore, comparisons between organizations or projects just based on the ratio alone are not recommended.

- SROI analyzes outcome, rather than being a process evaluation. The outcome conversations with stakeholders brings some insight into what works and what doesn’t and why, but there could be instances where a more specific process evaluation would be useful.

4.4.1 The process steps in a SROI analysis

The process of calculating the SROI value of both outputs and outcomes involves a definition of each individual type of service provided, the accurate calculation of the units of each service delivered, the fair market value of outputs, the long-term community benefits from the outcomes of these services, and effects negative factors such as participant drop-off rates and the measurement of relative weighted value attribution of outcome effects between multiple factors. The purpose of this study however is to evaluate Value for Money on public
funded projects in the county. Hence, it shall follow a simple procedure to evaluate if there is at all any value for funds put in the projects. The steps are highlighted below.

**Step 1: Identifying Stakeholders**

Stakeholders are defined as the people or organizations that experience change (whether they are positive or negative changes) as a result of the activities being analyzed. In SROI analysis, the primary stakeholders are those who provide the inputs that enable the services being analyzed. In this case, the stakeholders to the publicly funded water projects in Busia County include; one Water Service Provider (WSP), the Busia County Water And Sewerage Company, Water vendors, Kenya National Government, Busia County Government and the residents of Busia County.

Under identifying stakeholders, it is vital to identify intended changes as they aid in knowing the inputs needed and in assessing if and when outcomes were achieved. Intended changes are those anticipated changes that result from the completion of the activities being delivered through the inputs from stakeholders. These anticipated changes are the reasons as to why the stakeholders have contributed the input resources. In most circumstances, unintended changes occur. Unintended changes are those short and sometimes long-term results that are not expected and were not part of the basis for the stakeholders providing the input resources. These unintended changes are not forecast, but changes that just occur. Either way, both intended and unintended changes have financial impacts and are relevant to a SROI analysis.

**Step 2: Defining the Resource Inputs**
Inputs are resources that are provided to the project being analyzed with a goal of achieving the planned output actions and the projected outcome changes. The SROI analysis process focuses on those input resources that can be measured in financial value terms and that are used up in the course of the activity for example money and time. The input of stakeholders gives an overview of the total investment. The investment, in SROI, refers to the financial value of the inputs. Inputs are the contributions of the stakeholders in order to make the project possible. These can be financial and non-financial inputs. In this case, even though time was put in the projects, this study shall focus on monetary input in Kenyan shillings. Figure 9 below represents financial funding of the water projects since begin of devolution in 2013.

<table>
<thead>
<tr>
<th>FINANCIAL YEAR</th>
<th>ALLOCATION</th>
<th>EXPENDITURE</th>
<th>UTILIZATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O&amp;M</td>
<td>46,000,000</td>
<td>46,000,000.00</td>
<td>100%</td>
</tr>
<tr>
<td>Development</td>
<td>116,000,000</td>
<td>66,000,000.00</td>
<td>57%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>=162,000,000</td>
<td>=112,000,000.00</td>
<td>69%</td>
</tr>
<tr>
<td>2014/2015</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O&amp;M</td>
<td>72,800,000</td>
<td>69,700,000.00</td>
<td>100%</td>
</tr>
<tr>
<td>Development</td>
<td>346,000,000</td>
<td>305,000,000.00</td>
<td>88%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>=418,800,000</td>
<td>=374,700,000.00</td>
<td>89%</td>
</tr>
<tr>
<td>2015/2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O&amp;M</td>
<td>62,249,636</td>
<td>72,800,000.00</td>
<td>100%</td>
</tr>
<tr>
<td>Financial Year</td>
<td>Allocation (Ksh)</td>
<td>Expenditure (Ksh)</td>
<td>Utilization Rate</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>2017/2018</td>
<td>110,000,000</td>
<td>110,000,000</td>
<td>100%</td>
</tr>
<tr>
<td>O&amp;M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>202,000,000</td>
<td>121,200,000</td>
<td>60%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>312,000,000</td>
<td>231,200,000</td>
<td>74%</td>
</tr>
<tr>
<td>2018/2019</td>
<td>126,000,000</td>
<td>126,000,000</td>
<td>100%</td>
</tr>
<tr>
<td>O&amp;M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>350,000,000</td>
<td>199,500,000</td>
<td>57%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>476,000,000</td>
<td>325,500,000</td>
<td>68%</td>
</tr>
</tbody>
</table>

Table 4: Busia County Water Financial Allocation and Utilization.

Adapted from Department of Water, Irrigation, Environment And Natural Resources Funding Since Devolution.
Step 3: Defining Outputs

Outputs are the quantitative summary of the deliverable results from an activity or project. These results are the planned short-term goals of the activities and are typically well measured on a timely basis as completed. Sometimes the same output is repeated for several stakeholders, which are included in the SROI. They will not be counted in the calculation, to prevent the risk of double counting.

Step 4: Defining the Outcomes

Outcomes are the results of the output services delivered. These outcomes may either be the projected and anticipated changes that were the basis of the stakeholders provision of the resources required, or may be unintended and unanticipated changes resulting from these same outputs. The description of the outcomes needs to be as precise as possible to avoid uncertainty on the measurement indicator basis used and the basis for valuation.

Measurement Indicators are the indicators measurement points that demonstrate that changes are taking place and that the outcomes are being achieved. These indicators are actions that are capable of being measured on a quantitative basis and that are capable of having financial impacts associated with their changes. Frequently these outcomes have intermediate results that can occur over a period of years, but there may be observable and measurable changes along the way.

It is important to understand what these intermediate changes may be and the financial impacts of these intermediate results, as the time period involved requires indicator
tracking to gauge the progress of the project and because the projects being analyzed may not bring about the anticipated final results but only some intermediate changes in the chain.

Duration of change is also key in the analysis of outcomes. Many types of outcome have a finite life expectancy of the resulting benefits. The duration of change element defines this expected useful life of the outcome when appropriate. The Duration of Change element is also related to the ‘Drop-Off” factor, which defines the reduction of benefits attributed to the outcome over longer periods of time. Drop Off in this case refers to where in longer periods of time, mostly greater than one year, the amount of outcome is likely to be less, or if the same, will be more likely to be influenced by other factors. Drop-off is an assessment of the ongoing reduced attribution to the outcome factors. It is expressed as a fixed percentage of deduction from the remaining level of outcome at the end of each year. This was an affecting factor in the study as it covered more than a year. In summary, the outcomes of this study include the following;

- An increase in pipe networks by 200 km.
- Accessibility of water improved by having 4650 developed water points.
- Agriculture has benefited from water availability to a 21.95% according to Figure 7.
- Percentage of households with year round access to water at 92%
- An increase in storage facilities by 700 cubic liters
- An introduction or green power as an alternative force to drive turbines/water engines
- An improve on maintenance of resources [repairs carried out on 200 stalled units].
• Reduced distance taken to collect water [from 1.5 to 1.0 KM averagely].
• Quality and quantity of water has improved.
• Reliability of piped water has increased. [water supply improved from 3 days in a week to 5 days]
• 120 deep boreholes drilled and equipped with solar pumps.
• 70% of institutions of learning connected to clean water
• Development of dams and pans to improve on agriculture has been enabled
• The dams and pans have increased land under arable farming
• Food security at family level has been enhanced through irrigation.

**Step 5: Indicators**

Indicators are used in order to measure whether change has happened. In SROI they are related to outcomes, as these are the identifiers of change. Indicators are needed for each of the outcomes. Indicators tell both whether the outcome has occurred, and by how much. Indicators are often expressed using terms like ‘more’, ‘fewer’, ‘less’ or ‘increased.’ In order to know whether the number of the indicators has changed, the actual number of the indicators before and after the activity has to be known. When a combination of subjective and objective indicators that are relevant to the stakeholder and scope has been set, they should be checked that they are not only measurable but that they can be able to be measured within the scope and the resources set.

If in this case the study was seeking to complete a forecast SROI report, a check that indicators could be reasonably measured in the future would be necessary. The data collection on indicators was made available from existing sources in the County and from
data collected in the field. Finding relevant data was difficult, however, the best available information was used to draw assumptions and estimates. The study also made use of online tools and reports to collect the data needed. Some of the indicators identified in public funded water projects of Busia county are highlighted below.

<table>
<thead>
<tr>
<th>Indicators from outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before</strong></td>
</tr>
<tr>
<td>1. 2150 developed water points</td>
</tr>
<tr>
<td>2. 3 days a week supply of piped water to households</td>
</tr>
<tr>
<td>3. 54% household with year round access to water</td>
</tr>
<tr>
<td>4. Storage facility was 350 cubic liters</td>
</tr>
<tr>
<td>5. Distance to collect water was 1.5 KM averagely</td>
</tr>
</tbody>
</table>

Table 5: Outcome Indicators

**Step 6: Valuation**

The purpose of valuation is to reveal the value of outcomes and show how important they are relative to the value of other outcomes. As well as revealing missing value it will help determine how significant an outcome is. To identify appropriate financial values are a way of presenting the relative importance to a stakeholder of the changes they experience. The process of valuation is referred to as monetization because in this process a monetary
value is assigned to things that do not have a market price. All the prices that we use in our
day-to-day lives are approximations or ‘proxies’ for the value that the buyer and the seller
earn and lose in the transaction. The value will be different for different people in different
situations. All value is, in the end, subjective. Different stakeholders will have different
perceptions of value. By estimating value through the use of financial proxies, and
combining these valuations, we arrive at an estimate of the total social value created by an
intervention.

Sometimes while analyzing SROI, monetization is a fairly straightforward process,
for example where it relates to a cost saving. Sometimes this will not result in an actual cost
saving because the scale of the intervention is too small to affect the cost in a significant way,
but it still has a value. The opposite to cost savings is an increase of income. Close to cost
savings and increased income, SROI also gives values to things that are harder to value.
There are several techniques available. This study however employed the Hedonic pricing.
This is where value is built up from the market values of constituent parts of the service or
good being considered.

In this case; the good being considered shall be analyzed from a social return
perspective using the objectives of Sustainable Development Goals. Hence the outcomes of
the water projects shall be matched against the objectives of the SDGs to determine values of
constituent parts of the service and good being considered.

4.5 SDG Impact Analysis on the Water Projects in Busia County

In this section, this paper aims to highlight if through every investment and project
undertaken by the Busia County Water Projects, there was an aim to contribute to a more
sustainable and inclusive world. The work or projects undertaken contribute to three SDGs. These are:

- **Goal 6- Clean Water and Sanitation**
- **Goal 2- Zero Hunger (Agriculture comes in here)**
- **Goal 16- Promote peaceful and inclusive societies for sustainable development**

### 4.5.1 Analyzing impact per SDG

**Goal 6- Clean Water and Sanitation.**

This has been the main objective of the study. The target of this goal is to ensure availability and sustainable management of water and sanitation for all. The following are the targets of this goal and how Busia County Water projects have strived to achieve them.

- **By 2030** the SDG 6 targets to achieve universal and equitable access to safe and affordable drinking water for all. Busia County Water projects have been able to put up universal water points for the residents of Busia County with each subcounty having a shared, safe and affordable water point as shown in Table 1. In addition, the county water projects have been able to develop 4650 water points, increase piped water supply to 5 days a week and have a 92% household with year round access to water.

- **By 2030** SDG 6 aims to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations. This study did not investigate this objective in the field, hence no conclusive report can be given.
• By 2030 SDG 6 aims to improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. With little technology to ensure this, Busia County Water projects have been able to provide access to clean non contaminated water by ensuring disinfection using chlorine and partnerships with the Public Health Department to quarterly disinfect and treat water that is made available to residents.

• By 2030 SDG 6 aim to substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity. Busia County Water projects have managed to tremendously increase water use efficiency. Judging by the indicators, a constant 5 days a week piped water supply, 4650 developed water points, 700 cubic liters’ storage facilities show a substantial increase of water supply and efficiency.

• By 2030 SDG 6 aims to implement integrated water resources management at all levels, including through transboundary cooperation as appropriate. With the county operating at sub-county levels in terms of water access and resources, Busia County strategic plan highlights a need to encourage transboundary cooperation as a policy to ensure integrated water resource management. However this has been reported not to progress well among the residents in Busia County.

• By 2020, a year from now, SDG 6 aims to protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes. Busia County Water projects have been instrumental in pushing for this as dams and earth
pans have been rehabilitated not only for water use and consumption but also in aiding agriculture in the county. Rivers and wetlands have also been rehabilitated and new technology applied to improve water accessibility such as using solar power to pump water.

- By 2030 SDG 6 aims to expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies. Busia County has managed to partner with a few international governments and NGOs including, World Vision, Amref and USAID among others.

- SDG 6 hopes to support and strengthen the participation of local communities in improving water and sanitation management. Busia County highlights in its strategic plan to achieve this and encourage intercountry sharing of water sources and integrated community participation from Busia County residents.

Goal 2- No Hunger.

Under this goal, this study aimed to investigate to what extent do water projects in the county help turn around agriculture. The number of undernourished people is reported to have dropped by almost half in the past two decades because of rapid economic growth and increased agricultural productivity. Many developing countries such as those in Central and East Asia, Latin America and the Caribbean, that used to suffer from famine and hunger can now meet their nutritional needs since they have made huge progress in eradicating extreme hunger (UNDP, 2017).
Either way, extreme hunger and malnutrition still remain a huge barrier to development in many countries. UNDP reports that there are 821 million people estimated to be chronically undernourished as of 2017, often as a direct result of environmental degradation, drought and biodiversity loss. Undernourishment and severe food insecurity appear to be increasing in almost all regions of Africa, as well as in South America.

The SDGs aim to end all forms of hunger and malnutrition by 2030, making sure all people especially children have sufficient and nutritious food all year. This involves promoting sustainable agricultural, supporting small-scale farmers and equal access to land, technology and markets. It also requires international cooperation to ensure investment in infrastructure and technology to improve agricultural productivity. In this section, the paper aims to match the outcomes of Busia Water projects to the objectives of SDG Goal 2 of promoting sustainable agriculture and supporting small scale farmers. These are the targets of SDG Goal 2 that marry the objectives of this study.

- By 2030 SDG 2 aims to double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment. Despite the topography of Busia County and even though the area is in a rainfall zone, the County Water Department has managed to promote agriculture by maintaining dams for small scale irrigation of horticulture in Teso North and Butula, and providing earth pans for livestock drinking water.
• By 2030 SDG 2 aims to ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality. In as much as Busia County is in a rainfall zone, the interview with the county representatives highlight that the water department comes in handy to ensure resilience in horticultural farming by ensuring irrigation is done during dry seasons.

Goal 16- Promote peaceful and inclusive societies for sustainable development.

Sustainable development cannot be achieved without peace, stability, human rights and effective governance that includes inclusive societies. In this section, the paper aims to highlight if peaceful and inclusive societies for sustainable development are upheld and if accountable and inclusive institutions at all levels are effectively built. The following are the targets of SDG 16 that marry the objective of this study.

• Substantially reduce corruption and bribery in all their forms. The study did not dig deep to find out if this has been reduced in the county as far as water services are concerned.

• Develop effective, accountable and transparent institutions at all levels. From the interviews made and FDGs held, it was quite evident that the water department has improved in allowing access to information to all concerning the department. Reports, both progressive and financial are available at county offices, on the website, the
national Majidata website, administrators often go to local radio stations to update residents on on-going projects.

- Goal 16 aims to ensure responsive, inclusive, participatory and representative decision-making at all levels. The study did not however dig deeper in finding out this. However from the findings, recommendations to uphold this factor shall be highlighted.

- Broaden and strengthen the participation of developing countries in the institutions of global governance.

- Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements. An interview with the deputy county director of water highlights that reports, both progressive and financial are available at county offices, on the website, the national Majidata website, administrators often go to local radio stations to update residents on on-going projects.

4.6 Chapter Summary

The chapter has described the outcomes of the research. Drawing Value for Money in monetary form however was not achievable as drawing monetary value from the outcomes was impossible since it is subjective. However, since SROI aims to analyze a return on both social and economic and environment, the researcher opted to analyze social and economic return by comparing the objectives of the Sustainable Development Goals to outcomes of the Busia County Water Projects. Matching from the findings reported from the objectives of the study, the indicators drawn from the outcomes suggest
an improvement on water accessibility, an improvement in water services aiding agriculture in the region, and great indicators of improvement are highlighted in the county water department since begin of devolution in 2013 to date.

The study in the end however does not draw a conclusive value for money in monetary form but highlights value increase in social and economic returns. The findings have been discussed based on the research questions and they have been presented using graphs. The next chapter provides discussion of the results, conclusions and the recommendations of the study.

CHAPTER 5

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The chapter presents a summary of the research findings, discussion of the study and the findings, provides the conclusion of the study and also provides the recommendation for policy and practice that can be adopted to help with the issues that are related to water access and distribution in Busia County.

5.2 Summary of Findings

The focus of the research was to investigate water accessibility in Busia County. The provision of clean water is a critical aspect and one of the Sustainable Development Goals (SDGs) that have been outlined by the United Nations (UN). The provision of water is a critical factor especially in the community and this is one of the main factors that informed the study. There were a total of three questions that were formulated to help with the research problem and the three questions informed the findings that were presented in the study.
The population that took part in the study comprised of residents from Busia County and water officials from Busia County that were provided with structured questionnaires asking various aspects relating to the provision of water in the area, provision of water to agriculture and investigating indicators of improvement since begin of devolution government. There was a 60% representation of female participants and 40% of male participants that took part in the study. The variation in the gender that took part in the study can be attributed to the fact that the majority of the female residents of Busia County were present in the homesteads during the day as data was being collected and that they were tasked with looking for water for different homestead uses, whereas only a few men are tasked with taking part in fetching water, hence they did not want to participate in the study since they would not provide adequate answers to the questions that were asked in the study. The participants that took part in the study ranged from 18 years to over 55 years and one inclusion criteria for the participants was that they had to be residents of Busia County and to specify the sub county.

The first question focused on the accessibility of water and availability of water sources in each subcounty. According to the interviews with the government officials, the county review reports that the main source of drinking water in Busia County in percentage is borehole (46%) while other sources include: rivers (19.1%), springs (22.3%) and piped water (12.5%). Most of the water is not clean, therefore most people treat their water with chlorination being the most preferred method around the County. Other methods for treating water also used include boiling and decanting, which seems affordable for the residents. Sub county-wise, Bunyala and Teso North had the highest number of people sharing a water point, that is 1200 people, while Butula had the lowest number of people sharing a water point.
point, at 600 people. This translates to mean accessibility in Butula is higher than accessibility in Bunyala and Teso North.

The second question focused on the whether water has been used to turn around agriculture in the county. 43.90% of the respondents stated that they were not sure if the water services have helped turn around agriculture in the county. This was further explained that such information was more likely to be known by the administrators and water vendors. 34.15% of the respondents stated no, water services are not used to turn around agriculture. This was further explained that the farmers depended a lot more on rain rather than water supplied by the county government. 21.95% of the respondents stated yes. This were respondents from Teso North and Bunyala mostly, since dam irrigation is done in those regions for horticulture. This was explained further that the water department has aided in providing dam water as water tracks have been seen around cattle dips/dams and that water services have aided in providing for irrigation.

The third question sought to find out the indicators of improvement in water services since the begin of the devolution government. This question addressed the percentage of households with year round access to water which was found out to be 92% It also sought to investigate the recurrent cost of water supply services and the percentage of constructed water supply system operated and maintained. In summary, the physical indicators of improvement include the 4650 developed water points, 5 days a week piped water supply to households, 92% household with year round access to water, increased storage facility to 700 cubic litres and the reduced from 1.5 KM distance to water point to 1KM distance.
5.3 Discussion of the findings

From the findings, water scarcity is not a serious problem in Busia County since it has an estimation of 92% household with year round access to water. Although the respondents particularly of Teso North and Bunyala agree that they had experienced some form of water scarcity, the topography and high cost of water production explains why more people share a water point in these sub counties. The other 5 sub counties have had constant flow of clean water and did not regard the issue of water scarcity as a serious problem. Due to the situation, it is vital that Busia County Water Department puts in place appropriate measures to ensure that the distribution of water improves and at the same time the policy needs to extend that the water flow is constant and all the households in the region are in a position to access clean water. Water is critical since the residents are using it for personal, business and agricultural activities and its provision is critical to ensuring that people do not have challenges at the personal level or at the business level.

With most of the respondents having great faith that the various bodies and stakeholders that are charged with the management of water resources in the county, it is vital that they are able to engage in their role in the best manner and ensure that the all population access water. The management of water at the county level was considered to be the most appropriate and the best alternative that can be adopted and followed to ensure that the goal of water provision is realized in the sub counties lacking. Moreover, the County government can take advantage of different types of partnerships that have been identified to major in the sub counties lacking more to help in the improvement in the distribution of water in the county rather than focusing a lot on the sub counties that are already doing better. There is an urgent need for the equal water distribution issue to be addressed not only
in lacking sub counties but rather the country at large to ensure that the universal goals of water distribution are achieved. The goal can be achieved through the increased funding for water services both by the National Government and the County Government and the other bodies must ensure that they are able to take on their responsibilities of distributing water to meet the demand regardless of the topography.

This research study examined the considerable contributions to improve water accessibility in different ways, although decentralization and devolution of water services provision to County Governments was made in order to improve efficiency and to bring services provision closer to the local people. It was however noted that the funding of Busia Water projects came from the Ex-checker, that is the National and County Government, Donors, grants, Donatons from the World Bank and World Vision. This is a very strong indication from the study that private partnerships are lacking and while their input would bring tremendous change.

Inclusive and participatory ways of governance do have significant benefits compared with governmental/top down prescription for the implementation of policies and that multi-stakeholder partnership working can achieve much more than individual actors working independently. Busia County has however shown great indicators of a down to top development structure when it comes to water projects. The community seems to be fairly conversant with on going projects as reports, documents and files are made available to the residents at county offices, during community days, on websites and local radio stations.

According to interviews with water vendors, partnership processes and equitable relationship between all participants involved in the water services provision have not always been achieved. Most often than not, those stakeholders who have brought the highest
financial resources or fundings to a partnership usually tend possesses more influence than the other partners involved. In this instance, the national government was criticized for over-emphasizing the role of the government, and for not sufficiently engaging non-governmental stakeholders and private partners in their projects.

While is clear that the role of the government in funding projects is as important in the water sector, a careful balance needs to be struck and maintained between opening up governance of public affairs to private stakeholders, and the preservation and clear stipulation of governmental responsibility and accountability. With regards to partnership, the study observed that the county government was open to private partnerships in terms of funding, but held back where policy came in with private partnerships. It was highlighted that how government sponsored projects are run is totally different to how private partnerships would run projects, hence causing policy and implementation conflicts.

In terms of aiding agriculture. There is a need of inter-sectoral cooperation. Even though water is critical to agriculture, the agriculture sector in the county seemed to cooperate less with the water department. This was explained further that Busia County being in a rainfall zone, farmers are advised to farm during rain seasons. This however doesn’t maximize on agricultural potential because then, farmers are not equipped for adverse conditions in case the climate shifts. Another reason as to why the water department is not so vigilant on turning around agriculture is because if water was to be supplied to farmers, it would be very difficult to differentiate if and when the supply would be for domestic, commercial or industrial use since the same farmer would be in need of the same water for domestic purposes. Irrigation is also not done at stipulated times or intervals but when it is necessary, for example just for horticultural farming and when there is scarcity of rainfall.
5.4 Conclusion

A balancing act between the leadership of the government, political goodwill and genuine participation of private stakeholders in water service sector lies at the heart of the realization of SDG 6. The National and County government has done a great job in improving water services in Busia County. However, the question of sustainability comes in. The interviews conducted with the administrators and vendors highlights a less emphasis on maintenance and management of equipment for water production for example pumps, pipes, boreholes and technology used for irrigation. The interviews reveal that maintenance is scheduled monthly, yet they are not done as scheduled but repairs are done as need occurs. The cost of equipment is highlighted to be very high yet water revenue collected is low. The billing averagely of unpiped schemes is Kenya shillings 200 per household, per month. For piped water, the billing is done against volume consumed which is metered only in urban centers. In urban centers, that is where revenue is maximized at Ksh. 54 per 1000 liters. This revenue collected does not match the high cost of equipment and maintenance.

5.5 Recommendations

To match the high cost of production of water, the billing system in the county that is solely controlled by the government, that is WRA has to improve its efficiency in collecting more and more revenue and in turn plugging that revenue back into production. The County government has managed to use galvanized steel pipes, these however are used in a most parts since they are cheap. In places where galvanized pipes are not used, the acidity in the soil corrodes the pipes in turn causing diseases such as goitre. The funds coming in have enabled the projects to use HDPE pipes that have a lifespan of 50 years and are not easily
damaged. However these are very expensive, and this is where efficient revenue collection systems have to be established.

For sustainable development to be achieved, land has to be efficiently maintained and climate conserved. Therefore, structures to encourage conservation should be put up. Busia County is in a rainfall zone and will hence have a number of wetlands, earth pans and dams. The County government should therefore maximize on conserving these wetlands and using them for farming purposes and other domestic uses. The County should therefore encourage no cutting down of trees and come up with ways to ensure wetlands can offer clean water.

The County Water Sector should also be keen on maximizing existing water sources rather than building expensive ones from scratch. For example a water source could be developed at Suo River to supply to Nambale and Teso South. Water from Lake Victoria can also be harnessed and carefully treated and made accessible to residents of Bunyala sub county, seeing that this county borders the lake yet 1200 people share a water point that can provide safe to dink water.

In terms of conserving the environment and wetland areas, the county government could regulate a system where if someone protects a water catchment area or zone, they are rewarded. A polluter pay system can also be established so that those that destroy the environment or water catchment areas specifically are reprimanded.

The National and County government should also ensure that the technology used in water production is sustainable. The interviews report that initially water was conveyed via electricity and diesel generators that were unstable. However, the county is in the initial steps of adopting solar powered pumps during the day and encouraging residents to store up
consumption water for when needed. This is a sustainable initiative that should be used more rather than depending on electricity and generators.

In terms of policy, the County government should encourage cross boundary or sub county resource sharing. For example, around River Sio. Since the river is all seasons, the sub counties bordering it should be encouraged to share rather than fight over it.

In terms of partnerships and equitable access to water, states have the responsibility to deliver human right to water for all, with the help of other actors whether private or not. The government should not entirely relinquish its responsibilities to other actors, nor should they manipulate these actors. A balancing act is therefore required between governmental leadership and sovereignty and take ultimate responsibility for service provision but engage other stakeholders for the management of water.

The principle of devolution which is considered the most significant step in Kenyan governance spectrum is to bring services closer to the people, in terms of service delivery, responsibility accountability. The challenges of high population growth and increase urbanization demands for expansion of water infrastructure so as to meet the rising demand for water. Increased funding through concessional loans and grants is needed to meet the rising water demand.

Engaging with stakeholders at both the national and county governments levels will improve the legitimacy of their policies and effectiveness in ensuring that they are responsive to community needs. Busia County should embrace and encourage sufficient consultations among stakeholders in the water sector so as to improve inclusivity and ownership in water governance and management.
The research showed that some objectives in water service sector were achieved, that is accessibility of water to households. However, when it came to inter sectoral cooperation, the water sector is seen to have done less in turning around agriculture. This means that a cooperative approach is more likely to provide a holistic approach to achieving objectives.

5.6 Suggestions for future research

There were a number of limitations that were faced when conducting the study that can be addressed in the future studies that are undertaken. The study focused on investigating the three objectives of water accessibility, if water is used to turn around agriculture and if there was an overall improvement in water services. After finding that, the study was to evaluate if there was value for money. There is the need for the future studies to expand and explore the issues that are have been highlighted in this study in a comprehensive manner especially under Value for Money and achieving a monetary value in the water projects in Busia County.

Additionally, the respondents in the study have made observations that can be analyzed in future studies especially the impact of water projects to the communities in Busia County.

5.7 Overall conclusion

With the growing global debates on water issues, there often remains a major disconnect between globalized assessments and policy debates, and the needs and priorities of the local people at the bottom of the pyramid. Approaches defining water problems and the solutions often see water problems in aggregate, technical terms and ignore socio-economic issues that underline what constitutes access to adequate water for all. It is of great importance to understand the systems held by different actors in the water service sector and
their impact on the community. It is of even great importance to ensure that even though objectives are ticked off, value for money could not be achieved. Objectives may have been met, yet economy was neglected. Economy may have been achieved, yet efficiency was neglected. While it is typical to place monetary value on outcomes, socio-economic and environmental factors should also be considered.

REFERENCES


APPENDICES

APPENDIX 1: QUESTIONNAIRES

HOUSEHOLDS INTERVIEW QUESTIONNAIRE/ FGD QUESTIONS
I am a graduate student at United States University Africa undertaking a Masters degree in International Relations. I am undertaking a research on Evaluation of Value for Money in Public Funded Projects - Case study Busia County Water Projects for a Masters degree. You have been selected to take part in the study, if you may agree, please respond as objectively as possible to the following questions. Your input will be valuable for this study and will only be used for academic purposes. Thank you.

PART 1.

BACKGROUND INFORMATION

<table>
<thead>
<tr>
<th>Age</th>
<th>Nationality</th>
<th>Sub County</th>
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Gender

Education level (Primary, Secondary, tertiary, University)

PART 2.

**Water Accessibility**

1. In your opinion, what are the available sources of water in this sub county?

2. What are the sources of water found in your homestead? And how many days a week can you access water?

3. What are the sources of water outside your homestead and how long does it take you to access? Name the source and tick the amount it takes to access it. More than 30 minutes ○ Less than 30 minutes ○
4. Is the available water either in the home or outside clean and safe for drinking? If No, state reason.

5. Does the water services help with agriculture? Explain

6. Would you say devolution government has aided water accessibility? Explain.

7. Do you pay for water services? How much?

8. Is the available water treated? How often?

9. Do you think water distribution is done equally in all sub counties?

10. Does the County government give information on money input and expenditure publicly?

11. What do you think the County water department and the National government would do better to improve water services to you?
APPENDIX II: INTERVIEW GUIDE

INTERVIEW QUESTIONS FOR WATER SERVICE PROVIDERS/ ADMINISTRATORS/ WATER DEPARTMENT COUNTY OFFICIALS

I am a graduate student at United States University Africa undertaking a Masters degree in International Relations, I am undertaking a research on Evaluation of Value for Money in Public Funded Projects- Case study Busia County Water Projects for a Masters degree. You have been selected to take part in the study, if you may agree, please respond as objectively as possible to the following questions. Your input will be valuable for this study and will only be used for academic purposes. Thank you.

Please fill in the following.

Sub County…………………

Department…………..

Gender

○ Male
○ Female

Kindly respond to the following questions.

1. Are there equipment needed in the production of water?
   
   Yes___ No___ if yes, are they maintained/repaired and how regular?

2. Does the water department effectively support the delivery of the County Water Supply and Urban Sanitation Strategic Plan objectives?
Yes___ No___ if yes, how?

3. Does the cost of the equipment match the purpose of the equipment?
   Yes___ No___ why?

4. Who are the key funders of water projects in the County?

5. What are the available sources of water in each sub county and how are the sources distributed against the population?

6. For sources that are not in the homestead, how accessible in terms of distance are they to the homestead per sub county?

7. Is the water accessible safe to drink in each sub county?

8. How has the water department helped in agriculture in the county? What technologies are used and in what regions?

9. How is the distribution of water to farmers done?

10. Are there billing systems of water and how are they done?

11. What are the achievements of the water department so far since begin of devolution government?

12. Does the county water department partner with other donors to fund projects?

13. What would you recommend to be done differently in the department?