WATER AVAILABILITY AND HOUSEHOLD SANITATION AND HYGIENE: CASE STUDY OF KOBOKO TOWN COUNCIL, KOBOKO DISTRICT NOTHERN UGANDA

BY:
ANNA MUSTAFA
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A DISSERTATION SUBMITTED TO THE DEPARTMENT OF BIOLOGICAL AND ENVIRONMENTAL SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL MANAGEMENT OF KAMPALA INTERNATIONAL UNIVERSITY

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DECLARATION

I Anna Mustafa do declare that this report on "Water Availability and Household Sanitation and Hygiene" in Koboko Town Council, Koboko District, Uganda, is my original work and has never been submitted to any other institution for any form of award whatsoever.

STUDENT

NAME: ANNA MUSTAFA

SIGNATURE: .....

DATE: 17/09/2013

APPROVAL

This is to certify that the research report entitled "Water Availability and Household Sanitation and Hygiene" carried out in Koboko Town Council, Koboko District, has been under my supervision and is due for submission for examination.

SUPERVISOR

NAME: **Mr. Omuna Daniel**

SIGNATURE: .....

DATE: 09/09/2013

DEDICATION

This piece of work is a dedication to my parents Mr and Mrs Hellen Dusman Mustafa for the financial support and parental guidance in my academic life.

ACKNOWLEDGEMENT

First and foremost, I thank God for the gift of life and for his endless provision all through my academic life.

I am indebted to my supervisor Mr.Omuna Daniel, I appreciate your endless effort and tireless guidance in the conducting of this study, without you I would not have managed. Not forgetting the entire staff under the faculty of Engineering and Applied Economics for the great academic support which cannot be underestimated.

I wish to thank my entire family, particularly my mother Hellen and my dad Mustafa Menge, thanks for your love, care and support rendered. To my sisters Tumula, Leila you were such a comfort and to my brothers great thanks for your patience.

Special appreciation goes to the entire Biological and Environmental class and to my friends Amesio mercy, Baaityo Ann, Lomoro Charles you will always be remembered for the encouragement and academic support you rendered me.

Last but not least, I appreciate all my respondents for their material contribution in this study, without you all, this would not be an easy task.
May God Bless you all.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ACRONYMS

APWO:	Association of Private Water Operators
CDC:	Center for Disease Control
DWD:	Department of Workforce Development
EAP:	Expert Advisory Panel
GOU:	Government of Uganda
IIED:	International Institute for Environment and Development
IWA:	International Water Aid
JPF:	Joint Partnership Fund
JWSSPS:	Joint Water Supply and Sanitation Programme Support
MDG:	Millennium Development Goal
MFPED:	Ministry of Finance Planning and Economic Development
MWE:	Ministry of Water and Environment
ODA:	Official Development Aid
PEAP:	Poverty Eradication Action Plan
RWSH:	Rural Water, Sanitation and hygiene
UNHCR:	United Nations High Commissioner for Refugees
UNICEF:	United Nations Children's Education Fund
UWSD:	Under Water Seal Drain
WHO:	World Health Organization
WWAP:	World Water Assessment Programme

ABSTRACT

The research on "Water Availability and Household Sanitation and Hygiene"" was carried out in Koboko Town Council, Koboko District with specifically on finding out the available water sources; examine the level of accessibility of the available water sources; examine the extent to which accessibility of the water sources influences household sanitation and hygiene; and assess the level of success of town council authorities in improving household sanitation and hygiene by improving access to safe water

The sample was selected purposively where the people most affected by water shortages in households, particularly the women were of significant importance. Purposive sampling was administered on the community members and leaders because they experience the sanitation and hygiene problems in case of water shortages.

Stratified sampling was applied on the district water board employees and health personnel who were purposely selected because they work in the study area and thus had vital knowledge about the subject under study and thus satisfied the strata. During the study, the researcher took into consideration the different attributes of respondents such as age and sex and procedure therefore was based on demographic characteristics of the study respondents. A sample of 60 respondents was used in the study. It cut across the different ages and sex groups of the population, and it involved 20 men, 30 women, 4 Health personnel, and 6 members from Town Council water board and Water Aid Project.

The data collected during the study was obtained through use of self administered, interviews and observations. Both close and open ended questionnaires were given to a cross section of respondents to aid and facilitate comprehensive data collection. This instrument helped in generating quantitative data. It was also selected because of its ability to minimize biased and unwarranted responses yet provided a lot of information and freedom to the respondents to exercise their independence in providing data.

The study was both quantitatively and qualitatively designed through use of questionnaire and interview guide as study instrument administered on 60 respondents from camps

It was established that the water sources available in Koboko town council included; boreholes, spring wells, gravity fed supply water, swamp water and piped water. The level of accessibility was found to be restricted by distance and cost of collection, poor storage facilities, poor planning, low measures taken in promoting water access and biased considerations.

The study revel that household hygiene and sanitation was affected due to poor access of the available water sources in the following ways; it leads to spread of communicable disease, poor access to other services, economic stagnation and loss of lives.

The access and distance of collecting water or water points is an important concern, as this reduces the number of times for recollection. Reflecting on these assertions, it can therefore be submitted that distance and cost of collection minimize the ability of households to access water, and by using water sparingly household sanitation and hygiene is affected.

I could recommend that the town authorities need to put more efforts to promote a better ways of constructing proper layout water points, synthesizing existing knowledge and drawing inclusive programs in improving access to the available water sources (piped water supply, borehole, lakes and rivers, gravity flow schemes, dams and intakes) it can be easy for the households to improve their sanitation and hygiene to lead healthy livelihood

The town council authorities have also play an important role in improving safe water access to promote household hygiene through soliciting for donor support, focusing on meeting priority water needs, decentralizing water management issues and improved planning for water source maintenance as well attempting to evenly distribute the water sources for household consumption.

CHAPTER ONE
INTRODUCTION

1.0 Introduction

This chapter covers the background of the study, problem statement, purpose of the study, specific objectives, significance of the study, scope of the study and definition of concepts concerned with the water availability and household sanitation and hygiene.

1.1 Background of the Study

1.1.1 Historically Background

According to Pilgrim (2007), towns and cities have rapidly been expanding with 50% of the worldwide population now living in urban areas since the 18th Century, with a rural urban shift more extreme in the developing world. This has seen the current situation change the pattern of events, for every large town there are an estimated ten small towns and these towns are expected to keep doubling within every next 15 years given the population growth. Whilst this has been recognized for small towns, there is a challenge in defining and understanding this population and its inability to access water. In some countries towns, particularly small ones have been classified as those with a population of between 5,000 and 20,000, whereas in others, it may be up to 80,000 or even 200,000. This difference poses a significant challenge for the design of appropriate and sustainable water for household sanitation and hygiene services. This is because a solution which satisfies the water concerns for a town with a population of 20,000 will be vastly different to a solution which addresses a water problem in a town of 200,000 (Clasen and Bastable, 2003). Such situations have raised a concern of many in the global context.

According to UWSD (2008), it is noted that in April 1999 Government of Uganda directed the Ministry of Water Lands and Environment, to design a Water and Sanitation Sector Reform Strategy. The primary goal of the water sector reform was geared towards the provision of water and sanitation services in a cost-effective, efficient, equitable and sustainable manner. The Ministry, through the Directorate of Water Development as the lead Government Agency for Water Sector and in consultation with Line Ministries, local governments and Development Partners undertook water sector reform studies under four components comprising of Rural

Water Supply and Sanitation; Urban Water Supply and Sanitation; Water for Production; and Water Resources Management. However, with all these efforts and plans underway, the country still experiences gross household sanitation and hygiene problems resulting from water shortages and poor access (UWSD, 2008).

This has been followed by a dropping budget for each successive financial year as experienced from 2004/05 with 157.75 billion Uganda shillings to 156.4 in the year 2005/6, while the year 2006/7 saw a budget provision of 142.86, the year 2007/8 was accorded with 112.1 billion Uganda shillings, with only 106.31 for the year 2008/9. The GoU with support from development partners has been able to increase access to safe rural water supply from18% (1990), 47% (1999) to 63% by 2006/7 and access to sanitary excreta disposal has also increased to about 59% by 2006/7, which still remains very low(UWSD, 2008). Why the trend in successive changes in the water budget would continue to fall while most of the marginalized households are still unable to access safe water, remains a question of concern.

1.1.2 Theoretical Background

Sanitation and hygiene are great factors that affect the health standards of the people and thus a great determinant of their economic wellbeing as a healthy mind lives in a healthy body. A community that is characterized by poor sanitation and hygiene contributes significantly towards the spread of diseases such as cholera diarrhea, dysentery escalating the high mortality and mobility rates especially if water remains highly inaccessible. Sanitation and hygiene therefore focuses on basic aspects of safe water supply, safe waste disposal in form of latrines and garbage treatment and proper food material handling and storage an aspect of which water remains influential (WHO, 2005). However, with rapidly increasing populations, increasing migrations from rural to urban areas, and the feminization of the rural economy significantly changing the rural context, the water problem is increasingly experienced by households. This new rurality is also affected by external shocks such as the effects of climate change and globally interdependent markets. Such changes augment the vulnerability of many poor rural people and demand innovative approaches to the provision of Rural Water, Sanitation and hygiene (RWSH) as reflected from WWAP report (2006).

1.1.3 Conceptual Background

Conceptually, water is an important aspect in all households around the world. Different types of water sources play a crucial role in improving and maintaining hygiene and sanitation levels for households. A safe and sustainable water supply, basic sanitation and good hygiene are fundamental for a healthy, productive and dignified life. And yet many of the world's poor rural people lack access to an improved water supply(900 million) and improved sanitation facilities (2 billion) (Joint Monitoring Programme for Water and Sanitation, 2006). Progress towards the United Nations Millennium Development Goal 7 for water and sanitation is particularly poor in sub-Saharan Africa.

According to Cardone (2006), sanitation is a great factor that determines the health of people and their economic well being. According to Danert et al (2003), sanitation has a critical relationship between ones Education and the contribution towards proper sanitation.

1.1.4 Contextual Background

Globally, sanitation and hygiene have proved to be at the forefront of government policies. The increasing densities of people in search for employment have put great strides towards affecting the general standards of sanitation and hygiene. Both the planning and undertaking of comprehensive research on water, sanitation and hygiene promotion issues among populations has remained a challenge.

According to Shaffer (2000), the health assembly of WHO and the Executive Board of the United Nations Immunization and Children Education Fund (UNICEF) on studying successful health systems from different countries came up with objectives to promote the concept of sanitation and hygiene in all countries in addition to exchanging experience and information through streamlined policies that promote sanitation and a healthy environment. This would be done by development of sanitation and hygiene within a framework work of comprehensive national health systems and services with evaluation of accessibility to safe water supply and health care situations throughout the world. This concern reflects that on a global scale, water problem not being a new phenomenon, similarly households are affected worldwide.

In Uganda today, parallels are clearly observed especially in rural settings. One of the most worrying factors today is that the increasing insufficiencies in water supply is affecting the household sanitation and hygiene levels and leading to health consequences to families which has increased health cost needs thereby impacting a great burden onto households. The Uganda population is currently estimated at 30 million, of which only 13% live in the urban areas and the rest (87%) live in rural areas sub-divided into Rural Growth Centers (1500-5000 people) and scattered homesteads (< 1500 people). Access to clean and safe water and improved sanitation facilities and practices lead to improved health and are essential investments in human capital. Poor sanitation and hygiene area growing source of public concern in Uganda with a low rate of safe water flows and high rate of unsafe water flows characterized by lack of toilets, poor sewage disposals and dumping facilities. This has been reflected in sanitation and hygiene related diseases such as cholera, typhoid and diarrhea.

Koboko District, just like any other region in Uganda experiences low access to available water sources which affects the hygiene and sanitation levels of communities. The district has a total of 559 domestic water points at a functionality rate of is 80 % and 75 % respectively for urban and rural areas with the non functional ones, seemingly abandoned for over 6 years. Moreover only 59% of the population is able to access safe water of which only 26% of Koboko Town Council residents are able to access safe water. The insufficient water supply has posed to be a great challenge to the hygiene and sanitation of households in entire community of Koboko Town Council (Global Water Intelligence, 2010). Due to this background and setting the research was conducted in Koboko District, particularly Koboko Town Council to examine the availability of water and household sanitation and hygiene.

1.1 Statement of the Problem

It is imperative to state that there is a mutual relationship between water availability and household sanitation and hygiene. This connection has evoked involvedness of many because it has not been clearly defined. Much as international, national and regional initiatives have been drawn for intervention, little success has been met. Much as the ministry of health and the Water

Aid Project have incurred effort to ensure that sanitation and hygiene is maintained, there are still several challenges that have resulted into severe health consequences for households like cholera, typhoid and diarrhea. This is mainly attributed to inadequate water supply, poor technological levels coupled with low knowledge about the impact of water shortages on primary health care, poorly maintained sanitation facilities such as garbage bins and toilets in the face of a high population growth rate. Because of this, there is still an unmet need for proper sanitation and hygiene which calls for further sensitization of the people. The study therefore sought to understand the impact of water shortage on household sanitation and hygiene in the community of Koboko Town Council, Koboko District.

1.2 Objectives of the Study

1.2.1 General Objective

To establish the impact of scarcity of water on household sanitation and hygiene in Koboko Town Council, Koboko District.

1.2.2 Specific Objectives

) To identify the available water sources in Koboko Town Council.

i) To find out the level of accessibility of the available water sources, in Koboko Town Council.

ii) To examine the extent to which accessibility of the water sources influences household sanitation and hygiene in Koboko Town Council.

v) To assess the level of success of the town council and district authorities in improving household sanitation and hygiene by improving access to safe water.

1.3 Research Questions

) What are the sources of water in Koboko Town Council?

i) How accessible are the available water resources?

ii) How does accessibility of water influence household sanitation and hygiene in Koboko Town council?

v) How successful is the town council and district authorities in improving household sanitation and hygiene in Koboko Town Council by improving access to safe water?

1.4 Scope of the Study

1.4.1 Geographical Scope

The study was conducted in Koboko Town Council. The Town Council is located in Koboko District in the North Western part of Northern Uganda. The town council has a total population of approximately 29,727 people as per the 2002 housing population census with a composition of 14,620 males and a female composition of 15,107 under 4,798 households with an average household size of 6.1.

1.4.2 Content Scope

The study examined the consequences of water shortages on household sanitation and hygiene. It was limited to the available water sources and their accessibility to be able to examine the extent to which water accessibility influences household sanitation and hygiene. This helped in understanding the level of achievement of the authorities in addressing the issue of water access in improving household sanitation and hygiene in Koboko Town Council.

1.4.3 Time Scope

The study covered a period of three months because of the work activities that were carried out. It was carried out from February 2013 to April 2013.

1.5 Significance of the Study

It is expected that the study may contribute substantial awareness on the effects of water shortages by providing useful information to concerned Non Government Organizations, (both local and international) as well as government agencies and the entire community and households at large on issues concerning water and household sanitation and hygiene.

The study will help in identifying appropriate means of getting an immediate solution to water shortages to improve household sanitation and hygiene.

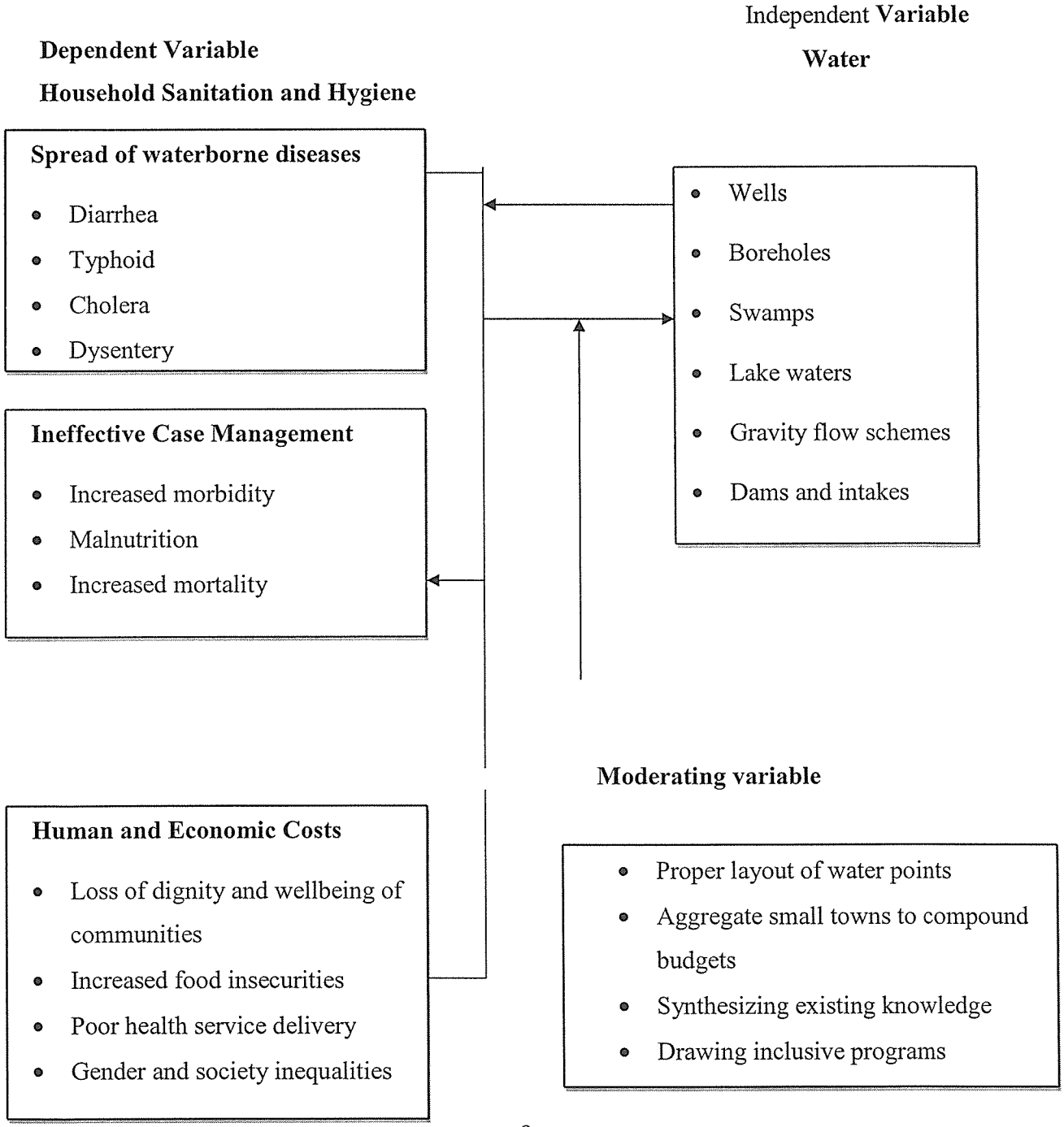
The study may be used as a foundation for future research as well as helping to narrow the gap about the water and household sanitation and hygiene related issues.

The study will contribute towards health improvement in Uganda in terms of improved water availability to uphold values of sanitation and hygiene among families.

1.6 Conceptual Framework

The conceptual framework diagrammatically shows the relationship between the different variables in the study. The independent variable was perceived water sources while household sanitation and hygiene are perceived as the dependent variables. More so, the researcher identified the extraneous that also affected the outcome of the study.

Figure1.1: Conceptual Framework



The level of availability of water if scarce may impact on household sanitation and hygiene in various ways leading to diseases such as cholera, typhoid and dysentery in addition to food insecurities and poor health care services, loss of dignity as well as gender and social inequalities. However if effort is undertaken to promote construction of proper layout water points, synthesizing existing knowledge and drawing inclusive programs in improving access to the available water sources (piped water supply, borehole, lakes and rivers, gravity flow schemes, dams and intakes) it can be easy households to improve their sanitation and hygiene to lead healthy livelihoods.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

The study reviewed literature from various scholars on the major variables of the study which included; finding out the available water sources; examining the accessibility of the available water sources; examining the how accessibility of water sources influences household sanitation and hygiene and assessing the level of achievement of authorities in improving household sanitation and hygiene by improving access to safe water.

2.1 Available Water Resources

Much as Uganda is said to have more than enough freshwater with estimates of 66 km^3 of renewable water resources per year, which correspond to approximately 2,800m^3 per person a year, communities in Uganda still suffer from water shortages. This is because the distribution of the resource (water) is uneven both in spatial and temporal terms in addition to freshwater being increasingly exploited through population growth, urbanization, agriculture, and industrialization. The Sources of water in Uganda include the following;

2.1.1 Rivers, Lakes

The rivers, lakes and wetlands cover about 18% of Uganda's total surface with rainfall contributing to most of the country's surface and ground water. The average annual rainfall ranges from 900mm in the semi-arid areas of to 2000mm. However, this is with a lack of ground water recharge assessments in the case of Uganda, thus the potential ground water remains unknown (DWD, 2002).

2.1.2 Piped Water

With piped water, a pipeline from the intake to the storage tank must be surveyed and a drawing made of the optimum hydraulic gradient line, in order to determine the pipe size needed to deliver the design flow. In rocky areas the pipeline will probably be laid above ground and will be galvanized mild steel tubing, anchored on saddles. Elsewhere, the pipeline will be laid in trenches, to protect it from damage, and will usually be plastic pipe (Cardone, 2006). To reduce

operating pressures, it is sometimes necessary to introduce break-pressure tanks, which are usually made of concrete or ferro-cement. If such tanks are used, the hydraulic gradient starts again at tank water level. If suitably sized, these tanks can be used within the system as storage tanks to meet peak demand (Doe, 2003). Storage tanks are usually constructed within the system to provide a total volume of storage equivalent to one day's consumption.

The tanks may also be sited so as either to limit the maximum pressure in distribution pipelines or to sustain a pressure of at least 3 metres head at each tapstand whilst meeting the peak demands in the morning and evening. The materials used to construct them include; masonry; reinforced concrete, concrete block work, ferrocement, galvanized mild steel and GRP panels. In flat areas, tanks may have to be elevated on blockwork support structures. Tanks are roofed and, typically, are provided with a float- controlled inlet valve, twin outlet pipes with stop valves, a scour pipe at low level for emptying and cleaning out, and an overflow pipe led well away from the tank. The roof of the tank should have a sealed access manhole, and ventilators, covered in mesh fly screen, to allow air to be exhausted or admitted air when raising or lowering the water level in the tank (IIED, 2003). A distribution system of small diameter MPDE pipes, laid in trenches, feeds tapstands around the village. Each tapstand should serve about 150 people and should be positioned so as to reduce uniformly the maximum distance people have to carry water (Pilgrim, 2007).

The total capital expenditure to meet MDG targets over a twelve year period to 2015 was estimated by the Urban Reform Strategy and Investment Plan 2003 to be US $ 380 million, including cost for expansion and rehabilitation. The investment needed up to the year 2015 is dependent on population, level of service and investment efficiencies with average annual capital expenditure for the base scenario estimated at about $30 million. In urban sub-sector reform strategy and investment plan, computation of investment requirements for water supply was based on the following considerations: A basic service to provide piped water to 80% of the urban population with the remaining 20% being served by point sources. (40% private connection and 40% public stand posts).

2.1.3 Borehole Water

Community wide improvements require community wide based solutions. For such reasons boreholes are dug to draw water from ground water which emerges from aquifers at natural springs or others are simply drilled through bedrock with the same heavy machinery used in the mining and extraction industries is employed here to life-saving ends by extending lengths of drill pipe with rock-cutting bits deep into the ground until water is struck. Thereafter the new hole is capped in concrete and fitted with a hand-pump, and a community-based Water Committee is trained and tasked with its maintenance (Cairncross et. al, 2005). Properly constructed boreholes can provide clean water for thousands of individuals indefinitely, depending on the geophysics of its location and other environmental factors (CDC, 2006).

2.1.4 Dams and Intakes

Dams in streams are generally small and their purpose is to provide a small pond so that a controllable draw-off pipe can be built into the wall of the dam at a level higher than the bed of the stream. Unlike larger dams, which impound water to provide storage over a dry season, these small dams overflow for most of the time. The crest of the dam acts as an overflow weir, except at the sides, where it is raised to prevent scouring of the banks. A dam is usually constructed of concrete, block work or masonry, preferably founded on rock (Clasen and Bastable, 2003). A rock or some other impermeable material, should also form the basin of the impoundment with twin intake pipes where one in use and one in reserve are built into the wall of the dam; on the upstream side of the dam they have strainers or screens; on the downstream side they are fitted with control valves. A scour pipe is also built into the dam, at low level, with a stop valve on the downstream side, and is used periodically to drain the pond and to clear accumulated silt (Roberts et al, 2001).

2.1.5 Gravity Flow Schemes

A gravity-fed supply from a small upland river, stream or spring, is impounded within a protected catchment. By using a force of gravity, water can be transported by pipework to tap-stands placed near homes, thus reducing the drudgery involved in carrying water a long way. The usual components of a gravity scheme are the source which includes stream, spring, catchment, dam or intake. The main pipeline, storage and break-pressure tanks, distribution

pipelines and tapstands and the communities which benefit from the scheme are usually involved in large commitments of time and effort in the construction work associated with these components (Socio-Economic Data Centre Ltd, 2001).

The number of gravity water schemes increased nationally from 3834 in 2000 to 4063 in 2001 with the biggest proportion in western Uganda. According to the DWD (2002) report, if a spring or stream is to be the source, it must be unpolluted and must be one which flows throughout the year; the flow must be measured in the dry season in order to know what yield can safely be relied upon when a spring is used, the springhead must be protected and the water must be piped directly from the eye of the spring to prevent any pollution affecting the supply. The catchment area of a spring or stream must be free of animals and cultivation and if only a small area is involved it may be fenced off completely. Communities often enforce bylaws to exclude people and animals from the area.

2.2 Accessibility of the Available Water Sources

2.2.1 Planning Priorities

The more water and sanitation issues are accorded with a high planning priority, the more accessible and realizable will be the household welfare and health. In Uganda, water and sanitation are given high planning priority under the Poverty Eradication Action Plan, 2004, however, both government and donor financing fall below the requirements necessary to deliver on MDGs and PEAP targets. Further, budgeted amounts have tended to vary from actual expenditure and in many instances delayed disbursement have constrained performance. In addition to this, distribution of disbursed resources is not equitable and financing has largely remained a shared responsibility of government and its development partners while investment is implemented by public institutions; Directorate of Water Development of the Ministry of Water & Environment for Small Towns and Rural areas, and National Water & Sewerage Corporation in large towns (UWSD, 2008). This has made it rather hard for household to easily access water to improve sanitation and hygiene standards.

2.2.2 Distance and Cost of Collection

According to Shrestha and Cronin (2006), it is emphasized that access and distance to the water collection point is an important concern as it affects the amount of energy expenditure spent on this task and time; long distances transporting water mean substantial amounts of community precious calories go on this task alone. This encourages laziness in regard to the number of times a household may be required to recollect adequate quantity of water needed consequently affecting the cleanliness of the household.

2.2.3 Available Storage Capacities

According to Roberts et al (2001), it is emphasized that communities lack proper water storage facilities which contributes to shortages of water available for household use. This aggravates the state of sanitation and hygiene among households, especially the rural regions where water sources are quite distant from the homesteads.

2.2.4 The Most Vulnerable Undertake the Role of Water Collection

Water access in Uganda, is restricted because of the provision problems in long delayed situations without a proper way forward. Water sources are located at great distances from homesteads, much as water is a basic human necessity. In rural homesteads there is almost no piped water among households. The most vulnerable groups are suffocated the more, especially in cases of the children, women and refugees in a protracted situations, who eventually bear the brunt of water collecting activities. This is in addition to school children who are diverted from school programs and activities to engage in water collection (AAH, 2004). This constrains the education sector because households lack poor access to water.

2.2.5 Inadequate and Poor Support Structures in Regard to Accountability

With regard to accountability, for a variety of reasons, towns particularly small ones are either largely ignored or are at the mercy of a wide range of bureaucrats, technocrats and consultants. Support structures must do not have a longer accountability frame than only until immediately

after construction is completed. This has left many without proper access to safe water for a long time (CDC, 2006).

2.2.6 The Investment Capacity is Lower than the Growing Need for Water

According to UNICEF (2005b), it is asserted that, investments especially in small towns have simply not kept apace with their large and growing need for services. Sector donors have historically supported either rural water and sanitation and hygiene programmes or, increasingly, infrastructure and management in large cities. Much as US$3 billion in Official Development Assistance (ODA) flowed to water supply and sanitation in 2003, roughly US$360 million (or 13%) appears to have been allocated to small towns for water related activities. Funding issues notwithstanding, thus just looking at policy and other areas, small towns and cities clearly fall between the cracks of a traditionally urban-rural divide in the development and policy discourse (UNICEF, 2005b).

2.2.7 Deliberate Biases Against Particular Towns

There are deliberate biases against particular towns particularly the small towns which leaves a critically analytical gap which needs to be covered. When small towns are a focus of assistance from central government and donors, both the lack of analysis and the lack of capacity, combined with certain rural or urban biases, tends to result in cookie cutter approaches to water supply and sanitation provision that treat all small towns the same. Such approaches offer the same financing packages, the same technological solutions and the same management capacity training to all small towns regardless of their particular circumstances. Biases are not always deliberate but may result from a lack of clear practical experience where rural or more urbanized solutions are expected to translate directly into the small town context. Pressures from major urban centers combined with a focus on the plight of the rural poor, have tended to result in neglect of small towns. A general uncertainty around which approaches will make a real difference has furthered this lack of serious focus on small towns from across the development community (Cairncross. et al, 2005).

However, according to IDS (2010) pertaining to the shortfalls of authorities, donors remain quite focused on promoting safe water access. Donors and international finance institutions are quite

focused on meeting the MDGs. Given the focus on targets and beneficiaries reached, there needs to be a cost justification for their investments. The transaction costs are too high to work on tailored solutions in each town. The emphasis has to be on bigger programmes that either reach more people in urban areas or that cluster towns together. For small towns than working at scale mandates, for example, the design of a lending programme for tens of towns.

2.3 Water Availability and its Influence on Household Sanitation and Hygiene

2.3.1 Leads to Loss of Lives

Globally, at present 2-3 billion people do not have access to safe drinking water, At present, 2-3 billion people do not have access to safe drinking water, 884 million lack access to an improved water source, 2.6 billion do not have access to improved sanitation, and 1.1 billion still practice open defecation (IWA, 2009). An estimated 1.6 million people, mostly children under the age of five, die each year from water and sanitation-related diseases. Poor sanitation may be linked to as much as a quarter of all under-five deaths, with diarrhoea among the leading causes. The outrage, in these cases, is numbed by the statistics.

2.3.2 Poor Water Access Limits Functions of Power

Lack of sufficient access to water for household use is more a function of power, poverty and inequality, which may result from government to prioritize water allocation for basic needs and human dignity, than it is about scarcity *per se* (Mugabi, 2006).

2.3.3 Vicious Cycle of Increased Malnutrition, Morbidity and Mortality

According to Cronin (2006), it is envisaged that, in complex emergencies, adequate water and sanitation hygiene coupled with sufficient food, are linked to effective case management. Without these in place, a vicious cycle of increased rates of malnutrition, morbidity and mortality that can only be broken with appropriate operational interventions are bound to occur as disease surveillance are crucial (CDC, 2006).

2.3.4 Leads to an Easy Spread of Communicable Diseases

Absence and shortage of water may lead to consequences of personal suffering much as to the increased social burden and impact on dignity and the wellbeing of communities. It may involve

a poor health service delivery, poor hygiene during maternal and child care in addition to food insecurities. This may consequently lead to inadequate dietary intake and poor immune responses increased malnutrition, morbidity and mortality and poor hygiene (IIED, 2003).

Similarly according to WWAP (2006), it is envisaged that, poor access to water, sanitation and hygiene results in tremendous human and economic costs and rein forces gender and other societal inequalities, most notably for women and girls. Chronic diarrhea diseases debilitate victims and, coupled with malnutrition, induce a negative spiral into poverty. And in addition, the productive activities of poor rural people, such as schooling and farming, are severely restricted by ill health from water- and excreta-related disease, as well as by the time and energy spent fetching water.

2.4 Level of Achievement of Authorities in Improving Household Sanitation and Hygiene by Improving Access to Water Sources

2.4.1 The Population Growth Rate is Exceeds the Provided Water Sources

According to the latest report of the Joint Monitoring Programme (2010) which indicates that the number of people accessing improved water and sanitation in urban areas has increased since 1990. Those increases, however, particularly in relation to sanitation, are not keeping pace with urban population growth. If efforts to provide water and sanitation hygiene to the urban un-served continues at the current rate, by 2015 more than 2.7 billion people will still be living without basic sanitation and 672 million without improved sources of drinking water. Given this pace of growth it can be assumed that a significant proportion of this un-served population will pose a major development challenge and threaten to derail efforts to meet the millennium development goals water and sanitation which seeks to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015.

2.4.2 Management through Sub National Units

According to Danert et al (2003) it is emphasized that, in Uganda small towns with a population between 5,000 and 30,000, facilities are owned and managed by local governments, supported by the Ministry of Water and Environment (MWE). Many have created Water Authorities, which contract out water services under 3-year contracts to local private operators since about 2000. At

the beginning, private participation in small towns faces major challenges such as inexperienced local governments and private operators, limited public spending, and poor user participation (Danert, et al, 2003). By 2010, 80 small towns with 35,000 connections were served by private operators. Service quality and user satisfaction have improved after the private operators took over the systems. But according to the Association of Private Water Operators (APWO) the contracts are too short to compensate the small, local private operators for their initial efforts in setting up their operations (Global Water Intelligence, 2010). Due to low tariffs and lack of funding for investments the private operators largely failed to expand the water system to connect the poor.

2.4.3 Creating Self Sustaining Urban Water Sub-Sector

The government efforts are directed towards achieving a financially self-sustaining urban water subsector, which is not reliant on subsidies from government. This is to decrease the burden on limited government resources to concentrate on developing new facilities for the un-served urban and rural population especially the poor (UWSD, 2008).

2.4.4 On-Budget and Off-Budget Financing

Government of Uganda, has its investments in the water sector financed through a number of mechanisms and modalities. The main stream financing is through the Joint Partnership Fund (JPF) under the Joint Water Supply and Sanitation Programme Support (JWSSPS) which is a pool fund mechanism where major donors and government have established a common programme and pool resources for the purpose closely tracked by the Ministry of Finance Planning and Economic Development (MFPED)to ensure compliance with sector ceilings as per the funding levels set by the Ministry of Finance which are not supposed to be exceeded for purposes of macro-economic stability.

The most significant concern is that sector ceilings do not directly take into account MDGs and sector targets as clearly the purpose is to control inflation. This means that inevitably different sources and forms of financing will be required if set targets are to be met. In addition to on-budget financing other forms of financing include specific project support, investments by NGOs and international aid agencies. This kind of financing is referred to as "Off-Budget" and is not in

favour with the MFPED because in effect it inadvertently introduces resources in the sector over and above the golden ceiling. The level of financing volumes and trends under off-budget mechanisms cannot accurately be ascertained as the agencies responsible do not necessarily report to the sector through the annual performance review forum and no other common reporting framework is available for the purpose (AAH, 2004).

2.4.5 Financing Capacities not Appropriately Geared to a Staged Approach

According to Roberts et al (2001), it is put forward that, in some cases, policy reforms seek to support local service provision through the transfer of ownership and management of services to actors operating at the local level. However, local authorities still lack the capacity to provide or ensure delivery of adequate water for sanitation and hygiene services in towns. Financing mechanisms tend not to be appropriately geared to a staged approach that more adequately meets both the investment needs and the ability of local communities to pay. Technologies tend to come either from rural approaches or those of more major urban centres, making both the economies of scale and technological appropriateness insufficient at either end of the spectrum.

2.6 Possible Interventions

2.6.1 Proper Layout of Water Points

Roberts et al (2001) recommends for a proper layout and design of water points as important to ensure safe access and to minimize the potential for gender-based disparities and violence to curb conflicts at water points.

2.6.2 Promoting Coordinated and Sustainable Management of Water Resources

Water authorities in Uganda have worked towards promoting a coordinated, integrated and sustainable water resources management to ensure conservation of water resources and provision of water for all social and economic activities. This is to ensure sustainable, adequate and safe water supply and sanitation facilities within easy reach of 80% of the urban population by 2005 and 100% by 2015 (UWSD, 2008).

2.6.3 Provision of Adequate Water Storage Facilities

Robert et al (2001), further recommend for support to be directed to ensuring that the most marginalized groups of people have access to e water storage facilities and tanks of adequate water storage capacity to maintain a regular flow and supply of water all the time around households.

2.6.4 Aggregating Small Towns to Compound Budget

Approaches such as aggregation of small towns into a single, joined-up service area make sense from a planning perspective have been viewed as appropriate by Cronin. However, according to Cronin, these require significant negotiation to make them work effectively. Despite these challenges, there is a huge opportunity to get towns onto the right track before the unregulated growth spirals into the inordinately more difficult and complex challenges faced in large urban centres. This may be significant in improving the availability of water sources in small and would be otherwise forgotten towns (Cronin, 2006).

2.6.5 Synthesizing Existing Knowledge

According to Doe (2003), it is proposed that by synthesizing existing knowledge and identifying promising approaches that could support sustainable impact in vulnerable towns may be crucial in improving water access. This can help to combine insights from a multi-disciplinary Expert Advisory Panel (EAP) with the experiences of local communities, governments and development actors. The project may be geared to determining action research initiatives that can be implemented and documented in a future phase in a number of WaterAid country programmes. This can be by identifying the differences between challenges and potential solutions in the delivery of water for sanitation and hygiene purposes in order to understand whether there are any lessons that can be drawn from other sectors to inform reviews in the current design.

2.6.6 There is Need for Inclusiveness

According to CDC (2006), stakeholders especially women especially women and groups with special needs, need to be encouraged to participate in all stages of design and maintenance of the water and sanitation facilities. In addition, according to the UNHCR (2000), it is recommended that, there should be sustainable exploitation of the available water sources and minimization of

associated environmental impacts to help develop a good rapport with the host community and uphold the vulnerable.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter explained the specific research methodology and techniques that the researcher employed in order to obtain data. It covered the study area, research design, sampling, data collection techniques methods and data analysis techniques.

3.1 Research Design

The study used an explanatory research design since the method focuses on perception, facts, feelings, experiences and emotions of respondents of which the research questions generated required an explanatory, descriptive and analytical perspective in order to find out the different water sources available, their accessibility and how this influences the level of household sanitation and hygiene, as well as the achievement of authority in promoting water access to improve sanitation and hygiene among households. Quantitative and qualitative methods were also used in data collection and analysis

3.2 Description of the Study Area

The study took place in Koboko Town Council in Koboko District, North Western Uganda. Koboko District is bordered by Arua to the North, Yumbe District to the East, Maracha District to the South and by the Democratic Republic of Congo (DRC) to the west. The main economic activity of the population is subsistence agriculture (maize, millet, sweet potatoes and cassava) and animal husbandry (Cattle, goats, sheep and poultry birds). The area was selected because it experiences water shortages, thus had the main household targets required to generate data for this study thus a convenient selection. The study covered the whole Town Council for sufficiency of data.

3.3 Sample Size

A sample of 60 respondents was used in the study. It cut across the different ages and sex groups of the population, and it involved 20 men, 30 women, 4 Health personnel, and 6 members from Town Council water board and WaterAid Project.

3.4 Sample Procedure

The sample was selected purposively where the people most affected by water shortages in households, particularly the women were of significant importance. Purposive sampling was administered on the community members and leaders because they experience the sanitation and hygiene problems in case of water shortages. Stratified sampling was applied on the district water board employees and health personnel who were purposely selected because they work in the study area and thus had vital knowledge about the subject under study and thus satisfied the strata. During the study, the researcher took into consideration the different attributes of respondents such as age and sex and procedure therefore was based on demographic characteristics of the study respondents.

3.5 Data Collection

3.5.1 Primary Data

This was obtained through use of self administered questionnaires, interviews and observations. Both close and open ended questionnaires were given to a cross section of respondents to aid and facilitate comprehensive data collection. This instrument helped in generating quantitative data. It was also selected because of its ability to minimize biased and unwarranted responses yet provided a lot of information and freedom to the respondents to exercise their independence in providing data. For validity and reliability of the questionnaire, a pre-test was made to ensure that it was free from ambiguity, vagueness, and self guiding questions. It was tested on 10 respondents who were not directly part of this study.

The researcher organized informal interviews with the Town Council Water Authorities and health personnel to enrich the findings of the study. Interviews were selected because they are helpful in gathering in depth information and for consistency to keep within the scope of the study.

3.5.2 Secondary Data

This was obtained through the help of text books and other related works of outstanding scholars such as published, magazines, written data sources including published and unpublished documents, agency reports and internet sources were referred to, to throw more light on water shortages and household sanitation and hygiene.

3.6 Data Processing

The processing of data was done after the collection of data for verification of the information gathered and for attainment of completeness, accuracy and uniformity. Editing of data involved checking the information for errors which was advantageous in that it allowed the researcher to delete and eliminate possible errors that were traced to avoid manipulation of the study results. Data was analyzed concurrently to avoid duplication thereby guiding the entire study for balanced and critical analysis. The researcher used hypothesis based on the questionnaire and for other items, tabulation pie-charts, simple frequencies and percentage methods were used for data presentation, analysis and qualification

3.7 Data Analysis

The study explained, described and presented the study findings basing on the specific objectives of the study, and research questions where data analysis was first done through sketchy and generalized summaries of the findings such as observation and conclusions in the process of data collection. Data analysis was done using simple statistical calculations version and presented in charts.

3.8 Ethical Consideration

The researcher carried out the study with full knowledge and authority of the district water authorities and local leaders. The researcher first of all obtained an introductory letter from the university, assigning her to the field which she used to eliminate suspicion by the respondents. The researcher thereafter made arrangements with respondents of the interview as well as issued the self completion questionnaires which were picked after two weeks. Respondents were assured of thier confidentiality in the process of collecting and coding data.

CHAPTER FOUR

PRESENTATIONS, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter is a presentation, analysis and discussion of the findings focused on the specific variables of the study which included finding out the available water resources; examining the level of accessibility of the available water resources; examining the level of accessibility of the water resources; to examine the extent to which accessibility of the water resources influences household sanitation and hygiene; to assess the level of success of the town council and district authorities in improving household sanitation and hygiene by improving access to safe water.

4.1 Demographic Distribution of the Respondents

4.1.1 Distribution of the Respondents by Gender

Table 1: Gender Distribution of Respondents

Sex	No of respondents	Percentage
Females	45	75%
Males	15	25%
Total	**60**	**100**

Source: *Field Research Findings (2013)*

According to the study findings, 75% were females while 25% were males. Females being part of vulnerable groups of society, are always at home and thus remain more affected by poor water access, thus their majority representation. The AAH (2004) report also supports that water resources are located at great distances suffocating the most vulnerable groups like children, women and refugees.

4.1.2 Distribution of the Respondents by Age

Table 2: Age Distribution of the Respondents

Age group	Frequency	Percentage (%)
20 – 30	25	42%
31 - 40	12	20%
41 - 50	16	27%
51 +	7	11%
Total	**60**	**100%**

Source: *Field Research Findings (2013)*

According to the findings of the study, age group 21 – 30 constituted of 42%, 31 – 40 comprised of 20%, age group 41 – 50 constituted 27% whereas the 51+ constituted of 11% and were the least represented group. According to the study respondents, it was emphasized that the 51+ were the least represented because they mostly reside in rural areas outside the town council while age group 21-30 as youth were the most represented according to one respondent of the interview because they find it more convenient to live in towns where access to services like safe water is more realizable. This finding implies that it is relatively easier to access water in the town than outside town.

4.1.3 Education level of respondents.

Table 3: Education of the Respondents

Age group	Frequency	Percentage (%)
Not been to school	25	42%
Primary	7	11%
Certificate	16	27%
Degree	12	20%
Total	**60**	**100%**

Source: *Field Research Findings (2013)*

According to the findings of the study, 42% of the respondents have never been to school, 27% are certificate holders, 20% degree holders while the remaining 11% were of primary education.

The study findings reveal that the majority have never been to school and thus as household members comprise a biggest percentage of those less knowledgeable about safe water issues and sanitation and hygiene maintenance, thus their low usage of water. Indeed AAH (2004) report reveals that access to water constrains the education sector when households lack access to water and children are diverted from school programs and activities to collect water.

4.1.4 Marital Status of the Respondents

Table 4: Marital Status of the Respondents

Marital Status	**Total**	**Percentage (%)**
Single	6	10%
Married	12	20%
Divorced	18	30%
Widowed	24	40%
Total	**60**	**100%**

Source: *Field Research Findings (2013)*

From the study findings, only 10% of the respondents were single, 20% were married, 30% divorced whereas the majority (40%) were widowed. Widows were the most represented among the vulnerable groups constrained in limited water access, some of whom had lost their husbands due to water borne diseases. Indeed according to one of the officials from the Water Aid Project mentioned that in their records widows experience a greater burden of having to collect water from far away cheap water sources. Indeed according to one of the women, interviewed it was noted thus;

> *"At times we have to take half baths, because we draw our water from far away, getting it from nearby is at a cost, yet this money can be spared for other purposes"*

This study finding reflects that household hygiene and sanitation in Koboko town council remains poor especially if some families have to forego some water usages in order to spare water and money.

4.2 Available Water Resources in Koboko Town Council

Table 5: Available water resources

Water sources	Yes	No	Total Frequency	Total %age
Gravity fed supply water	29 (48.3%)	31 (51.7%)	60	100
Swamps	25(41.7%)	35 (58.3%)	60	100
Borehole	35 (58.3%)	25 (41.7%)	60	100
wells	30 (50%)	30 (50%)	60	100
Piped water	10 (16.7%)	50 (83.3%)	60	100

Source: Field Data (2013)

According to the study findings in table 5, it was established that the water resources in Koboko Town Council as accessed by the community include; boreholes (58.3%), well spring waters (50%), gravity fed supply water (48.3%), swamp water (41.7%), piped water (16.7%) and river/lake water (8.3%) was found to be the least accessible water source in the Town Council.

The study subjects revealed that the most commonly available water source was the borehole (58.3%), with 20 of them within Koboko Town Council. However, according to one member from the water board, *these are poorly maintained and utilized by the community, despite the sensitization they are provided, particularly the one at Teremunga and Alimakodra which are contaminated by human feaces and beyond domestic consumption*"

Indeed according to Cairnocross (2005), properly constructed maintained boreholes can provide clean water if a community based committee is trained and tasked for its maintenance. In the case of this study, despite the training and sensitization, maintenance remains poor implying that the most common water source does not provide safe water to the community.

Study responses further revealed that some wells are also a common source of water supply in the Koboko Town Council. There are 6 spring wells with only three of them being well protected, implying that the water drawn from those spring wells that are not protected is bound to cause hygiene and sanitation problems to households in Koboko town council. However these according to the town council authorities, are at distant locations from the community which

makes it difficult for the community to have sufficient water in their houses. This finding reveals that with insufficient water quantities, household sanitation and hygiene is threatened.

It was further revealed that households in Koboko town council also access gravity fed supply water (48.3%), according to one member of the water board, it was expressed that *water in Koboko is also pumped from hilly and rocky areas and collected through pipes, to holes which are dug on farms and this is mainly how households make their water reservoirs. But this costly and afforded by the rich mainly..* A study by the Socio-economic data center (2001) reveals the same on gravity fed supply water when it points out that it is derived from an upland river, stream or spring and impounded into a protected catchment. This finding reveals that water drawn from gravity fed supplies is not easily accessible by all because of the expenses required to pump it to homesteads. Thus much as it is an available water source not all can access it.

The study findings also revealed that swamp water is also another source in Koboko, where according to one medical personnel "*it is not a safe water source and it is mainly fit for animals, cleaning houses and cars, while others risk to use it in their homes*. This study finding depicts that much as swamp water is available in Koboko town council, it is not good for human consumption as this affects hygiene and sanitation levels of households.

Piped water was also established to be available in Koboko town council, but was mentioned as rare and unaffordable to most households. This according to the district water board member interviewed, "*is one of the most safe water sources, which though is consumed by a few households since they are not in position to meet water costs, while free sources are available*". Cardone (2006) also points out on the availability of tapped water as yet another water source. This study finding reveals that much as piped water would be beneficial for households in terms of hygiene sanitation improvement, it attracts a low community appeal because it is acquired at a cost.

4.3 Level of Accessibility of the Available Water Resources in Koboko

Table 6: Level of Accessibility of the Available Water Sources

Limitations of accessibility	Yes	Agree	Frequency	Total
Poor planning	47 (78%)	13(22%)	60	100
Distance and cost of collection	58(96.7%)	2(3.3%)	60	100
Poor storage utilities	49(82%)	11(18%)	60	100
Low measures taken in promoting access to water	40(66.7%)	20(33.3%)	60	100
Biased considerations	31(51.7%)	29 (48.3%)	60	100

Source: Field data (2013)

In the study findings in table 6, it was established that the level of accessibility of the available water sources by the people was such that, it was limited in capacity due to; distance and cost of collection (96.7%), poor storage facilities (82%), poor planning (78%), low measures taken in promoting water access (66.7%) and biased considerations (51.7%).

The study respondents portrayed that the cost of collection and the distance moved (95.7%) to collect water was a major factor limiting community access to water. This is confirmed by one of the town council authorities in an interview that;

> *"The distances of the most common and readily available water sources are far from the household locations, and yet resorting to hiring the commercial bicycle riders is similarly not economically friendly for most households as this is done at a cost of 300 Uganda shillings per jerry can. This forces households to collect insufficient amount which they use sparingly, as this is mainly collected by children."*

The same revelation is held in a previous study conducted by Shrestha and Cronin (2006), when they assert that access and distance to the water collection point is an important concern, as this reduces the number of times for recollection. Reflecting on these assertions, it can therefore be submitted that distance and cost of collection minimize the ability of households to access water, and by using water sparingly household sanitation and hygiene is affected.

The study subjects also revealed poor storage utilities as a factor in their poor access to water. In an interview with one of the medical personnel, it was emphasized that the majority lack proper storage facilities and yet water is collected from far. This is confirmed by one town council leader who noted that, storage facilities used have poor holding capacities and are mainly 20 liter jerry cans and buckets with lower capacities manageable by children as major collectors of household water" This same view is envisaged by Roberts et al (2001), who noted that communities lack proper water storage facilities which contributes to shortages of water available for household use. In view of this finding, it can be submitted that without high capacity water holding facilities, the amount of water available for household use is limited, similarly household sanitation and hygiene cannot be maintained when households survive on insufficient quantities of water.

Study subjects further revealed that the planning process is also poor which limits their access to water. This is traced from some explanations stated in the questionnaires of how the relevant authorities have poor water plans and that borehole was put right almost within the center of the town council other than in the suburbs where most community members reside. In a statement made by one of the water board members it was confirmed that, *water plans may be viewed as poor because households may desire one thing, while the protocol states something different, but we operate according to administrative plans made.* This finding reveals that the water plans reflect on protocol other than household priorities, and because households have no stake in how their water issues are determined much as they are the intended beneficiaries, they disregard the plans as poor. Indeed according to AAH (2004), this is was amounts to restrictions when experiences of long delayed situations without a proper way forward are encountered with the most vulnerable groups suffocated. Just like the UWSD (2008) supports that the more water and sanitation issues are accorded with a high planning priority, the more accessible and realizable will be the household welfare and health. Compounding these findings, the study submits that accessibility to water in Koboko town council is limited because the real targets are not put at the center of the decision making process to help in providing hints and underlying concerns to guide plans.

The study findings respondents further established that little effort has been undertaken to promote access to safe water. This according to one medical personnel was confirmed as true, according to him "*the water problem has existed for long and for all the 10 years I have worked at this health center, cases of unsafe water related diseases are many, while each subsequent year water plans are put in place. Who then do the plans represent? If year after year water borne sicknesses are experienced, with water still found in far locations.*"
In the same vein UNICEF (2005b) report reflects that investments in small towns do not keep pace with the growing need for services, funding issues not withstanding and causing a divide. This finding suggests that the water policy makers rely on plans that are unrepresentative of people's concerns, thus limiting chances to possible access of water and consequently affecting household sanitation and hygiene.

The findings from study subjects also reflected that accessibility of water remains poor in Koboko town council because of the biases introduced in implementing water policies. Indeed according to one of the water board members it was expressed that " *the town council authorities remain influential of our plans because they are in charge of our location so our plans are adjusted accordingly. For instance the bore constructions and location was according to place and position suggested by the town council board, much as this would do better within the residential area*" This is what Cairncross et al (2005) views as biases which leave analytical gaps which biases may not be deliberate, but may result from lack of a clear practical experience where solutions should translate directly to a small context. This finding is depictive of the fact that, because people are not included in the water plan, experience of household water problems remains unclear and the water plans adopted in Koboko do not suit the people concerns, thus limiting their access to water with sanitation and hygiene problems coming up.

4.4 Water Availability and its Influence on Household Sanitation and Hygiene in Koboko

Table 7: Impact of water availability on household sanitation and hygiene

Influence of water access on household sanitation and hygiene	Agree	Disagree	Total Frequency	Total %age
Loss of lives	37(61.7%)	23(38.3%)	60	100
Spread of communicable diseases	51(85%)	9(15%)	60	100
Poor access to other services	50(83.3%)	10(16.7%)	60	100
Economic stagnations	42(70%)	18(30%)	60	100

Source: Field Research (2013)

In regard to the study findings, it was revealed that the level of availability of water affected household sanitation and hygiene to lead to spread of communicable disease (85%), poor access to other services (83.3%), economic stagnations (70%) and loss of lives (61.7%).

According to the research subjects, water availability is affecting household hygiene and sanitation in terms of promoting spread of diseases. Indeed in an interview with one medical personnel, it is asserted that *scarcity of water contributes to spread of communicable diseases like dysentery because hygiene cannot properly be maintained.* WWAP (2006) report points out that poor access to water, results into poor sanitation and hygiene tremendously leading to chronic diseases like diarrhea. The IIED (2003) report associates scarcity of water to poor immune responses. This study finding indicates that, while the Koboko town council community experiences water scarcities, household hygiene and sanitation is similarly affected making it hard to prevent against communicable diseases.

According to the study respondents, results showed that household sanitation and hygiene is affected by the level of water availability causing loss of lives in the community of Koboko Town Council. In one of the interviews carried out with one medical personnel, it was emphasized that;

> *"water is life, without it there is no life. Sanitation and hygiene concerns are many at this health center, just like it may be with other centers. We have had cases of deaths*

resulting from diarrhea especially with the babies who dehydrate so first and whose immunities are low compared to adults"

This same view is contention with IWA (2009) report which reveals that children under the age of five die from water and sanitation related diseases like diarrhea. This study finding reveals that in Koboko town council the low availability of water is affecting household hygiene and sanitation and is causing death among the people especially the young.

The findings as drawn from study subjects also reflected that the level of water availability in Koboko town council is affecting household ability to access and make use of other services. Indeed according to one medical personnel, patients have poor hygiene and they stink, you come to estimate this level at the time you give them an injection. Others feel ashamed to do so until they realize they have no choice. But I keep counseling them on personal hygiene?. Just like the IIED (2003) report associates scarcity of water to increased social burdens and impact on dignity and well being of the people.

In the same context reasons were stated by households that children miss school when there is no water at home. This finding depicts that access to other services is limited when water availability impacts on the household hygiene and sanitation. Indeed in the AAH (2004) report it is noted that children are diverted from school programs and activities to collect water. Similarly, WWAP (2006), report notes that water access severely restricts other human activities. This is the reason as to why Mugabi (2006) focuses on water prioritization by households, if other basic needs are to be met.

The study findings further revealed that the level of availability of water affects the economic activities. In the case of Koboko Town Council, water scarcities were linked to the low economic activities, which according to one of the town council authorities, *resulted in stagnations of work at particular levels where water is required in abundance to take on to the next level where he cited, personnel under construction of the town council experience time challenges when they get water setbacks changing their entire program and work schedule.* In the same vein, WWAP (2006) report notes that poor access to water results in tremendous human and economic costs

with productive activities restricted. Reflecting on this finding, it can therefore be stated that water scarcities are a hindrance of economic progress because of the standstills that it causes.

4.5 Level of Success of the Town Council/District authorities in Improving Household Sanitation and Hygiene by Improving Access to Safe Water

Table 8: underlying success of town council authorities in improving household sanitation and hygiene through improved water access

Level of success	Yes	No	Frequency	Total
distributed water sources evenly among population	10(17%)	50(83%)	60	100
Planning and maintaining water sources	18(30%)	42 (70%)	60	100
met priority water needs	25 (41.7%)	35 (58.3%)	60	100
Solicited donor support	23(38.3%)	37(61.7%)	60	100
Decentralized powers in water management	20(33%)	40(67%)	60	100

***Source**: Field Research Findings (2013)*

In regard to the study findings on success scored town council authorities in improving household sanitation and hygiene through improved access to safe water, it was established that the town council authority of Koboko have; met priority water needs (41.7%), been able to solicit donor support (38.3%), decentralized water management issues (33%), planned well and maintained the water sources (30%), and distributed water sources evenly among the population (17%).

According to the study respondents, it was expressed that much as the town council leaders and water board have been in position to improve on the distribution of water sources in Koboko, it is asserted by one of the town council leaders that *population growth is rampant and it is minimizing the financial potentials of the town council with no stretches left.* This same view is envisaged in the WHO/UNICEF Joint Monitoring Programme (2010) report which notes that

population increases do not keep pace with water access and sanitation which leaves many without basic sanitation and safe water access.

It was further pointed out by the respondents that there is improved planning in the maintenance of the available water sources and establishment of new ways to access water in Koboko town council. However, according to the one town council authority;

> *The level of improvement cannot be parallel to its access given the unregulated population explosion in the town council, while finances remain scarce, but all measures possible are being taken through water aid projects to improve safe water access*"

According to Mugabi (2006) it is asserted that government gears support to ensure that water is affordable. This study finding suggests that much as effort is undertaken to improve water success as way to promote household hygiene and sanitation, it may not significantly be recognized, because the effort is overlapped by increasing water demand due to untimely population increases, thereby creating a cycle of accessibility problems.

The study respondents further confirmed that Koboko town council authorities have also focused on decentralizing the management of water units and this has been brought down to the grassroots people to ensure that their water sources remain safe. This according to some community members is purposely to create sustainable water projects maintained by the local capacities. . This was affirmed by one of town council authorities that;

> *"the borehole at Teremunga Primary school and the one at Koboko Pentecostal Church are maintained and managed by the community with a small contribution of 500 which has to be met monthly for their maintenance although, often times it is defaulted causing inefficiencies in maintenance and leading to unmanaged water contaminations especially with the residents of Teremunga and Alimakodra town cells where water*

Pertaining to financially sustainable urban water sector, the UWSD similarly comments that efforts by governments are directed to achieving the same. This study finding reveals that much

as self sustainable projects can reduce the government burden, it is also socially and economically costly in terms of sanitation and hygiene consequences. Indeed the Global Water Intelligence (2010) report discourages low tariffs as one which leads to failure for expansion of the system, in pretext of this study, this causes poor maintenance.

The study respondents also agreed that Koboko town council authorities have been able to generate support from both national and international organizations in financing the development of water projects. According to one city authority, *support water groups included the German Development Organisation which helps to provide the community with water treatment tablets to reduce the contamination level of the unsafe water that is consumed.*
Similarly, the AAH (2004) report points out on specific project support in financing and investment by NGOs and international aid agencies as drawn from off budget support. This finding reflects that while the town council experiences financial limitations in promoting access to water, it is able to seek support for specific water projects in order to promote household sanitation and hygiene.

It was also pointed out the study subjects that the town council authorities are able to make priority divergences in financing water projects, which according to one water aid official implied;

> *addressing water access concerns which seemed to pose more serious threats by making either off budget allocations or drawing supplementary budgets with funds diverted from their original budget votes to address the immediate concern.*

This is similar to Roberts et al (2001) view on how policy reforms are made which seek to support local service provision. Reflecting on this study finding, it can thus be stated that the town council authorities have also vested their effort in tracing areas of priority concern to make divergences of funds to close such gaps in their endeavor to promote household sanitation and hygiene in Koboko town council.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter covers the conclusions and recommendations of the study findings.

5.1 Conclusion

1) Available Water Sources in Koboko Town Council.

Boreholes are the most commonly available and are managed by the communities who use them. However their maintenance was found to be poor and raising concerns for household sanitation and hygiene.

2) Accessibility of the Available Water Sources in Koboko.

The study findings revealed that the cost and distance of collection limit household ability to utilize water maximally which lowers their ability to maintain proper hygiene and sanitation.

3) Extent to which Accessibility of the Water Sources affect the Hygiene in Koboko Town Council.

Household in Koboko Town Council were established to contract water borne diseases which easily spread because access to water remains limited, this at times results to loss of lives especially among the young children whose immunities are still low. Further limitations are experienced when household opportunities to access other services are blocked for instance when children's education time is sacrificed for fetching water, just as much as the economic activities are affected.

5.2 Recommendations

On summarizing the findings and drawing conclusions of the findings, the researcher recommended the following;

(1) On the availability of water sources.

There is need to design water source points with supervisory manpower recruited not from within the community, to avoid the ability of system compromises and resource wastages.

2) To fine out the level of accessibility of the water sources.

There is need for district water board authorities to work towards reducing the distances between the location of water points and households, by constructing at least a water tap point within reach of every 20-25 household's locations and at a fair cost per jerrycan This will reduce the fear of distances of water collection points as they will be within the proximity, thus reachable by most households.

3) To assess the level of success of town council.

It was confirmed that Koboko town council authorities have also focused on decentralizing the management of water units and this has been brought down to the grassroots people to ensure that their water sources remain safe. This according to some community members is purposely to create sustainable water projects maintained by the local capacities.

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5.2 Suggestion for Future Research

The researcher therefore recommends future research to be executed on the contribution of poor policy planning and management and low access to safe water.

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APPENDIX (I)

QUESTIONNAIRE FOR THE COMMUNITY MEMBERS AND LEADERS

Dear Respondent, I am Anna Mustafa, a student from Kampala International University pursuing a Bachelors degree of Science in Environmental Management. Am here to conduct a research on "Water Availability and Household Sanitation and Hygiene, in Koboko Town Council, Koboko District", which research is part of the requirements of the award of the Degree. I therefore kindly request you, to spare some time in filling this questionnaire as honest as possible. All the information provided will be treated with maximum confidentiality.

INSTRUCTION: PLEASE TICK [√] WHERE APPROPRIATE

Section A: Biographical Information.

1) Sex

a) Male ☐ b)Female ☐

2) Age

A) 20-30 years ☐ B) 31-40 years ☐ C) 41-50 ☐ C) 51+ ☐

3) Education level

A) Certificate ☐ B) Diploma ☐ C) Bachelors ☐ D) Primary.....

4) Marital Status

A) Single ☐ B) Married ☐ C) Widowed ☐ D) Divorced ☐

Section B: Types of Water Sources

What are the different sources of water supply in this community?

.....

.....

Of the available water sources, which one is more safer for the community?

.....

.....

Section C: Level of Accessibility of Water Sources

Does your agency in any way contribute to access to safe water?

a) Yes ☐ b)No ☐

) If yes, state its contribution

.....

.....

Section C: Influence of Water Access on Household Sanitation and Hygiene

How has the accessibility of water influenced household sanitation and hygiene in your community?

.....

.....

What do you think would be the best means to improve on the accessibility of water sources?

.....

.....

Section D: Achievement of Authorities in Improving Household Sanitation and Hygiene by Improving Access to Safe Water

To what extent have the district water authorities been able to improve safe water access?

.....

.....

Ias this in any way helped in the improvement of household sanitation and hygiene?

a) Yes ☐ b)No ☐

) If yes, state its contribution

.....

.....

According to your opinion, what are the major obstacles in the measures taken by district authorities in improving access to water sources for this community?

.....

.....

Given your experience what are possible workable solutions that you would suggest to help in promoting water access to improve household sanitation and hygiene?

.....

.....

Are water standard measures effectively recognized?

a) Yes ☐ b)No ☐

If yes/No state

.....

.....

Thanks for your Response

APPENDIX (II)

INTERVIEW GUIDE: FOR WATER AUTHORITIES

Dear Respondent, I am Anna Mustafa, a student from Kampala International University pursuing a Bachelors degree in Science and Environmental Management. Am here to conduct a research on "Water Availability and Household Sanitation and Hygiene, in Koboko Town Council, Koboko District", which research is part of the requirements of the award of the Degree. I therefore kindly request you, to spare some time in filling this questionnaire as honest as possible. All the information provided will be treated with maximum confidentiality.

IDENTIFYING INFORMATION

A) Anna Mustafa. Interviewing Date…

B) Interview number 1 - 10

C) Survey Interview

D)

Guiding areas

- Meaning of sanitation and hygiene
- Causes of insufficient water supplies
- Why water remains inaccessible to households
- Level of success of authority in safe water supply
- Possible solutions to household sanitation and hygiene problems which result from water shortages.

APPENDIX (III): MAP OF KOBOKO DISTRICT SHOWING KOBOKO TOWN COUNCIL