

**LOCAL GOVERNMENT ADMINISTRATION AND POTABLE WATER SUPPLY IN
JUBA PAYAM, SOUTH SUDAN**

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**RESEARCH DISSERTATION SUBMITTED TO THE COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR AWARD OF MASTERS' DEGREE OF ARTS IN PUBLIC
ADMINISTRATION AND MANAGEMENT OF
KAMPALA INTERNATIONAL
UNIVERSITY**

AUGUST, 2018

DECLARATION

I, Thomas Tombe Morbe declare that this research dissertation on “Local government administration and potable water supply in Juba Payam, South Sudan” is my original work and to the best of my knowledge, has not been submitted for any award at any academic institution.

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APPROVAL

This is to confirm that this research dissertation on “Local government administration and potable water supply in Juba Payam, South Sudan” is under my supervision and is now ready for submission.

Signature:

Date:

SUPERVISOR: Dr. Chrisostom Oketch

DEDICATION

I dedicate this work to my parents and family members for their moral support and the encouragement that they gave me during the study.

ACKNOWLEDGEMENT

I wish to acknowledge and be grateful to God for enabling me to reach this point in my academic life and I am so thankful for His unconditional protection.

Am greatly indebted to my supervisor, Dr. Chrisostom Oketch who has tirelessly perused through this to guide and correct me. I appreciate your effort. I cannot fail to acknowledge my lecturers in the faculty of Humanities and Social Sciences for the knowledge that they passed on to me, without you this would not be an easy task.

I am also grateful to Kampala International University for providing me with the conceptual means to complete this project.

My sincere thanks go to my lecturers who have transformed me into a better and knowledgeable person through the three years of academic struggle at Kampala International University.

Another acknowledgement goes to my research assistants who devoted their time and energy towards the accomplishment of this research project. The moral support that they gave me too was overwhelming and came in handy at times when I was being challenged by various issues in the field. And finally, thanks to my family, tutors and numerous friends who provided me with consolidated support vital for the success of this project.

May God Bless you all.

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LIST OF ACRONYMS

BC	Before Christ
NWR	National Water Resources
OM	Operation and Maintenance
U.S	United States
WASH	Water, Sanitation and Hygiene
WRM	Water Resources Management

ABSTRACT

The research topic was the role of local government administration and potable water supply in Juba Payam, South Sudan. The study objectives were; to ascertain the state of potable water supply in Juba Payam, South Sudan; to identify the challenges facing potable water supply in Juba Payam, South Sudan and to examine the factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan. The study was based on a cross sectional research design. The target population of this study according to National Bureau of Statistics, (2015), was 109,426 individuals in Juba Payam, South Sudan distributed as follows: 57,041 males, 52,385 females. Of those, 842 of the population are Payam Local government officials, 4,769 are Juba City Council staff, 5,610 are officials from the Ministry of water resources and Irrigation, Juba and the remaining 98,205 are residents of Juba Payam. From the target population of 109,426 the sample size of 399 respondents was obtained using Sloven's formula. The findings of the study included the following; that the state of potable water supply to households in Juba Payam is unsatisfactory to the beneficiaries and has severely decreased; that local government administration of Juba Payam has so far failed to address the challenges facing potable water supply, communities are still struggling to secure access to water resources and disposal of untreated wastewater generates huge pollution problems around urban areas and that the local of government of Juba Payam has played unsatisfactory role on potable water supply to the citizens. The conclusions were; that the state of potable water supply in Juba Payam, South Sudan is poor, hence forcing majority of people to use water from poor water sources, such as a hand pump, un protected well and piped water supply; that the people in Juba Payam communities are struggling to secure access to water resources and the boom in groundwater extraction for agriculture has led to many drinking water wells to dry up; and also that the local government plays an instrumental role in providing potable water supply in Juba Payam, South Sudan because it creates avenues for the community to provide labor, raw materials and also demand for transparency in funds management as regards to water supply. The study recommended that; the local government administration of Juba Payam should come up with well-structured and working water institutions to ensure that at all times there is in every area a person and institution providing water supply to the citizens at fair tariffs; the local government of Juba Payam should involve all key water sector private contractors to manage all public water utility systems. The private companies should therefore be given various responsibilities like billing, leak detection, design and construction under different forms of contracts, and all water management should all be made under the sanction of a legal framework that entitles all citizens to a basic water requirement and that the local government administration of Juba Payam to put in place efficient and well structured institutions to carry out reforms as a team and within a short period so that the reforms are finalized for the citizens to drink and access adequate and quality water. The water services trust fund, an organization mandated with mobilizing funds for carrying the reforms be strengthened and supported by the parent ministry of water so that the financial base is boosted. The study recommended an optimal integration of the water resources management in the country so that all the citizens have adequate water.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter covers the background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, scope of the study, and significance of the study, and the operational definitions of terms and concepts as applied to suit the context of the study.

1.2 Background of the Study

The background of the study was explored in terms of historical, theoretical, conceptual and contextual perspectives.

1.2.1 Historical perspective

Globally, the history of local government is one of gradual change and evolution since the Middle Ages (Altaf & Hughs, 2014). For instance England has never possessed a formal written constitution, with the result that modern administration (and the judicial system) is based on precedent, and is derived from administrative powers granted (usually by the Crown) to older systems, such as that of the shires. The concept of local government in England spans back into the history of Anglo-Saxon England (c. 700-1066), and certain aspects of its modern system are directly derived from this time; particularly the paradigm that towns and the countryside should be administrated separately. In this context, the feudal system introduced by the Normans, and perhaps lasting 300 years, can be seen as a 'blip', before earlier patterns of administration re-emerged.

In Africa, local governments have evolved over time. For example, South African Local government was established in 1909 when the four former colonies became provinces (Brikke et al., 2015). Each was governed by a white-elected provincial council with limited legislative powers. The administrator of each province was appointed by the central government and presided over an executive committee representing the majority party in the council. Provincial councils

were abolished in 1986, and the executive committees, appointed by the president, became the administrative arms of the state in each province.

In evolution, the Local Government Councils in South Sudan grew from two provinces of the Equatorial and Upper Nile (1821) which was subdivided into three by splitting Equatoria and Bahr el Ghazel provinces, and a further split to six provinces of Jonglei, Upper Nile, Bahr el Ghazal, Lakes, Western and Eastern Equatoria in 1976 (Caroline 2015). The same provinces were later amalgamated into three regions of South Sudan of Equatoria, Bahr el Ghazel and Upper Nile in 1983. They were however subdivided again into the current ten states of South Sudan in 2014. In terms of the actual number of local authorities, until 1975 the South Sudan had 24 Local Government Councils of which 21 were rural councils and three were town councils. In status, these councils were simply administrative units of provinces exercising deconcentrated and delegated powers to maintain law and order, and collect revenue on behalf of the province authorities. In 1981, these Local Government Councils were split to make up 48 area councils to which Local Government authority was devolved to become a level of government closest to the people (Bandaragoda, 2015).

Throughout history, systems of potable water supply across the globe were inevitable to happen (Eloise Kendy et al., 2016). When humans started to migrate the planet, these systems became absolutely necessary due to demand of supply when population increased in certain tribes. Humans started to need to build structures to carry water from a lake or river to their settling location. The earliest known system of potable water supply is an irrigation system in Palenque, Mexico, 1400 BC. One of the best and well-known examples of potable water supply in ancient civilizations are the ancient Roman aqueducts. Aqueducts are(as seen in the picture above) are the potable water supply system that were, and some still are, used to carry water into the cities of the Roman Empire. Potable water supply systems have evolved greatly since the earliest known system of potable water supply in Palenque, Mexico, 1400 BC. Evolving to aqueducts, then evolving a little more, we arrived to what we have today.

In Sub-Saharan Africa access to water supply has improved, but the region lags behind all other developing regions: access to safe drinking water has increased from 49% in 1990 to 60% in 2008, while in the same time span the access to improved sanitation has only risen from 28% to 31%

(Eng & Ombogo, 2011). Sub-Saharan Africa is unlikely to meet the Millennium Development Goals of halving the share of the population without access to safe drinking water and sanitation between 1990 and 2015. These trends in water supply and sanitation are directly reflected in health: the under-five child mortality is decreasing worldwide, but Sub-Saharan Africa shows the slowest pace of progress (Eric, 2013).

In South Sudan, access to water supply has been steadily improving. However in 2013, the country suddenly suffered severe civil war which caused anarchy and claimed thousands of lives and destroyed people's property hence affecting potable water supply especially in conflict hit areas of the country such as Juba, Wau, Malakal, Bor and Yei (George, 2012).

South Sudan, a country in Eastern Africa, gained independence in 2011, following decades of civil unrest. In the past decade, the population of the city of Juba, South Sudan's capital city, has more than doubled (George, 2012). Thousands of impoverished people lack clean water and proper sanitation. Limited potable water supplies, poor access to hygiene and unsanitary living conditions present serious health hazards in urban areas of South Sudan, especially resettlement areas where the poorest and most vulnerable populations live

In 2015, it was estimated that only 13 per cent of Juba residents had access to municipal water - supplied mainly through a small piped network and boreholes – but this number is likely to have dropped following the violence that hit the city in 2016 (Global Water Partnership, 2000). Across the country it's estimated that over half of all water points have either been damaged or destroyed in the violence. Historically, Water Resources Management (WRM) has adopted an engineering-led approach that focused exclusively on providing economically useful water and ignoring the consequence for environmental sustainability. In addition, this approach did not deal systematically with a number of dilemmas such as societal uncertainty, or consider the different social, economic and environmental interests in water management. In the past, externalities were not always explicitly considered, contributing to the many manifestations of the 'water crisis'. It is increasingly being realised that hard system thinking no longer holds, especially when dealing with the dilemmas of the current 'water crisis'. In fact, poor management or governance is said to be at the heart of these problems. Potable water supply clearly requires a "soft system" approach as defined by Checkland (1989) to deal with the highly complex network of interrelations between

many actors and between the stakeholders and the water resource(s). The interpretation of and suggested responses to the severity of the problems underlying the ‘water crisis’ is varied. Suggestions range from radical legal and management reforms to technological innovation to combinations of both. Environmentally-focused management reforms have, over recent decades become the most likely approach and water laws, institutions and policies are being overhauled in many countries

1.2.2 Theoretical Perspective

The theory of systems approach of Peter Senge (1990) was followed in this study, according to Senge, systems theory is characterized by principles such as legal support, capacity development and rule of law. These principles are civilian oriented, meaning each is determined and shaped by service delivery in terms of availability of a service, acceptability and accountability. Ehadie (2014) argued that successful system of local government administration requires some degree of local participation; Sub-national governments’ proximity to their constituents only enables them to respond better to local water service needs and efficiently match public spending to private needs if some sort of information flow between citizens and the local government administrations exist. On the other hand, local government administration can itself enhance the opportunities for participation by placing more power and resources at a closer, more familiar, more easily influenced level of government. In environments with poor traditions of citizen participation, local governance can be an important first step in creating regular, predictable opportunities for citizen-state interaction (Theron, 2015).

1.2.3 Conceptual perspective

Local government is a form of public administration which, in a majority of contexts, exists as the lowest tier of administration within a given state. The term is used to contrast with offices at state level, which are referred to as the central government, national government, or (where appropriate) federal government and also to supranational government which deals with governing institutions between states (Greenhill & Wekiya, 2014).

Potable water supply can be defined as the process of delivering of water services to the people (Kjellen, 2013). This is often done through a pipeline delivery system which is owned by either: a

city or town incorporated or chartered under the constitution and laws of this state, a private entity which is regulated as a public service corporation. To fully understand the importance of potable water supply today it is crucial to look back into history of ancient peoples. Water formed, shaped and influenced cultural, economical, technological and socio-political development of early civilizations.

1.2.4 Contextual Perspective

In South Sudan, only 55% of the people have access to safe drinking water (Government of South Sudan, 2012). And due to increased costs of production, water providers in Juba are producing less and charging more, squeezing people's access to safe water even further. People living in urban areas, particularly in poorer neighborhoods, have been hardest hit. They can no longer afford to buy enough safe water. Those who still can afford it, now spend twice as much as they did just a few months ago.

Approximately 610,000 people living in South Sudan's urban areas are now struggling with the cost of living that has increased by nearly 30% in the first half of 2015 (Government of South Sudan, 2015). Putting food on the table becomes the priority. Buying safe water, often and quite understandably takes second place. An estimated between 50-60 per cent of the population in South Sudan, has access to an improved water source, such as a hand pump, a protected well or piped water supply, which only benefits a minority.

Sadly, however, even sections of the population with access to improved water sources often do not receive safe water while those without access to an improved water source often fetch water from rivers, ponds or open wells. Some buy water from vendors who use trucks to supply water to their customers (Government of South Sudan, 2012). Also, only 13 per cent of Juba residents can access municipal water supplied mainly through a small piped network, boreholes and a single public water filling station on the river bank. The public system is complemented by a patchwork of small private water suppliers, which end up delivering relatively expensive and low-quality water.

There are about 300 registered trucks supplying water throughout Juba city. However, the potable water supply to households has decreased by 30 per cent as fuel has become expensive following

the currency devaluation (Government of South Sudan, 2012). Currently, at least 11 private filling stations pump water from the Nile which is then distributed by water trucks and bicycle vendors. Water is also produced by bottling water factories. But as fuel costs have reportedly increased, operation overheads have also gone up by around 35 per cent.

1.3 Statement of the problem

At the local context a survey carried out by Juba county water department, revealed that only 55% of the population in the district had access to safe water which is below the national average of 60% (Ministry of Water and Environment report, 2017). Most of the population depends on a few unprotected wells, springs and boreholes which are inadequate to meet water demands. This situation has significant implications on the quality of human life. Women and children walk long distances and spend long hours of the day fetching water hence less time spent on productive activities (Juba Payam district local government report, 2017). Further this phenomenon is a contributory factor to high incidences of water borne diseases like cholera, typhoid, skin diseases (Project description report by Plan International Juba Payam, 2017). Because of the limited number of water points, water has also been a source of much of the internal conflict between communities. However, despite the sounding implementation framework for potable water supply by the Juba local government, Payam still remains as one of the areas that are still hit by severe water crisis. It is in this regard that the researcher sought to examine the impact of local government administration on potable water supply in Juba Payam, South Sudan.

1.4 Purpose of the Study

The purpose of this study is to assess the role that local government administration has on potable water supply in Juba Payam, South Sudan.

1.5 Objectives of the Study

1.5.1 Specific Objectives

The following are the objectives under which the study was carried out

- (i) To ascertain the state of potable water supply in Juba Payam, South Sudan
- (ii) To identify the challenges facing potable water supply in Juba Payam, South Sudan

- (iii) To examine the factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan

1.6 Research questions

- (i) What is the state of potable water supply in Juba Payam, South Sudan?
- (ii) What are the challenges facing potable water supply in Juba Payam, South Sudan?
- (iii) What are the factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan?

1.7 Scope of the study

1.7.1 Geographical Scope

The study was carried out in Juba Payam, South Sudan. The Juba city is situated on the White Nile and functions as the seat and metropolis of Juba County. The researcher chose Juba Payam because this area experienced shortage of potable water supply despite the involvement of the local government.

1.7.2 Theoretical Scope

The study was guided by the systems theory of Peter Senge, (1990), which states that any effective local government administration is supposed to be characterized by principles such as legal support, capacity development and rule of law. These principles are civilian oriented, meaning each is determined and shaped by service delivery in terms of empowerment and participation. Local government administration has to evaluate legal support, capacity development and rule of law from a system's point of view. Like Agrawal, (2011), noted that most poor populations are quick to agitate for participation but when it reaches the level of participating in the financing they still want some donor or central government to foot the whole bill.

1.7.3 Content Scope

This study examined; the state of potable water supply in Juba Payam, South Sudan; the challenges facing potable water supply in Juba Payam, South Sudan and the factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan.

1.7.4 Time Scope

The study considered the data on local government administration and water service delivery in Juba Payam, Juba-South Sudan from 2000 up to 2018. This being the period in which ineffective potable water supply rendered to the people of Juba Payam, South Sudan has been reported most. Still this study was conducted in a period of four months, that was, from June to September 2017.

1.8 Significance of the study

The findings of this study will be useful to the local government authorities in South Sudan on how to improve on potable water supply

The findings of this study will also be useful to the people of South Sudan since it will lead to an improved potable water supply resource

The research findings will provide literature review to the subsequent researchers or scholars who will conduct research in the same field of study.

The study will improve the researcher's knowledge on reporting aspects, data collection and analysis.

1.9 Operational Definition of Key terms

Local government is a form of public administration which, in a majority of contexts, exists as the lowest tier of administration within a given state.

Potable water supply can be defined as the process of delivering of drinkable and clean water services to the people.

Service delivery is a common phrase used to describe the distribution of basic resources citizens depend on like water, electricity, sanitation infrastructure, land, and housing.

Local government performance refers to increasing benefits and decreasing negative consequences. This can refer to citizens who receive direct services or individuals or businesses affected by policy decisions or service delivery

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter shows the theoretical review, the conceptual review and the empirical review.

2.1 Theoretical review

The study was guided by the systems theory of Peter Senge, (1990), which states that any effective local government administration is supposed to be characterized by principles such as legal support, capacity development and rule of law. These principles are civilian oriented, meaning each is determined and shaped by service delivery in terms of empowerment and participation. Local government administration has to evaluate legal support, capacity development and rule of law from a system's point of view. Like Agrawal, (2011), noted that most poor populations are quick to agitate for participation but when it reaches the level of participating in the financing they still want some donor or central government to foot the whole bill. The fundamental problem with most African societies is that they suffer from double weakness. Their central and local government administrations are weak while at the same time their private and civil society sectors are also weak (vertical and horizontal weakness). This double weakness is not only in terms of resources (human, material and financial) it is also in terms of institutions, systems, information, networking, skills, knowledge, among others, (Agrawal, 2011). The systems theory assumes that individuals or entities have clear preferences and are capable of choosing them and that they act in their self-interest and not in the interests of others. Individuals or entities have information about how to maximize their preferences, they are able to analyze the options and choose the course that maximizes their welfare, and they are able to change their action when costs and benefits change. According to this assumption, Lemieux, (2014), argued that ordinary individuals, who have the same self interest motivations in the political, sphere as in the economic sphere, man the state. The existence of the state thus creates a political market, i.e., a market for political favors. This theory is relevant to the study since it indicates that local government administration has to evaluate delegation and devolution from a system's point of view in order for effective water service delivery.

2.2 Conceptual Framework

Independent variable

Local Government Administration

- Infrastructure development
- Capacity building
- Urban planning

Dependent variable

Water service delivery

- Construction of modern water sources such as boreholes
- Campaigns on access to clean & safe water
- Renovation of existing water sources

- Intervening variables**
- Government policy
 - Economic climate

Source: Kjellen (2013)

According to the conceptual framework above, the independent variable was local government administration and this focused-on; infrastructure development, capacity building and urban planning and the dependent variable was potable water supply and this also comprised of construction of modern water sources such as boreholes, campaigns on access to clean & safe water and renovation of existing water sources. This is intervened by government intervention and political climate.

2.3 Related Literature

The literature in this study was reviewed objective by objective, that is, the state of potable water supply in Juba Payam, South Sudan; the challenges facing potable water supply in Juba Payam, South Sudan and the factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan.

2.3.1 State of potable water supply in Juba Payam, South Sudan

An estimated between 50-60 per cent of the population in South Sudan, has access to an improved water source, such as a hand pump, a protected well or piped water supply, which only benefits a minority, (Altaf & Hughs, 2014). Sadly, however, even sections of the population with access to improved water sources often do not receive safe water while those without access to an improved water source often fetch water from rivers, ponds or open wells, (Brikke, 2015). Some buy water from vendors who use trucks to supply water to their customers. Also, only 13 per cent of Juba residents can access municipal water supplied mainly through a small piped network, boreholes and a single public water filling station on the river bank, (Caroline, 2015). The public system is complemented by a patchwork of small private water suppliers, which end up delivering relatively expensive and low quality water. There are about 300 registered trucks supplying water throughout Juba city. However, the potable water supply to households has decreased by 30 per cent as fuel has become expensive following the currency devaluation.

Currently, at least 11 private filling stations pump water from the Nile which is then distributed by water trucks and bicycle vendors. Water is also produced by bottling water factories, (Eloise & David, 2016). But as fuel costs have reportedly increased, operation overheads have also gone up by around 35 per cent.

Access to safe water, adequate sanitation and hygiene promotion are all equally important; a combination of these elements are required to maintain and improve health and dignity, (Eric, 2013). To prevent the spread of water-borne diseases and help improve hygiene and sanitation standards, a number of organizations in South Sudan are working on rebuilding and rehabilitating boreholes as well as larger water points.

Several residents in the South Sudanese capital admitted that access to adequate sanitation and improved hygiene practices is challenging to achieve since it requires change in behavior, especially among those in most need, (George, 2012). As the world marked this year's World Toilet Day, it emerged that latrines and toilets still elude many South Sudanese with only 13 per cent of the population accessing basic sanitation and 5.6 per cent of households in South Sudan have access to improved water sources and sanitation, the country's 2014 Household Health Survey (SHS) showed.

According to UNICEF, lack of sanitation, and particularly open defecation, contributes to the incidence of diarrhea and to the spread of intestinal parasites, which in turn aggravates malnutrition and increases the risk of diseases like Cholera especially for children less than five years, (Greenhill & Wekiya, 2014). It is estimated that more than 34.4 per cent of all children under-five in South Sudan suffer from diarrhea diseases every year due to poor sanitation practices.

Use of unsafe water for drinking, food preparation, hygiene, and lack of access to sanitation facilities contribute to around 88 per cent of deaths from diarrhea in the world's youngest nation, the 2014 SHS observed, (Nanayakkara, 2013).

The Millennium Development Goal target for drinking water was reportedly achieved in 2014, but, in 2015, 663 million people still lack improved drinking water sources. The world missed the sanitation target by almost 700 million people, with 2.4 billion still lacking improved sanitation facilities and 946 million practicing open defecation, (Orodho, 2013).

According to the International Committee of the Red Cross (ICRC), only about 30 to 40 % of South Sudan's people have access to clean water, (Otieno & Ogada, 2015). The majority are vulnerable to several life-threatening diseases. South Sudan's Ministry of Electricity, Dams and Water Resources blames the poor supply of water on the economic crisis and poor power supply. In any case, the country's troubled legacy of conflict, environmental degradation and under-investment in water infrastructure has seriously affected the availability of drinking water.

The ICRC is helping the South Sudan Urban Water Corporation to develop capacities and deliver clean water to a wider population. The South Sudanese and Japanese governments have earmarked \$ 40 million for a 3-years project for improving the water supply system of Juba, the capital city, (Otieno & Ogada, 2015). So far, fewer than 15 % of Juba's residents access water supplied by the municipality, but unfortunately, not even they always get safe water. Others fetch unclean water directly from ponds, open wells or the river Nile. Some 250 to 300 registered water trucks supply water throughout Juba. Most are owned by Ethiopians, according to the government. However, fuel has become expensive because of the devaluation of the currency, and water delivery to households has decreased by 60 %. As a result, water has become more costly too. A barrel of water (200 litres) now costs 700 South Sudanese pounds (about \$ 15). Such sums are out

of reach for most families. 700 pounds is too expensive, it is half of my salary, and cannot spend it in a single day.

South Sudan is a country in crisis –violence has displaced millions of people; a food crisis has left parts of the country in famine; and a deteriorating economy has left many families with no means to support themselves, (Samad, 2015). The worsening water crisis, fuelled, in part by the conflict and economic collapse, is just one more challenge families in Juba have to face on a daily basis.

In 2015, it was estimated that only 13 per cent of Juba residents had access to municipal water - supplied mainly through a small piped network and boreholes – but this number is likely to have dropped following the violence that hit the city in 2016. Across the country it's estimated that over half of all water points have either been damaged or destroyed in the violence, (Westman, 2015).

For those without municipal access, water is mostly provided through private sector water trucking. While the water comes straight from the river, UNICEF has been providing chlorine, which trucks must use to treat the water and reduce the spread of waterborne diseases (Sara, 2015). The lack of safe water means those living in the capital are also at risk to the spread illnesses such as diarrhea and cholera, with children especially vulnerable to waterborne diseases, and exacerbating the already precarious nutrition crisis. A cholera outbreak, which started in Juba in July, has already killed 137 people, and infected more than 5,000 across the country. Many of those affected live in poor neighborhoods across Juba, with little access to water and sanitation facilities.

In Khor William, in the south of the city and one of the areas worst affected by the outbreak. A private company has set up a water pump near her home, connected directly to the Nile, but while the pipe reduces the time it takes to gather water, it's still untreated (Susanne et al., 2013). In the Ghabat neighborhood, Louis Modi runs a UNICEF-supported water treatment centre. Water, drawn from the river, is treated with aluminium sulphate and chlorine, and the centre pumps out more than 280,000 litres of clean water a day.

UNICEF is hoping to roll out further treatment centers to communities such as Khor William, providing families with access to clean, safe water and livelihood opportunities for bicycle vendors. And yet much more needs to be done, and for thousands of people, clean, safe water is still out of their reach (UNICEF, 2016). It shouldn't be this way. For families in Juba, and across

South Sudan, access to clean, safe water should be a given. They shouldn't have to risk their children's lives each day, just for something to drink.

2.3.2 Challenges facing potable water supply in Juba Payam, South Sudan

Local government and communities are struggling to secure access to water resources for water supply. In India for example, the boom in groundwater extraction for agriculture has led to many drinking water wells to dry up, (Sara, 2015).

Conflicts between domestic water users and other sectors, in Tarata, (South Sudan), conflicts broke out between farmers and urban water users. The latter group wanted to extend their water use to include the irrigation of small urban plots. The farmers feared this would affect water resources available for them, leading to the conflict, (Susanne et al., 2013).

Disposal of untreated wastewater generates huge pollution problems around urban areas. Environmental authorities are often not able to hold local government accountable for wastewater management. Increasingly, farmers are starting to use this wastewater for agriculture, for example in South Sudan, (Theodore, 2011), sometimes with large health and environmental risks.

Wilfrido & Barreiro (2013) noted that specific challenges related to refurbishment of treatment plants and lack of funding for infrastructure and emergency work to address hotspots and drought stricken towns, as well as lack of proper planning by the Water Service Authorities.

Lack of adequate donor funds and inadequate budgetary allocations have negatively affected the implementation of the reforms because capital intensive water infrastructure developments have not been erected to serve the increasing population in the border area, (Altaf and Hughs, 2014). This has therefore greatly adversely affected the successful implementation in the Tana water services board area of jurisdiction.

Delay in affecting the transfer plan of both capital assets and staffs has negatively affected the smooth implementation of the water sector reforms in Tana water services board area, (Caroline, 2015). Tana water services board has three categories of staff namely; its own directly recruited from the labour market, Ministry of water and Irrigation staff and National water conservation and

Pipeline Corporation. It has thus been hard to make the three groups with different loyalties work as a team and their motivation and ability has been difficult to enhance. The institution has continued to utilize assets which they don't rightfully and legally own and therefore the duty of care and profitable use has continued to lack and this has greatly and adversely affected smooth implementation of water sector reforms.

David, (2015), revealed that the failure of many development projects including that of water are due to ineffective participation of key stakeholders, low capacity of the communities in operation and maintenance of water system and management of water resources. Moreover demand responsive projects are more sustained than supply driven projects. Training of users/intended beneficiaries promotes better management of water points. Both management and sustainability are dependent upon formation of committees and the training of user groups. Prevention maintenance is the task of community and managed by water care takers and activities such as greasing, replacements, repairs, maintaining of surrounding, mending fences and regular cleaning calls for community involvement, (De Gabriel, 2013).

Three or four people among the water point committee should be trained in pump mechanics and be issued with necessary hand tools. A two year contract with the local hand pump mechanics should be made to carry out quarterly preventive maintenance and eventually care takers learn to undertake similar tasks. Major repairs of these water sources require notification of the district water officers who will provide a more competent mechanic or water mason. The responsibility of such repairs is shared by the community and the district, (De Gabrielle, 2013).

Okuni and Rockhold, (2015), point out that in order to ensure sustainability of water facilities attention should be paid on hygiene practices. The involvement of water users in hygiene and sanitation training is of importance as they will appreciate the need for hygiene and sanitation in the potable water supply. Hygiene education helps communities appreciate the importance of facilities developed, (Water and sanitation sector report, 2013).

A community wishing to have improved water source must contribute money or materials. The community must prepare the site by clearing the site and the way to provide access route to the place, make it mandatory that the private contractor hires workers from the community, the community should monitor and follow up the construction work, (Abraham, 2014).

The Water User Committees should constitute at least 50% women and their roles and should be involved in all the roles like mobilizing of community resources for construction and maintenance, keep records, monitor performance, mobilize members on hygiene, purchase materials and pay for repairs. The situation in Juba Payam is such that the user committees are male dominated and this limits the sustainability of these safe water projects, (De Gabriele, 2013).

According to Esrey, (2013), one of the main reasons for investing in water and sanitation programs is to reduce the incidences of water related diseases especially diarrhea, skin and eye diseases. The mechanism for interrupting disease transmission and improving people's health include; provision of safe water, increasing water consumption, improving domestic hygiene practices and safe disposal of human faeces, (Esrey, 2013).

The local leaders and the water user committees should call for village meetings to participate basing on the knowledge of the professionals and their own experience and make an assessment of the current status of their water and sanitation. Involvement of the community in project activities makes the use of the demand response approach in revealing the need of the community, (Abraham, 2014).

For the community to be able to carry out needs assessment of the water and sanitation facilities they should make an informed decision on the choice of the water project from the available options and to select the location for the facility, they need to be empowered with the relevant information, (Rifkin, 2015). They also recommended the need for managers to give information to the lay people as an act of empowerment that provides the community with the opportunity and experience to allow them actively involved in decision making for project sustainability.

2.3.3 Factors that influence the roles of local government in supply of potable water in Juba Payam, South Sudan

Community Participation

Citizen participation is a process by which people act in response to public concerns, voice their opinions about decisions that affect them, and take responsibility for changes to their community. Their support results in the sustainability of community project, (Armitage et al., 2007).

In addition, community involvement in projects is celebrated by different scholars, (González Rivas, 2014; van Koppen, Cossio Rojas, and Skielboe, 2012, Kiogora, 2013;) as an important aspect that positively influences the implementation of such projects because it creates avenues for the community to provide labor, raw materials and also demand for transparency in funds management. In a study, McNeill (2008) revealed that water projects implemented by regional councils that involved local communities exhibited high rates of completion and sustainability in New Zealand. This he notes was because the communities owned the projects and therefore provided raw materials and labor for the projects, (McNeill, 2008).

Similar evidence by Lennox, Proctor and Russell, (2011), who observed that stakeholder involvement by regional councils in the implementation of water projects, expedites the implementation process. They argued that because involving the community does reduce project's costs as the beneficiary or host community does provide raw materials needed at low prices and provides cheap labour and at times volunteers, (Lennox et. al, 2011).

In a study by, Esonu and Kavanamur, (2011), stakeholders' participation did positively influence the successful implementation of water projects implemented by the Wampar Local-Level Government in Morobe provincial government in Papua New Guinea. Further, they postulated this was because the host communities had provided; raw materials at affordable prices, labor at cheap wage rates and owned the projects thereby enhancing projects' sustainability, (Esonu and Kavanamur, 2011).

Financial Resources

Poor fiscal decentralization structures in developing countries that have a devolved system of governance are a major hindrance to the provision of public services like; water and health, (De Mello, 2011). The existence of these poor structures of fiscal decentralization have been found to presents challenges of delayed disbursements and issues of accountability both of which have adverse effects on the implementation of public service projects, (Rodden,2002).

In a study, Smoke, (2001), observed that low budgetary allocations and late disbursement to the local departmental governments derailed the implementation of water projects in Bolivia. This he further noted emanated from failure by departmental governments to meet their financial

obligations in the project implementation process adversely influencing the completion of water projects and consequently access to water at these devolved levels of governance, (Smoke, 2001).

Similar evidence by Faguet, (2004), who notes low budgetary allocations and untimely disbursements negatively, influenced the implementation of water projects by the local governments negatively influencing water access in Bolivia. In a study, these findings were disputed by the government of Bolivia that postulated that it devolve sufficient funds as stipulated under the constitution, (Government of Bolivia, 2008).

Intergovernmental Relations

The existence of mistrust and competition between national or central governments and regional governments, continues to be the biggest hurdle to the successful implementation of development and public service projects under the devolved system of governance, (Robison, 2006). Similar evidence by Feiock, (2004), exhibiting that competition, mistrust and intentions to sabotage are the biggest threats to public service projects implemented under the devolved system of governance.

The existence of a cordial relationship between the central government and regional governments positively influenced the allocation of resources for the implementation of water projects in New Zealand, (Memon & Skelton, 2007). This they also found did improve access to water by citizenry living in these devolved units of governance, (Memon & Skelton, 2007). Similar evidence by McNeill (2008) on an enabling environment for local councils in New Zealand did enhance the timely and effective implementation of water projects consequently improving on water access. This was because this relationship facilitated the exchange of technical personnel required for the implementation of water projects at devolved governance levels, (McNeill, 2008).

In a study by Gelu, (2008), cordial relations between provincial governments and the national government played an important role in the successful implementation of public services projects and in particular the implementation of water projects in Papua New Guinea. Further, he notes that the cordial relationship did expedite the disbursements of sufficient funds and the exchange of qualified technical personnel that worked on the implementation of water projects consequently improving access to water under devolved governance, (Gelu, 2008).

Political Goodwill

Elite capture and patronage Heller et al., (2007), observed increase projects' failure vulnerability in developing countries. High levels of bureaucracy and political competition resulting to the derailed enactment of favorable water laws adversely influenced the implementation process of water projects by local governments in Bolivia, (Faguet, 2002). In a study by Sánchez, (2000), also observed that, political patronage in local governments characterized by clientelism which resulted to bureaucratic tendencies in the implementation process was responsible for stalled water projects especially in rural Colombia.

In their study, Ceballos and Hoyos, (2004), re-emphasized this by demonstrating political sabotage of the enactment process of water laws derailed water projects budgetary allocations negatively influencing the implementation of water projects in Colombia. Further, in a study Rodríguez Briseño, (2008), did contend that clientelism did adversely influence the implementation of water supply projects in Mexico. Further, he observes that this characterized by bureaucratic tendencies in tendering water projects and the derailed enacted of water laws that would expedite the implementation of these projects negatively influenced access to water, (Rodríguez Briseño, 2008).

In his study, Olsen (2005) did report that bureaucracy in tendering of water projects construction contracts was major hindrance to the implementation of water projects by municipal governments in the Netherlands. Similar evidence by Wilson, (2009), who observed that party politics in Italy and Spain did derail the commencement of water projects at municipal level. This was characterized by political sabotage, patronage and the enactment of laws that created high levels of bureaucracy in the water projects contractors tendering process negatively influencing access to water, (Wilson, 2009).

Gómez-Reino and Herrero, (2011), did also argue that politics was the main determinant on how funds to implement public social services projects in regional governments in Spain were allocated. This view was also demonstrated in a study by Simon-Cosno, Lago-Penas and Vaquero, (2012) who observed that political goodwill factors did influence the budget allocations for water projects in decentralized units in Spain. Further, they contend that clientelism characterized by the enactment of water related financial laws did also have a negative influence the implementation of water projects in regional governments, (Simón-Cosano, et al., 2012).

2.4 Empirical review

There have been economic studies on the potable water situation in the Philippines. On the supply side, a study indicated that water service in Metro Manila was inadequate, (David & Inocencio 1996). Two studies Arellano, (1994) and David, (2000), on the privatization of the Metropolitan Waterworks and Sewerage System (MWSS) showed that unless some adjustments were made, the water shortage problem in Metro Manila would persist. Other studies showed that much of the surface and groundwater in Metro Manila and the country was already contaminated (Ebarvia 1994, The World Bank Group 2003). Another study, (Inocencio & David, 2001), suggested that the provision of water for the poor and poor communities could be a potent tool for alleviating poverty as it could significantly impact health, income and consumption, as well as gender and social inclusion. One study, (Magtibay, 2004), indicated that a portion of the population of the Philippines had shifted its preference from traditional to alternative sources of drinking water such as water refilling stations. Other studies (Greenpeace 2007, World Bank 2005a) stated that 1 out of 5 Filipinos did not get water from formal sources. Still another study, (Madrado, 2002), pointed out that those without household connections could only access water from wells, springs, communal faucets, and/or from small-scale informal providers. Based on another study (ADB, 2006) focusing on water supply as a development goal, by 2015 the Philippines would have rural water supply for only 77 percent of the rural population. In 2004 overall water supply coverage for the Philippines was only 85 percent (ADB, 2007).

In this study, the researcher did not look at the theory that could his study and therefore, the current researcher identified theoretical gap in the previous researcher's literature which needs to be closed.

The strategies and programs implemented by the national government to attain MDG and national objectives related to potable water supply in the Philippines are summarized in Table 2. Although all the strategies and programs, in one way or another, impact LSD of potable water, of special interest to the study are: strategy (c) that uses institutional strengthening as an approach for WSP improvement; and strategy (e), which aims to promote innovative schemes to finance LGUs in the conduct of their functions related to potable water provision. In the case of the programs, (a) is relevant to the study as it aims to provide potable water to local areas, including all barangays in the country, and 633 "waterless" communities outside Metro Manila, which could include some

barangays located in the study sites. Although the Philippines already has numerous laws, agencies, strategies, and programs in place for potable water as indicated above, the system of governance in this area at the national level is deemed weak and inadequate. Among the most important of the institutional problems being faced are listed below (PIDS-UNICEF, 2009). It would be interesting to know based on the results and findings of the study if the national problems and issues also exist at the study sites and what potential solutions can be considered to address them.

In his study, the previous researcher did not conceptualise these factors into manageable elements which can easily be understood by other researchers. Therefore, the current identified a conceptual or content gap which needs much attention.

2.5 Gaps Identified

The systems theory of Peter Senge, (1990), did not provide feasible strategies to ensure potable water supply. As the foregoing review reveals, capacity building as a factor that influences local government administration in Juba Payam has not been extensively tackled. A number of studies such as that of Altaf & Hughs, (2014); Brikke, (2015), have been done covering the subject of local government administration however, none of them has covered the aspect of promoting potable water supply through infrastructure development and urban planning, hence providing a content gap that this study covered. The gaps in the literature review were filled during field data collection, which was guided by the purpose and the objectives of the current study.

The previous researcher in his literature did not well exhaust the aspects on the state of potable water supply; identifying challenges facing potable water supply in Juba, Payam, South Sudan and factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan. This study closes this conceptual/content gap through exhausting the state of potable water supply; identifying challenges facing water supply in Juba, Payam, South Sudan and examining factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter covered the procedures and strategies used in collecting and analyzing data. The main sections discussed in this chapter include research design, target population, sample size, sampling procedure, data collection, research instruments and data procedure, data analyses.

3.1 Research design

The researcher used cross-sectional research design to assess the respondents' views towards local government administration and supply of potable water in Juba, Payam, South Sudan. Cross-sectional research design looks at a variable at a particular point in time and focuses on the relationship between variables at a specific point in time. Quantitative approach was used in this study in order to get a clear and in-depth insight into the subject matter. The researcher used this cross-sectional design because it is used to prove and/or disapprove assumptions and it is not costly to perform and does not require a lot of time.

3.2 Study population

According to The National Bureau of Statistics, South Sudan, the population of Juba Payam was 109,426 inhabitants in 2015. The target population of this study was 109,426 individuals in Juba Payam, South Sudan, distributed as follows: 57,041 males, 52,385 females, of those population, 842 Payam Local Government Officials, 4,769 Juba City Council staff, 5,610 Officials from Ministry of Water resources and Irrigation, Juba and the remaining 98,205 were residents of Payam. The researcher used Juba Payam, South Sudan because it had the required number of respondents to provide the researcher with required information.

3.3 Sample size

The sample size for this study was 399 respondents obtained from the target population of 109,426. This sample was arrived at using Sloven's formula of sample size determination which is stated as;

$$n = \frac{N}{1 + N(e)^2}$$

where, n=the sample required,

N=the target population

and e=the error which is 0.05

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{109,426}{1 + 109,426 (0.05)^2}$$

$$n = \frac{109,426}{1 + 109,426 \times 0.0025}$$

$$n = \frac{109,426}{1 + 273.565}$$

$$n = \frac{109,426}{274.565}$$

$$n = 399$$

Table 3.1: Target population and Sample size

Category	Target Population	Sample size	Sampling Techniques
Payam Local Government Officials	842	3	Purposive Sampling
Juba City Council staff	4,769	17	Purposive Sampling
Officials from Ministry of Water resources and Irrigation, Juba	5,610	21	Purposive Sampling
Juba Payam residents	98,205	358	Random Sampling
Total	109,426	399	

Source: National Bureau of Statistics, South Sudan, (2015)

3.4 Sampling methods

The researcher used varieties of sampling which included: Purposive, random and stratified sampling.

3.4.1 Purposive sampling

Purposive sampling involved selecting a certain number of respondents based on the nature of their work in relation to local government and potable water supply in Payam especially Payam Local Government Officials, Juba City Council staff and officials from Ministry of Water resources and Irrigation, Juba. In this sampling technique the researcher used an inclusion criterion to come up with the sample. In this inclusion criterion, the researcher could select only those cases with the required knowledge in potable water supply and then used in the study. This method was appropriate because the sample selected comprises of informed persons who provided data that was comprehensive enough to gain better insight into the problem.

3.4.2 Random sampling

Random sampling involved selecting respondents from the population listing by chance especially Payam residents. In this way, every member had an equal chance to be selected. The main disadvantage of this method is with the bias which it could diminish the integrity of random selection but this was overcome since the population listing involved only members with relevant information.

3.5 Data Sources

The research used both primary and secondary data.

3.5.1 Primary data sources

The researcher obtained primary data by use of questionnaires.

3.5.2 Secondary sources

The researcher also used data from reports and previous research work majorly from text books and internet. Secondary data was obtained from policy and published documents such as books, journals and governmental and organizational documents. Other information was obtained from the electronic sources such as the internet.

3.6 Data collection instruments

The data collection instruments in this study were basically questionnaires. Questionnaires are a set of printed questions addressed by the researcher to the respondent to answer and after answering return the questionnaires to the researcher. The questionnaires were administered personally by the researcher to the respondents and collected after time interval. The questionnaires comprised of closed ended questions that required the respondents to answer all the questions to the best of their knowledge. The questionnaires comprised of two parts, part 1 and part 2. Part 1 comprised of respondents' background information which was in terms of gender, qualification and age whereas part 2 comprised of the state of potable water supply, the factors influencing the roles of local government in supply of potable water and the challenges facing potable water supply in Juba Payam, South Sudan.

The questionnaires were used because they are cheap, quicker, they cover many respondents, and they are free from interview bias and give accurate information since respondents take their time to answer the questions. However, they have a disadvantage of non-despondence. The scoring system of this instrument was as follows: strongly agree (4); agree (3); disagree (2); strongly disagree (1).

3.7 Validity and reliability of the instrument

3.7.1 Validity of the instrument

Validity is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. The study tested three types of validity, face validity and content validity. Face validity was achieved with the guidance of experts in the field of management. The researcher worked hand in hand with his research supervisor to adjust the instruments accordingly. It also measured the content validity of the instruments. In order to test this content validity of the instruments, the researcher availed the questionnaire to two experts to check each item for language, clarity, relevance, and comprehensiveness of the content.

$$CVI = \frac{\text{Items declared valid}}{\text{Total number of items}}$$

For this study, the Content Validity Index, (CVI) was as follows:

There are 24 questions in my questionnaire 20 questions were declared valid.

$$\text{The CVI} = \frac{20}{24}$$

$$\text{CVI} = 0.833$$

Since the CVI of 0.833 is above 0.7, it is valid, (Amin, 2005).

3.7.2 Reliability of the instrument

To ensure the reliability of the instruments, the researcher used the test-retest method. The questionnaire was given to 10 people and after two weeks, the same questionnaire was given to the same people and the Cronbatch Alpha was computed using SPSS. The minimum Cronbatch Alpha coefficient of 0.853 was used to declare an instrument reliable (>0.75).

Reliability Statistics	
Cronbach's Alpha	N of Items
.853	24

The table above indicates that the questionnaire had 24 questions and the reliability statistics measured using SPSS is equal to 0.853 and therefore the instrument can be said to be reliable or having internal consistency.

3.9 Data analysis

The raw data obtained from questionnaires was cleaned by, sorting, coding and entered into Statistical Package for Social Scientists (SPSS) software package to generate descriptive statistics.

3.10 Ethical Consideration

To ensure confidentiality of the information provided by the respondents and to ascertain the practice of ethics in this study, the following activities were implemented by the researcher:

The researcher received a letter from Kampala International University Head of Department Humanities and Social Sciences addressing him to Juba County office to allow him to do research about local government administration and potable water supply in this area.

Data was presented in a general way to avoid anonymity

Authors quoted in this study are recognized through referencing

Presented the findings in a generalized manner.

3.11 Limitation of the study

In view of the following threats to validity, the researcher claimed as unallowable 5% margin of error at 0.05 level of significance. Measures were also indicated in order to minimize if not to eradicate the threats to the validity of the findings of this study.

Some respondents refused to take part in the study. However, the researcher managed to explain to them that the study was for academic purposes and this made them accept to take part in the study.

Most of the respondents in Juba Payam, South Sudan were too busy, so less time was posed to the researcher. The researcher requested them to spare some time to answer for him some questions.

Some respondents were hesitant to give information since it does not benefit them, thus they needed to have some funds committed to them. The researcher explained to the respondents how the work was to be of benefit to them for example useful to the local government authorities in South Sudan in improving potable water supply

The study was somehow costly where the researcher required an interpreter for the respondents from English to Arabic and required movements from the University to Juba Payam, South Sudan which is the area of the research study in South Sudan. The researcher got financial assistance from the family members and relatives that enabled him meet all the above costs.

Bad weather affected the researcher's collection of data for example the heavy rain could prevent him from going to the field to collect data and also poor transport systems affected the researcher during this study for example some places were too remote to reach as JUBA NA BARI, this increased the transport costs. The researcher adhered to the weather conditions and the transport systems and continued with his research study until data collection was completed.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.0 Introduction

This chapter contains detailed descriptive results obtained from the data analysis. It also focuses on the data presentation, interpretation and analysis in form of tables and figures.

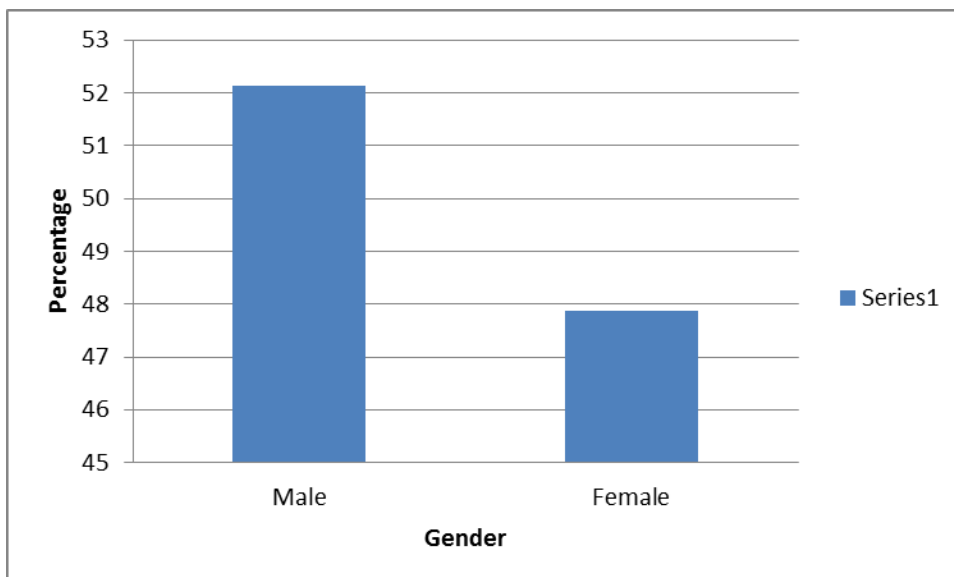
4.1 Demographic characteristics of the respondents

This part presents the background information of the respondents who participated in the study. The purpose of presenting the background information was to find out the demographic characteristics of the respondents.

4.1.1 Gender of respondents

The researcher was interested in finding out the gender of the respondents and this is indicated in the figure below;

Figure 4. 2.1: Gender distribution of respondents



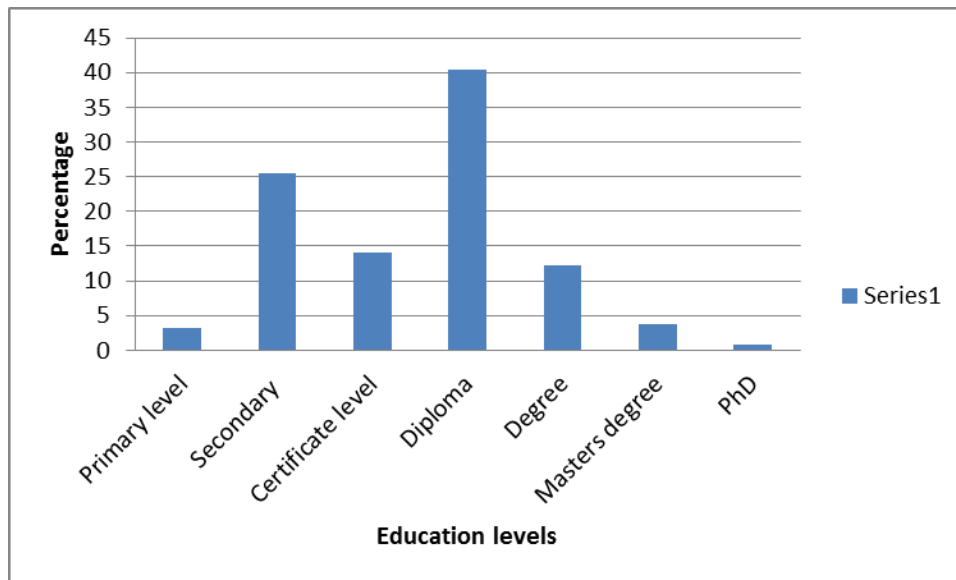
The study findings revealed that the majority of the respondents were male at 52.13% and remaining 47.87% were female. This implies that the majority was men due to societal beliefs that

men are more hardworking than their female counterparts and thus is more capable of handling issues regarding local government administration and potable water supply.

4.1.2 Education qualification of the Respondents in Juba Payam, South Sudan

Under this section, the researcher indicates different levels of education of respondents.

Figure 4.1.2: Level of Education of the Respondents in Juba Payam, South Sudan

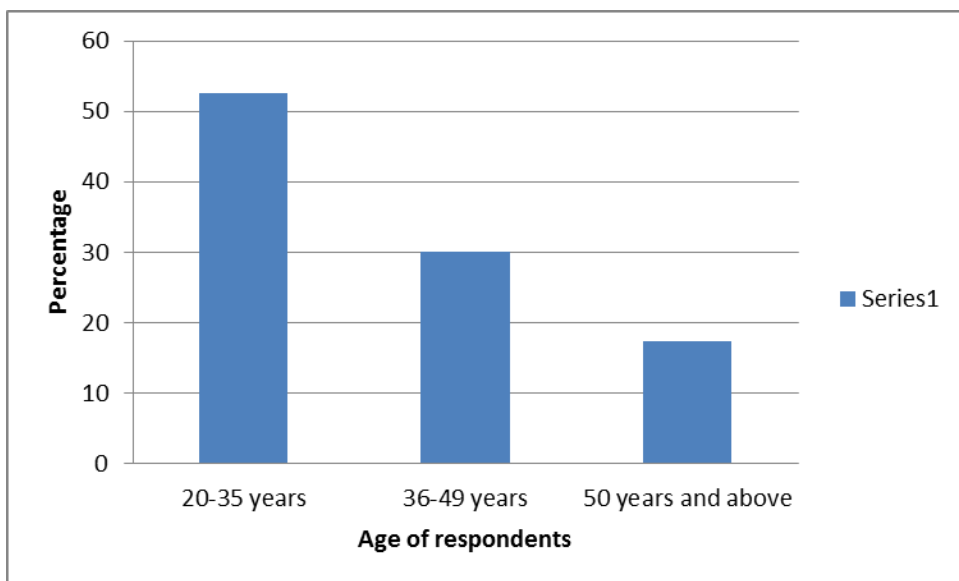


With respect to education level, 3.26% were at primary level, 25.56% were at secondary school level, 14.04% of the respondents were at certificate level, 40.35% of the respondents were at diploma level, 12.28% of the respondents were at degree level, 3.76% of the respondents were at Master's degree level and only 0.75% was PhD holders. The majorities of the respondents were diploma and of secondary level hence were informed about the subject matter.

4.1.3 Age distribution of the Respondents in Juba Payam, South Sudan

The researcher was also interested in finding out the age of respondents who took part in the study.

Figure 4.1.3: Age distribution of the Respondents in Juba Payam, South Sudan



As pertains to Age, most respondents in Juba Payam were between 20-35 years at who were 210 the same as 52.63% , followed by those 36-49 years who were 120(30.08%) and only 69 (17.29%) were of 50 years and above. This implies that most of the respondents were middle aged adults who were believed to have a fair understanding of what local government administration and potable water supply are about.

4.2 State of potable water supply in Juba Payam, South Sudan

Table 4. 2: State of the potable water supply in Juba Payam, South Sudan

Statements	Mean	Std	Interpretation	Rank
Some people buy water from vendors who use trucks to supply water to their customers	3.13	2.9	Satisfactory	1
There is increased use of unsafe water for drinking in Juba	2.81	2.2	Satisfactory	2
potable water supply to households has severely decreased in Juba	2.74	2.3	Satisfactory	3
The worsening water crisis has been fuelled in most parts of Juba due to the conflict and economic collapse	2.20	2.1	Unsatisfactory	4
Most Juba residents can access municipal water supplied mainly through a small piped network and boreholes	2.15	2.2	Unsatisfactory	5
There is an increase in water borne disease in Juba due to water scarcity	1.89	2.9	Unsatisfactory	6
Many communities in Juba still lack clean and safe drinking water	1.80	1.9	Unsatisfactory	7
Water scarcity contributes to the incidence of diarrhoea and to the spread of intestinal parasites in Juba	1.74	2.0	Very unsatisfactory	8
Average Mean	2.31		Unsatisfactory	

Source: Primary Data, (2018)

Mean range	Response range	Interpretation
3.26 - 4.00	strongly agree	Very satisfactory
2.51 - 3.25	agree	Satisfactory
1.76 - 2.50	disagree	Unsatisfactory
1.00 - 1.75	strongly disagree	Very unsatisfactory

The first objective was set to ascertain the state of the potable water supply. For this study, the state of the potable water supply was determined using eight indicators which the respondents were required to indicate the extent to which they preferred.

The average mean of 2.31 on the state of the potable water supply was un satisfactory meaning that it was poor; implying that a lot still needs to be done in order to improve on the state of potable water supply in Juba Payam, South Sudan.

Of the eight aspects of the state of the potable water supply, an aspect of some people buying water from vendors who use trucks to supply water to their customers was ranked highest at (a mean of 3.13, SD=2.9) ; It was followed by the aspect that there is increased use of unsafe water for drinking in Juba and was at (a mean of 2.81, SD=2.2) ; followed by the aspect that potable water supply to households has severely decreased in Juba at (a mean of 2.74, SD=2.3); all the three aspects were satisfactory.

The remaining aspects were unsatisfactory as follows; the worsening water crisis has been fuelled in most parts of Juba due to the conflict and economic collapse with (a mean of 2.20, SD=2.1) and was ranked the fourth; followed by the aspect that most Juba residents can access municipal water supplied mainly through a small piped network and boreholes with (a mean of 2.15, SD=2.2); followed by the aspect that there is an increase in water borne disease in Juba due to water scarcity with (a mean of 1.89, SD=2.9); followed by the aspect that Many communities in Juba still lack clean and safe drinking water with (a mean of 1.80, SD=1.9) and lastly the aspect that Water scarcity contributes to the incidence of diarrhoea and to the spread of intestinal parasites in Juba with (a mean of 1.74, SD=2.0) and was ranked the eighth.

4.3 Findings on challenges facing potable water supply in Juba Payam, South Sudan

Table 4. 2: Challenges facing potable water supply in Juba Payam, South Sudan

Statements	Mean	Std	Interpretation	Rank
Local government and communities are struggling to secure access to water resources for water supply	3.35	3.1	Very satisfactory	1
Conflicts between domestic water users and other sectors	3.30	2.9	Very satisfactory	2
Disposal of untreated wastewater generates huge pollution problems around urban areas	3.26	2.7	Very satisfactory	3
There is a challenge of lack of funding for infrastructure and emergency work to address hotspots and drought stricken towns	2.98	2.4	Satisfactory	4
There is also a challenge of lack of proper planning by the Water Service Authorities	2.81	2.2	Satisfactory	5
Lack of adequate donor funds and inadequate budgetary allocations have negatively affected the implementation of the reforms	2.74	2.5	Satisfactory	6
Delay in affecting the transfer plan of both capital assets and staff has negatively affected the smooth implementation of the water sector reforms	2.60	2.4	Satisfactory	7
Local government has continuously failed to effectively utilize assets	2.55	2.1	Satisfactory	8
Average Mean	2.95		Satisfactory	

Source: Primary Data, (2018)

The third objective was set to identify the challenges facing potable water supply. For this study, the challenges facing potable water supply was determined using eight indicators which the respondents were required to indicate the extent to which they preferred.

The average mean of 2.95 was satisfactory implying that these challenges highly influence potable water supply in Juba, Payam, South Sudan.

Of the eight indicators on the challenges facing potable water supply in Juba, Payam, South Sudan, the aspect that Local government and communities are struggling to secure access to water

resources for water supply was ranked highest with (a mean of 3.35, SD=3.1); this was followed by the challenge of conflicts between domestic water users and other sectors with (a mean of 3.30, SD=2.9); followed by the challenge of Disposal of untreated waste water generates huge pollution problems around urban areas; having (a mean of 3.26, SD=2.7). All the above three aspects on the challenges were very satisfactory, implying that the three factors very highly affects potable water supply in Juba, Payam South Sudan.

For the other remaining aspects or challenges facing potable water supply in Juba, Payam, South Sudan, the challenge of lack of funding for infrastructure and emergency work to address hotspots and drought stricken towns with (a mean of 2.98, SD=2.4), ranked highest followed by the challenge of lack of proper planning by the Water Service Authorities with (a mean of 2.81, SD=2.2); followed by the challenge of Lack of adequate donor funds and inadequate budgetary allocations have negatively affected the implementation of the reforms and this was indicated by (a mean of 2.74, SD=2.5); followed by the challenge that there was delay in affecting the transfer plan of both capital assets and staff has negatively affected the smooth implementation of the water sector reforms at a mean of 2.60, SD=2.4 and Lastly a challenge that local government has continuously failed to effectively utilize assets followed with (a mean of 2.55, SD=2.1). The above five challenges facing potable water supply fall under satisfactory, implying that a lot still needs to be done in order to improve on the quality of potable water supply in Juba Payam, South Sudan.

4.4 Findings on factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan

Table 4. 3: Factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan

Statements	Mean	Std	Interpretation	Rank
High levels of bureaucracy and political competition resulting to the delayed enactment of favorable water laws adversely influenced the implementation process of water projects by local government	3.33	1.9	Very satisfactory	1
Competition, mistrust and intentions to sabotage are the biggest threats to potable water supply	3.21	2.9	Satisfactory	2
Failure by departmental governments to meet their financial obligations in the potable water supply project adversely influences the completion of this project	3.12	2.3	Satisfactory	3
The existence of mistrust and competition between the central and local governments continues to be the biggest hurdle to the successful potable water supply	3.10	2.1	Satisfactory	4
Cordial relationship expedites the disbursements of sufficient funds and the exchange of qualified technical personnel for potable water supply project	2.80	2.2	Satisfactory	5
Low budgetary allocations and late disbursement to the local departmental governments derailed the implementation of potable water supply project	2.71	2.2	Satisfactory	6
Potable water supply project implemented by local councils that involved local communities exhibited high rates of completion and sustainability	2.21	2.9	Unsatisfactory	7
Political sabotage of the enactment process of water laws derailed water projects budgetary allocations negatively influencing the implementation of water projects	2.15	2.0	Unsatisfactory	8
Average Mean	2.83		Satisfactory	

Source: Primary Data, (2018)

Mean range	Response range	Interpretation
3.26 - 4.00	strongly agree	Very satisfactory
2.51 - 3.25	agree	Satisfactory
1.76 - 2.50	disagree	Unsatisfactory
1.00 - 1.75	strongly disagree	Very unsatisfactory

The second objective was set to find out the factors influencing the roles local government plays in potable water supply. For this study, the role of local government in potable water supply was determined using eight indicators which the respondents were required to indicate the extent to which they preferred.

The average mean of 2.83 on the factors influencing the roles local government plays in potable water supply was satisfactory, meaning that was fair; implying that the factors influencing the roles local government play in potable water supply are favorable. This implies that local government is instrumental in delivering of water services to the people in Juba Payam, South Sudan.

Of the eight indicators on the factors influencing the roles local government plays in potable water supply; the aspect that High levels of bureaucracy and political competition resulting into the delayed enactment of favorable water laws adversely influenced the implementation process of water projects by local government, and this was with (a mean of 3.33, SD=1.9) which was very satisfactory on the Likert Scale. It was followed by the aspect that low budgetary allocations and late disbursement to the local departmental governments delayed the implementation of potable water supply project with (a mean of 3.21, SD=2.9); followed by the aspect that failure by departmental governments to meet their financial obligations in the potable water supply project adversely influences the completion of this project followed at (a mean of 3.12, SD=2.3); followed by the aspect that the existence of mistrust and competition between the central and local governments continues to be the biggest hurdle to the successful potable water supply with a mean of 3.10, SD=2.1); followed by the aspect that Cordial relationship expedites the disbursements of sufficient funds and the exchange of qualified technical personnel for potable water supply project and this was with (a mean of 2.8, SD=2.2); followed by the aspect that Low budgetary allocations and late disbursement to the local departmental governments delayed the implementation of potable water supply project; this was with a mean of 2.71, SD=2.2. All the five aspects on the factors influencing the roles local government plays in potable water supply were satisfactory, implying that they were fairly done.

The last two aspects were unsatisfactory; implying that they were unfair for example, the aspect that Competition, mistrust and intentions to sabotage are the biggest threats to potable water supply with (a mean of 2.21, SD=2.9) and lastly the aspect that political sabotage of the enactment process of water laws delayed water projects budgetary allocations negatively influencing the implementation of water projects with (a mean of 2.15, SD=2.0).

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this last chapter of the thesis, a summary of findings is provided, conclusions are drawn and recommendations made based on the findings of the study. The section begins with a summary of the findings of this study.

5.1 Discussion of findings

5.1.1 State of supply of potable water in Juba Payam, South Sudan

The study found out that the state of potable water supply to households in Juba Payam is unsatisfactory to the Juba Payam residents and has severely decreased. This is in line with Caroline Mascarell (2015) who noted that some buy water from vendors who use trucks to supply water to their customers. Also, only 13 per cent of Juba residents can access municipal water supplied mainly through a small piped network, boreholes and a single public water filling station on the river bank. Lack of sanitation, and particularly open defecation, contributes to the incidence of diarrhoea and to the spread of intestinal parasites, which in turn aggravates malnutrition and increases the risk of diseases like Cholera especially for children less than five years (Greenhill & Wekiya, 2014).

The finding is in line with Samad (2015) who noted that South Sudan is a country in crisis-violence has displaced millions of people; a food crisis has left parts of the country in famine; and a deteriorating economy has left many families with no means to support themselves. The worsening water crisis, fuelled, in part by the conflict and economic collapse, is just one more challenge families in Juba have to face on a daily basis. Orodho, (2013) who noted that some of the key local government roles and responsibilities in water management and planning included provision of safe drinking water in accordance with the Public Health Act.

Eric (2013) noted that access to safe water, adequate sanitation and hygiene promotion are all equally important; a combination of these elements are required to maintain and improve health and dignity. To prevent the spread of water-borne diseases and help improve hygiene and

sanitation standards, a number of organizations in South Sudan are working on rebuilding and rehabilitating boreholes as well as larger water points.

Several residents in the South Sudanese capital admitted that access to adequate sanitation and improved hygiene practices is challenging to achieve since it requires change in behavior, especially among those in most need (George, 2012).

5.1.2 Challenges facing potable water supply in Juba Payam, South Sudan

It was found out that local government administration of Juba Payam has so far failed to address the challenges facing potable water supply, communities are still struggling to secure access to water resources and disposal of untreated wastewater generates huge pollution problems around urban areas. This is in line with Wilfrido & Barreiro (2013) who noted that specific challenges related to refurbishment of treatment plants and lack of funding for infrastructure and emergency work to address hotspots and drought stricken towns, as well as lack of proper planning by the Water Service Authorities. Altaf and Hughs (2014) also noted that with lack of adequate donor funds and inadequate budgetary allocations have negatively affected the implementation of the reforms because capital intensive water infrastructure developments have not been erected to serve the increasing population in the boarder area. This has therefore greatly adversely affected the successful implementation in the Tana water services board area of jurisdiction.

Okuni and Rockhold (2015) point out that in order to ensure sustainability of water facilities attention should be paid on hygiene practices. The involvement of water users in hygiene and sanitation training is of importance as they will appreciate the need for hygiene and sanitation in the potable water supply. Hygiene education helps communities appreciate the importance of facilities developed (Water and sanitation sector report, 2013). A community wishing to have improved water source must contribute money or materials. The community must prepare the site by clearing the site and the way to provide access route to the place, make it mandatory that the private contractor hires workers from the community, the community should monitor and follow up the construction work (Abraham, 2014).

According to Esrey (2013), one of the main reasons for investing in water and sanitation programs is to reduce the incidences of water related diseases especially diarrhea, skin and eye diseases. The

local leaders and the water user committees should call for village meetings to participate basing on the knowledge of the professionals and their own experience and make an assessment of the current status of their water and sanitation. Involvement of the community in project activities makes the use of the demand response approach in revealing the need of the community (Abraham, 2014). The mechanism for interrupting disease transmission and improving people's health include; provision of safe water, increasing water consumption, improving domestic hygiene practices and safe disposal of human feaces (Esrey, 2013).

5.1.3 Factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan

The study found out that the local government administration of Juba Payam has played unsatisfactory role on potable water supply to the citizens due to factors such as poor community participation, limited finance resources, poor intergovernmental relations, and poor political goodwill. This is line with Kwame Asante, Joseph (2014) suggested that back-up support to communities who are managing the services on their own is vital where community-management is the most appropriate service provision modality and in many instances, the primary actor responsible for long-term support will be the local government. Samad (2015) argued that local governments have contributed to water management planning across the province by initiating, managing and participating in various activities related to water management and planning. Samad (2015) noted that the local governments have contributed to water management planning across the province by initiating, managing and participating in various activities related to water management and planning, including: developing water conservation plans and drought management plans; participating in or leading multi-sector water planning initiatives; developing floodplain management plans and strategies; developing liquid waste management plans and integrated storm water management plans; developing integrated watershed management plans.

5.2 Conclusion

5.2.1 State of potable water supply in Juba Payam, South Sudan

The study concludes that the state of potable water supply is poor, hence forcing majority of people to use water from poor water sources, such as a hand pump, un protected well and piped water supply. Even sections of the population with access to improved water sources often do not receive safe water while those without access to an improved water source often fetch water from rivers, ponds or open wells.

5.2.2 Challenges facing potable water supply in Juba Payam, South Sudan

The study concludes that the people in Juba Payam communities are struggling to secure access to water resources. The boom in groundwater extraction for agriculture has led to many drinking water wells to dry up. The local government has failed to address the challenge whereby disposal of untreated wastewater generates huge pollution problems around urban areas. Environmental authorities are often not able to hold local government accountable for wastewater management. Increasingly, farmers are starting to use this wastewater for agriculture, for example in South Sudan

5.2.3 Factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan

The study concludes that the local government plays an instrumental role in providing potable water supply in Juba Payam, South Sudan because it creates avenues for the community to provide labor, raw materials and also demand for transparency in funds management as regards to water supply.

5.3 Recommendations

5.3.1 State of potable water supply in Juba Payam, South Sudan

The study recommends to the local government administration of Juba Payam to come up with well-structured and working water institutions to ensure that at all time there is in every area a person and institution providing water supply to the citizens at fair tariffs. All surface and ground waters should belong to the state and that all the citizens must have water for primary use and that the water must be beneficiary used for the good of all citizens. The government recommended also that water should be treated as an economic good.

5.3.2 Challenges facing potable water supply in Juba Payam, South Sudan

The local government of Juba Payam should involve all key water sector private contractors to manage all public water utility systems. The private companies should therefore be given various responsibilities like billing, leak detection, design and construction under different forms of contracts, and all water management should all be made under the sanction of a legal framework that entitles all citizens to a basic water requirement.

5.3.3 Factors that influence the roles of local government in potable water supply in Juba Payam, South Sudan

The study recommends to the local government administration of Juba Payam to put in place efficient and well structured institutions to carry out reforms as a team and within a short period so that the reforms are finalized for the citizens to drink and access adequate and quality water. The water services trust fund, an organization mandated with mobilizing funds for carrying the reforms be strengthened and supported by the parent ministry of water so that the financial base is boosted. The study recommended an optimal integration of the water resources management in the country so that all the citizens have adequate water.

5.4 Contribution to the Knowledge

The findings of this study contribute to knowledge in the following ways:

It closes the theoretical gap which was identified in the previous researchers' literature; this will be because the researcher used a good theory that well explained about local government administration and potable water supply in Juba, Payam, South Sudan.

It closes the content gap that was also identified in the previous researchers' literature through exhausting the state of potable water supply in Juba, Payam South Sudan; factors influencing the roles local government plays in potable water supply; and identifying challenges facing potable water supply in Juba, Payam, South Sudan.

The findings of this study is useful to the local government authorities in South Sudan on how to improve on potable water supply

The findings of this study will also be useful to the people of Juba, Payam, South Sudan since it will lead to an improved potable water supply resources

5.5 Areas of further research

More research needs to be done on the following areas;

- The impact of decentralization on water service delivery
- Community participation and water service delivery

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APPENDICES

APPENDIX I: QUESTIONNAIRE

Dear Sir/ Madam

I am by the names of **THOMAS TOMBE MORBE, 1161-06266-04206**, a student from Kampala International University pursuing a Masters Degree in Public Administration and Management, carrying out a study on “**Local government administration and potable water supply in Juba, Payam, South Sudan**”. I am very glad that you are my respondent for this study. The purpose of this questionnaire is to obtain your opinion/views to be included among others in the study. This research is one of the requirements leading to the award of a Master’s Degree in Public Administration and Management. It is hence an academic research and will not be used for any other purpose other than academic. Your co-operation and answers to these questions heartily and honestly will be significant to this study to gather the data needed. Thank you in advance for your cooperation.

PART 1: RESPONDENT’S PROFILE

Gender _____

1.Male

2.Female

Qualification _____

1.Primary level

2.Secondary

3.Certificate level

4.Diploma

5.Degree

6.Master’s degree

Age _____

1.20-35 years

2.36-49 years

3.50 and above years

Direction 1: Please write your rating on the space before each option which corresponds to your best choice in terms of level of motivation. Kindly use the scoring system below:

Score	Response Mode	Description	Interpretation
4	Strongly Agree	You agree with no doubt at all	Very satisfactory
3	Agree	You agree with some doubt	Satisfactory
2	Disagree	You disagree with some doubt	Fair
1	Strongly Disagree	You disagree with no doubt at all	Poor

PART 2: LOCAL GOVERNMENT ADMINISTRATION AND POTABLE WATER SUPPLY

	State of the potable water supply	1	2	3	4
1	Some people buy water from vendors who use trucks to supply water to their customers				
2	There is increased use of unsafe water for drinking in Juba				
3	Potable water supply to households has severely decreased in Juba				
4	The worsening water crisis has been fuelled in most parts of Juba due to the conflict and economic collapse				
5	Most Juba residents can access municipal water supplied mainly through a small piped network and boreholes				
6	There is an increase in water borne disease in Juba due to water scarcity				
7	Many communities in Juba still lack clean and safe drinking water				
8	Water scarcity contributes to the incidence of diarrhoea and to the spread of intestinal parasites in Juba				

	Factors influencing the roles local government plays in potable water supply	1	2	3	4
1	Potable water supply project implemented by local councils that involved local communities exhibited high rates of completion and sustainability				
2	Low budgetary allocations and late disbursement to the local departmental governments delayed the implementation of potable water supply project				
3	Failure by departmental governments to meet their financial obligations in the potable water supply project adversely influences the completion of this project				
4	The existence of mistrust and competition between the central and local governments continues to be the biggest hurdle to the successful potable water supply				
5	Cordial relationship expedites the disbursements of sufficient funds and the exchange of qualified technical personnel for potable water supply project				
6	Competition, mistrust and intentions to sabotage are the biggest threats to potable water supply				
7	High levels of bureaucracy and political competition resulting to the delayed enactment of favourable water laws adversely influenced the implementation process of water projects by local government				
8	Political sabotage of the enactment process of water laws derailed water projects budgetary allocations negatively influencing the implementation of water projects				

	Challenges facing potable water supply	1	2	3	4
1	Local government and communities are struggling to secure access to water resources for water supply				
2	Conflicts between domestic water users and other sectors				
3	Disposal of untreated wastewater generates huge pollution problems around urban areas				
4	There is a challenge of lack of funding for infrastructure and emergency work to address hotspots and drought stricken towns				
5	There is also a challenge of lack of proper planning by the Water Service Authorities				
6	Lack of adequate donor funds and inadequate budgetary allocations have negatively affected the implementation of the reforms				
7	Delay in affecting the transfer plan of both capital assets and staff has negatively affected the smooth implementation of the water sector reforms				
8	Local government has continuously failed to effectively utilize assets				

Thanks for your responses

END

APPENDIX II

LETTER OF TRANSMISAL FROM THE COLLEGE OF HUMANITIES AND SOCIAL SCIENCES



**KAMPALA
INTERNATIONAL
UNIVERSITY**

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COLLEGE OF HUMANITIES AND SOCIAL SCIENCES OFFICE OF THE PRINCIPAL

Our Ref: 1161-06266-04206

24th August, 2017

Dear Sir / Madam,

Re: Letter of Introduction for Thomas Tombe Morbe Reg. No. 1161-06266-04206

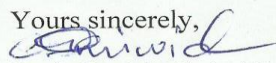
The above mentioned candidate is a student of Kampala International University pursuing a Masters Degree in Public Administration.

He is currently conducting a research for his dissertation titled, "*Local Government Administration and Delivery of Water Service in Juba Payan, South Sudan.*"

Your organization has been identified as a valuable source of information pertaining to the research subject of interest. The purpose of this letter then is to request you to kindly cooperate and avail the researcher with the pertinent information he may need. It is our ardent belief that the findings from this research will benefit KIU and your organization.

Any information shared with the researcher will be used for academic purposes only and be kept with utmost confidentiality.

I appreciate any assistance rendered to the researcher.

Yours sincerely,

Prof. Oyetola Oniwide

Principal, CHSS

