# GENDER IMPLICATIONS OF HOUSEHOLD INACCESSIBILITY TO SAFE WATER AND IMPROVED SANITATION IN KAPTEMBWO, NAKURU COUNTY

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**EGERTON UNIVERSITY**

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## DECLARATION AND RECOMMENDATION

### DECLARATION

This thesis is my original work and has not been submitted for any award of degree, diploma or certificate in any other University.

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### RECOMMENDATION

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## DEDICATION

With love and sincere appreciation I dedicate this thesis to my daughter Pendo Joy and my sister Joanne Wanjiru for their encouraging and unwavering support throughout the entire period of the study. May this be an inspiration for you to work hard in life.

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## ABSTRACT

Inaccessibility to safe water and improved sanitation widens the gender gap since it takes a heavy toll on households and especially women and children. This study aims at determining the gender implications of household inaccessibility to safe water and improved sanitation in Kaptembwo of Nakuru County. Specific objectives of this study include determining the implications of household inaccessibility to safe water and improved sanitation on children. This study also seeks to analyze the extent of household exposure to Gender Based Violence (GBV) while accessing safe water and improved sanitation. Also, this study aims to establish household economic implications of inaccessibility to safe water and improved sanitation. Kaptembwo, the study area, is a multicultural, low income, urban informal settlement located West of Nakuru with a total of approximately 150 dwellings. Data was collected using questionnaires then analyzed using quantitative methods. The findings of the study revealed the children are heavily affected by household inaccessibility to safe water and improved sanitation both health wise and their consistency in school attendance and performance. The girl child is more at risk because the boy child is favoured at her expense. Also, women, men and children are exposed to GBV while collecting domestic water and improved sanitation facilities especially after dark. Although inaccessibility to safe water and improved sanitation is not the main cause of GBV, it increases the risk of exposure. Physical violence is the most frequently experienced form of GBV and this can be attributed to the high number of fights, scratches and biting that occur in queues while collecting domestic water and waiting to use improved sanitation facilities. Sexual violence is reported to happen though not as frequently. The findings reveal that inaccessibility to safe water and improved sanitation also has great impact on the household economy. A lot of time spent on queues waiting to access safe water and improved sanitation could otherwise be used for productive works aimed at economic growth. Children have to stay out of school either due to water borne diseases or have to collect domestic water. A lot of resources are devoted to the treatment of diarrhoea in households, money which could have been used productively for the benefit of the household and the nation as a whole.

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## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| COHRE- | Centre on Human Rights and Evictions |
| GBV- | Gender Based Violence |
| IRC- | International Rescue Committee |
| JMP- | WHO/UNICEF Joint Monitoring Program for water supply and sanitation |
| MDG- | Millennium Development Goals |
| SDG- | Sustainable Development Goals |
| UN- | United Nations |
| UNICEF- | United Nation Children Fund |
| VIP- | Ventilated Improved Latrine |
| WHO- | World Health Organization |
| WASH- | Water, Sanitation and Hygiene |
| WWDR- | World Water Development Report |

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background Information

Improved sanitation is basic to the wellbeing of all, yet many people throughout the world do not have access to these essential basic needs. 2.5 billion people in the world live without even basic sanitation while 768 million people still use unsafe drinking water sources (Waldman et al., 2013). Crow & Odaba (2009) argue that the situation is severe in developing countries in comparison to their counterparts in the sense that an American taking a five-minute shower uses more water than the average person in a developing country slum uses for an entire day.

Pruss, Kay, Fewtrell & Bartram (2002) point out that more than 3.4 million people die each year from water, sanitation, and hygiene-related causes. Nearly all of these deaths, 99 percent, occur in the developing world. Montgomery & Elimelech (2007) goes ahead to indicate that 160 million people are infected with sanitation related diseases including schistosomiasis, an infection that is acquired when people come into contact with fresh water infested with parasitic blood flukes. 500 million people are at risk of trachoma from which 146 million are threatened by blindness and 6 million are visually impaired (Montgomery & Elimelech, 2007). They go ahead to indicate that intestinal worms, such as ascariasis, trichuriasis and hookworm infection are plaguing the developing world due to inadequate drinking water, sanitation and hygiene with 133 million suffering from high intensity intestinal helminths infections; there are around 1.5 million cases of clinical hepatitis A every year.

A study by World Health Organization & United Nations Children Fund (2013) revealed that the water and sanitation crisis claims more lives through disease than any war claims through guns. Children, sadly, are the most affected when it comes to use of unsafe water and unimproved sanitation (WHO & UNICEF, 2013). Lack of access to clean water and sanitation kills children at a rate equivalent to a jumbo jet crashing every four hours. Statistics further indicate that every 20 seconds, a child dies as a result of poor water and sanitation. That translates to 1.5 million preventable deaths each year. The World Water Development Report

(2009) reveals that 1.6 million people die every year from diarrhoeal diseases due to lack of access to safe drinking water and basic sanitation. Sadly, 90 percent of these are children under 5, mostly in developing countries.

Sanitation coverage is lowest in Sub-Saharan Africa, the Oceania and South Asia where 70 percent, 64 percent and 59 percent of people respectively do not have access to safe water and improved sanitation (Montgomery, Bartram & Elimelech, 2009). According to Montgomery, Bartram and Elimelech (2009), in Sub-Saharan Africa, treating diarrhoea consumes 12 percent of the health budget and on a typical day, more than half the hospital beds are occupied by patients suffering from faecal-related diseases.

Crow & Odaba (2009) indicate that water supply and sanitation in Kenya is characterised by low levels of access, in particular in urban low income areas and in rural areas, as well as poor service quality in the form of intermittent water supply. Only 9 out of 55 water service providers in Kenya provide continuous water supply. Seasonal and regional water scarcity exacerbates the difficulty to improve water supply (WHO/UNICEF Joint Water Supply, & Sanitation Monitoring Programme, 2014). Estimates from the Joint Monitoring Programme for Water Supply and Sanitation (JMP) show that 63% of Kenyans (82% in urban areas and 57% in rural areas) had access to improved drinking water sources in 2015. 22% of Kenyans (45% in urban areas and 14% in rural areas) are reported as having access to piped water through a house or yard connection. According to the JMP estimates, access to improved water sources in urban areas decreased from 92% in 1990 to 82% in 2015. In rural areas, however, access increased from 33% to 57% during the same period. As at 2015, the total number of people lacking access to safe water was 17 million people

Countrywide estimates for 2008 by the JMP indicate that 31 percent of Kenyans had access to private improved sanitation facilities. In urban areas, an additional 51 percent of the population used shared latrines. In rural areas, open defecation was estimated to be still practised by 18 percent of the population. The total number of people lacking access to sanitation in 2015 was 32 million people. Countrywide estimates for 2015 by the JMP indicate that 30% (31% of urban and 30% of rural) Kenyans had access to private improved sanitation, including sewerage. In urban

areas an additional 27% of the population used shared latrines. In rural areas, open defecation was estimated to be still practised by 15% of the population. Moreover, 19 million Kenyans lack access to safe drinking water and improved sanitation (Bosch et al., 2002). The impacts of lack of adequate Water, Sanitation and Hygiene (WASH) services on the well-being and productivity of Kenya's growing population are profound. Over 50 percent of hospital visits in Kenya are for illnesses related to water, sanitation and hygiene (UNICEF, 2013).

According to Bosch (2002) of the 60 million people added to the world's towns and cities every year, most move to low income areas with no sanitation facilities. Rapid urbanization and the growing of its low income areas are overwhelming traditional water management practices, placing water scarcity as a potential source of social and political conflicts. An integrated approach to urban water supply and sanitation management is essential for the social, economic and environmental sustainability of cities and towns.

Nakuru is the fourth largest town in Kenya and the capital of the Great Rift Valley. The current population of Nakuru is estimated at 600,000 of whom 190,000 live in the slums of Rhonda and Kaptembwo (KNBS, 2010). Currently, less than 10 percent of residents here have access to improved sanitation. The main sanitation facilities are simple pit latrines. On average 37 people share a latrine, but in the worst cases a single latrine is shared by more than 200 people (Properzi, 2010). Due to poor construction, low coverage, poor maintenance, improper use and dilapidation, open defecation still happens. Women have problems disposing of sanitary waste for themselves and children. These conditions form the perfect environment for diseases and poverty to flourish. Children have multiple illnesses which has a detrimental impact on their health, development and education (WHO, 2013).

Many low income areas around Kenya have water which is scarce, costly, uncertain, and contaminated. Part of the reason for this is because informal settlements are built without official authorization and regulation. Due to a combination of political exclusion, the operation of water mafias, water rationing, and poor infrastructure, residents of low income areas pay more for water than wealthier Kenyans in tapped neighbourhoods of Nairobi, and more than even what Europeans and residents of New York pay (Crow & Odaba, 2009; World Bank,

2005). The households end up spending up to 20 percent of their income on water, which can be equal to the cost of rent (UNDP, 2006).

On good days, the women and children living in informal settlement in Nakuru spend just under an hour locating a water vendor, queuing up, and carrying back the water (Szántó et al., 2012). When there is a shortage, the price of water skyrockets to Ksh 5-10 and even up to Ksh 30 per jerry can up from the usual Ksh 2 per jerry can. On these days, women and children can spend all day looking for water. According to Umande Trust (2007), if households cannot find clean water or if the price of water is too high, they end up consuming substandard water from a free yard tap or natural spring, most of which are contaminated and unsafe for drinking.

Getting access to improved sanitation in many low income areas is a privilege. Existing toilets are woefully inadequate, poorly constructed and maintained. Most of the available toilets are shallow pits located close to the river for easy discharge. They are sparsely located each being shared by 50 and 100 people. Residents part with a few coins, a thing that most households cannot afford, to access public toilets (Esrey, 1996).

Gender based violence is not uncommon to the men, women and children in low income areas. They suffer humiliation, deprivation of privacy and have to deal with memories of rape incidences every day. Given the taboos around defecation and menstruation and the frequent lack of privacy, women and girls, may prefer to go to the toilet or use bathing units under the cover of darkness (World Bank, 2005). However, women fear to use the latrines at night when they are quite a distance from their residence. This makes them resort to other means like using plastic bags or buckets which are then emptied in the morning. This in itself is humiliating and lowers a person's self esteem and self worth (Crow & Odaba, 2009). Others will hold the waste until morning, causing a lot of strain to their bowels. This could even translate to urinary tract infections and/or straining the excreta system. Moreover, women who are the handlers of children's stool are more vulnerable to stool related diseases.

Women, girls and boys may have to walk long distances to collect water or to find water to do their laundry in. Walking to remote locations or using WASH facilities after dark puts women, girls and boys at risk of harassment, sexual assault and rape (JMP, 2013). This can result in

unwanted pregnancies, sexually transmitted infections, being accused of being unfaithful by husbands, being disowned by families, or mocked by other community members; and mental health challenges such as increased fear and stress (JMP, 2013). Additional challenges include situations in which women and children have to queue for extended time periods at water points facing fights with other service users, or face punishment for their late return home. In conflict situations, men may be vulnerable to abduction or death when accessing water points outside the boundaries of a camp (Montgomery & Elimelech, 2007).

As WASH programs seek to improve gender equity in projects, women may take on what are perceived to be traditionally male roles, such as being part of a WASH Committee or accepting a paid task (World Bank, 2005). As a result, they may face psychological abuse, such as exclusion from relevant meetings, or becoming the subject of scorn by community members, including other women, who do not appreciate their willingness to take on a new role. They may even face physical violence.

Kaptembwo has only 10 percent of its population with access to sufficient safe water and sanitation facilities of adequate quality. The main sanitation facilities are simple pit latrines. On average 37 people share a latrine, but in the worst cases a single latrine is shared by more than 200 people (Szántó et al., 2012). Due to poor construction, low coverage, poor maintenance, improper use and dilapidation of improved sanitation, open defecation still happens. Women have problems disposing of sanitary waste for themselves and children. These conditions form the perfect environment for diseases and poverty to flourish. Children have multiple illnesses which has a detrimental impact on their health, development and education. This study therefore aims to understand the gender implications of household inaccessibility to safe water and improved sanitation in Kaptembwo, Nakuru County.

### 1.2 Statement of the Problem

Inaccessibility to safe water and improved sanitation in households of Kaptembwo has major gender implications on men, women and children. When safe water is not accessible, men, women and children shoulder the bulk of water collection including buying from vendors. A lot of time is dedicated to water collection, time which could have been used for productive works.

Since children are also involved in the process of safe water collection, they end up missing school thus affecting their consistency, concentration and eventually performance.

Heavy burden of diseases such as diarrhoea are attributed to unsafe water and inaccessibility to improved sanitation facilities. A lot of resources are lost in the quest of treating such, resources that would otherwise be directed to development projects. Using improved sanitation facilities that are far from the household after dark increases the risk of Gender Based Violence (GBV). Moreover, due to the scarcity of safe water, GBV is likely to be experienced at the water collection points since everybody wants a share of the limited resource.

## 1.3 Objectives of the Study

### 1.3.1 General Objective

To establish gender implications of household inaccessibility to safe water and improved sanitation in Kaptembwo, Nakuru County

### 1.3.2 Specific objectives

The specific objectives for this study are:

i. To determine the implications of household inaccessibility to safe water and improved sanitation on children
ii. To analyse the frequency of household exposure to GBV while accessing safe water and improved sanitation facilities
iii. To establish household economic implications of inaccessibility to safe water and improved sanitation

## 1.4 Research Questions

i. What are the implications of household inaccessibility to safe water and improved sanitation on children?
ii. How often are households exposed to GBV while accessing safe water and improved sanitation facilities?

iii. What are the household economic implications of inaccessibility to safe water and improved sanitation?

## 1.5 Significance of the Study

When safe water and improved sanitation is sub-optimal, deaths, mortality and morbidity in a population are likely to be high. This study therefore aims at pointing out the various implications that inaccessibility to safe water and improved sanitation have on children, men and women. It also brings about the economic implications of household inaccessibility to safe water and improved sanitation. In this light, relevant authorities are sensitized on the importance of ensuring safe water and improved sanitation facilities are made accessible to the public. Moreover, this study helps reflect on the Sustainable Development Goals (SDG) and suggest measures necessary to ensure the target is attained. Meeting the SDG target 6 on safe water and sanitation would avert 470 thousand deaths and result in an extra 320 million productive working days every year. The study sensitizes that the combination of safe drinking water and improved sanitation facilities is a precondition for success in the fight against poverty and hunger, primary education, gender equality and women empowerment, child mortality, maternal health, HIV/AIDS and Malaria, ensure environmental sustainability and develop global partnerships.

## 1.6 Scope and limitations of the study

### 1.6.1 Scope of the study

This study was carried out in Kaptembwo A, Nakuru County. Kaptembwo is a multicultural, low income and an unplanned urban informal settlement located West of Nakuru. The study covered 75 dwellings where 2 households were interviews per dwelling resulting to 150 households.

## 1.7 Operational definition of Terms

**Access to improved sanitation facilities** refers to the percentage of the population with at least access to excreta disposal facilities that can effectively prevent human, animal and insect contact with excreta.

**Access to drinking water** means that the source is less than 1 kilometre away from its place of use and that it is possible to reliably obtain at least 20 litres per member of a household per day.

**Access to safe drinking water** is the proportion of people using improved drinking water sources: household connection, public standpipe, borehole, protected dug well, protected spring, rainwater.

**A flush** toilet is a toilet that disposes of human liquid and solid waste, by using water to flush it through a drainpipe to another location for disposal.

**A household** consists of one or more people who live in the same dwelling and also share at meals or living accommodation, and may consist of a single family or some other grouping of people.

**A safe drinking water source** is defined as one that by nature of its construction or through active intervention is likely to be protected from outside contamination, in particular from contamination with faecal matter. This includes piped water into dwelling or plot, protected dug wells and rainwater collection.

**A simple pit latrine** is a basic form of improved sanitation. It consists of a square, rectangular or circular pit dug into the ground covered by a hygienic cover slab or floor with a hole through which excreta fall into the pit. The latrine is covered with a shelter that has a ventilation pipe and fitted with a door and is situated some distance from the house.

**An improved sanitation** facility is defined as one that hygienically separates human excreta from human contact. The WHO/UNICEF Joint Monitoring Program (JMP) for water supply and sanitation defines improved sanitation as flush toilets, connection to a piped sewer system and connection to a septic system; flush/pour flush to a pit latrine, ventilated improved pit (VIP) latrine and composting toilet.

**Child** is every human being below the age of eighteen years

**Diarrhoea** is the condition of having at least three loose or liquid bowel movements each day. It often lasts for a few days and can result in dehydration due to fluid loss.

**Drinking water** is water used for domestic purposes, drinking, cooking and personal hygiene.

**Dwelling** a building or place of shelter to live in, place of residence that houses more than one household, more like a plot with many households.

**Economic implications** refer to the actions taken by the household in relation to inaccessibility to safe water and improved sanitation that affects the household economy and the national economy as a whole

**Flying toilets** is a facetious name for the use of plastic bags for defecation which are then thrown into ditches, on the road side, or simply as far away as possible.

**Gender Based Violence** is violence that is directed against a person on the basis of gender. It constitutes a breach of the fundamental right to life, liberty, security, dignity, equality between women and men, non-discrimination and physical and mental integrity. Its forms are majorly sexual, physical and psychological violence.

**Health** is the state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity (WHO, 1946).

**Household** consists of one or more people who live in the same house and also share meals or living accommodation, and may consist of a single family or some other grouping of people.

**Hygiene** refers to behaviours that can improve cleanliness and lead to good health, such as frequent hand washing, face washing, and bathing with soap and water.

**Improved drinking water source** is one that by the nature of its construction or through active intervention is protected from outside contamination and in particular from contamination with faecal matter.

**Joint Monitoring Programme** is the official United Nations mechanism tasked with monitoring progress towards Sustainable Development Goals (SDG) target 6 on clean water and sanitation. JMP publishes updated coverage estimates every two years on the various types of drinking water sources and sanitation facilities used worldwide.

**Low income areas** refer to areas within an urban setting that have grown in population and are characterised by substandard dwelling conditions.

**Open defecation** refers to the act of disposing human waste in the bushes, in fields, plastic bags, ditches or along railway tracks.

**Physical abuse** is an act of another party involving contact intended to cause feelings of physical pain, injury, or other physical suffering or bodily harm.

**Psychological abuse**, also referred to as emotional abuse or mental abuse, is a form of abuse characterized by a person subjecting or exposing another to behaviour that may result in

psychological trauma, including anxiety, chronic depression, or post-traumatic stress disorder. Such abuse is often associated with situations of power imbalance, such as abusive relationships, bullying, and abuse in the workplace.

**Safe water** is water that has sufficiently low concentration of harmful substances including viruses, bacteria, pesticides and petroleum products. It should not harm the person getting into contact with it.

**Sexual violence** is any sexual act or attempt to obtain a sexual act by violence or coercion, unwanted sexual comments or advances, acts to traffic a person or acts directed against a person's sexuality, regardless of the relationship to the victim.

**Sustainable Development Goals** (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities.

**Unimproved sanitation facilities** include public or shared facilities of an otherwise acceptable type, flush/pour-flush toilets or latrines which discharge directly into an open sewer or ditch, pit latrines without slab, bucket latrines, hanging toilets or latrines which directly discharge in water bodies or in the open and the practice of open defecation in the bush, field or bodies or water (JMP, 2013)

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Accessibility to safe water and improved sanitation in relation to children

Goal 7, target 10 of the Millennium Development Goals (MDG) aimed at halving by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. As at the year 2014, about 2.6 billion people, half the developing world, lacked even a simple 'improved' latrine and 1.1 billion people had no access to any type of improved drinking source of water (UNICEF & WHO, 2014). The MDG target implies a commitment to raise the global drinking water coverage of 77 percent per cent in 1990 to 88.5 percent in 2015. During the period 1990-2002, global coverage rose by 5 per cent, from 77 to 83 per cent. This means that nearly 1 billion people gained access to improved water sources during this period. The global coverage progression from 1990 to 2002 indicates that the MDG drinking water target is likely to be achieved except for sub-Saharan Africa, which lags behind the other developing regions in terms of development towards the target. Indicators from the UNICEF & WHO (2014) report reveal that access to safe water supply in Africa has risen from 49 percent in 1990 to 60 percent in 2008.

According to the Properzi (2010) rapid assessment report, water supply estimates in 2008 were that 59 percent of Kenyans had access to safe water sources. 19 percent of Kenyans were reported to having access to piped water through a house or yard connection. The report goes further to indicate that access to safe water sources in urban areas decreased from 91 percent in 1990 to 83 percent in 2008. In rural areas, however, access increased from 32 percent to 52 percent during the same period. The 2009 Impact Report estimated that in 2006–2007, only 37 percent of Kenyans had access to sufficient and safe drinking water close to their homes at an affordable price. Significant regional differences in access were reported with the highest level registered in the area served by Tetu Aberdare Water and Sanitation Company at 72 percent whereas the lowest was recorded in Muthambi in Meru South District at 4 percent. In the capital Nairobi, access for the same period was reported at 35 percent, as opposed to a less realistic figure of 46 percent reported for 2005-2006.

Children, just like adults, are heavily affected by lack of safe water and improved sanitation. According to the World Health Organization (WHO) report on progress of drinking water and sanitation of 2012, when water has to be fetched a distance away from home, in most cases children are involved. This interferes with their consistency in school as well as their performance. The report goes further to state that where children spend hours each day walking to streams and other sources to collect water for their families, they have little time or energy left to pursue an education and other gainful activities. Moreover, the heavy loads they carry may cause skeletal deformation and accelerate the deterioration of joints.

According to Unver & Kibaroglu (2003), everyone benefits from good sanitation. But girls are among those who benefit the most. Girls often miss out on an education because they have to help with the household chores and, when money is scarce, it's usually the boys who get chosen to go to school. They go ahead to state that an important reason why girls drop out of school in developing countries - mainly in Africa and Asia - is because of lack of sanitation facilities.

A report by UNICEF (2010) indicates that diarrhoea is a leading killer of children, accounting for 9 per cent of all deaths among children under age 5 worldwide. A progress report on sanitation and drinking water of 2014 stated that by 2013 diarrhoea translated into 1,600 young children deaths each day, or about 580,000 children a year. Most deaths from diarrhoea occur among children less than 2 years of age living in South Asia and sub-Saharan Africa (Mara, 2003) but despite this heavy toll, progress is being made. From 2000 to 2013, the total annual number of deaths from diarrhoea among children under 5 decreased by more than 50 per cent – from over 1.2 million to fewer than 0.6 million (UNICEF 2010). Indicators from the UNICEF (2010) report reveal that today, only 44 percent of children with diarrhoea in low-income countries receive the recommended treatment.

Pruss, Kay, Fewtrell & Bartram (2002) claim that diarrhoea is a deadly killer disease with 1.6 million people dying every year as a result of lack of access to safe drinking water and basic sanitation. Sadly, 90 percent of these are children under 5, mostly in developing countries. They continue to say that globally, 88 percent of diarrhoeal diseases are attributed to unsafe water supply, inadequate sanitation and hygiene. Pruss (2002), while estimating the burden of disease from water, sanitation and hygiene, stated that an estimated 801,000 children younger

than 5 years of age perish from diarrhoea each year, mostly in developing countries. Properzi (2010) in his rapid assessment on drinking water quality points out diarrhoeal related deaths amounting to 11 percent of the 7.6 million deaths of children under the age of five and means that about 2,200 children are dying every day as a result of diarrhoeal diseases. He goes ahead to say that unsafe drinking water, inadequate availability of water for hygiene, and lack of access to sanitation together contribute to about 88 percent of deaths from diarrhoeal diseases.

The World Water Development Report (2009) linked access to improved water supply to a reduction in diarrhoea morbidity by 21 percent while improved sanitation reduces diarrhoea morbidity by 37.5 percent. Estimates from the Hutton & Haller (2004) indicate that washing hands with soap and water could reduce diarrhoeal disease-associated deaths by up to 50 percent. Also, Additional improvement of drinking-water quality, such as using disinfectants, would lead to a reduction of diarrhoea episodes of 45 percent.

WASH-related diseases and associated conditions including anaemia, dehydration, diarrhoea and malnutrition are the number one cause of under 5 hospitalization and mortality. A report by the WHO and UNICEF (2013) on the progress of sanitation and drinking water indicate that 1.6 million children die every year due to preventable water borne diseases such as diarrhoea, typhoid and cholera. 88 percent of these diarrhoeal deaths are due to lack of access to improved water and sanitation facilities. The Demographic Health Survey (2010) indicates that in Kenya, the proportion of people who spent over 15 minutes a day to fetch water is 34 percent.

Properzi (2010) estimates 200 million hours are spent daily across the globe collecting water. Surveys from 45 developing countries show that women and children bear the primary responsibility of collecting water. This is time not spent working at an income generating activity, caring for family members or attending to school. Children remain out of school while collecting water thus affecting consistency in attending school and later on their performance. Poor performing students miss out on opportunities to join institutions of higher learning and this means that their chances of getting good and well paying jobs are minimized. The cycle of poverty gets impossible to break when children remain out of school.

## 2.2 Household exposure to GBV while accessing safe water and improved sanitation

Dunkle, Jewkes, Brown., et al (2004) argue that poor access to water, sanitation and hygiene (WASH), whilst not the root cause of violence, can exacerbate the vulnerability of women and girls to violence. Girls and women frequently face harassment when defecating in the open. They may delay drinking and eating in order to wait until nightfall to relieve themselves because of feelings of shame and risks to their dignity if they are seen defecating in the daylight. Walking to remote locations to collect water for drinking, cooking or laundry or using WASH facilities after dark puts women and girls at risk of harassment, sexual assault and rape. Lack of access to water may also contribute to tensions between husband and wife, particularly in water-scarce or drought-affected areas, and this can lead to violence.

Cairncross (2003) on the other hand states that when women and children have to queue for extended periods at water points, this can lead to fights with other service users, particularly where refugees or other displaced people are accessing water previously only used by the host community. Women are also susceptible to receiving a beating from their husbands for their late return home after a long day of waiting in the queue to collect water. Women and children are often the target of these conflicts because it is usually their responsibility to collect water. In conflict situations, men and boys may also be vulnerable to abduction or murder when accessing water points outside the boundaries of a camp, with boys also vulnerable to rape.

According to the World Water Development Report (2009), in low income areas where there are no individual toilets, women have to queue for long periods to gain access to public toilets. Some have to bear the indignity of having to defecate in the open which exposes them to possibilities of sexual harassment or assault. This in itself is demeaning of their self worth and thus lowers their self esteem too. Women and girls face risks of sexual violence when they have to walk long distances to access sanitation facilities, especially at night. Lack of adequate sanitation affects women and girls in particular. Not only do women and girls have different physical needs from men but they also have greater need for privacy when using toilets and when bathing. Inaccessible toilets and bathrooms make them more vulnerable to rape and other forms of GBV like humiliation and unwanted verbal utterances.

Clansen, Sugden, Detels., et al (2009) argue that although men also suffer from the burden of lack of improved water and sanitation, they are more likely to resort to other means to empty their bowels. Men urinate and defecate in open space comfortably or can easily pay to use commercial public toilets. Women are however disadvantaged because of finances, their anatomy, modesty and susceptibility to attack. Men also do not spend most of their days at home. This gives them the opportunity to empty their bowels at their places of work. In addition to the risk of physical and sexual violence, women and girls who defecate in the open, especially in the bush, face the risk of animal attacks. Women and girls are more susceptible to snake bites because they tend to move quietly in the bush in order to be discrete. Snakes and other animals are then not scared away and are more likely to be surprised by the women's presence and bite them. Men, on the other hand, are more likely to walk loudly into the bush scaring snakes and other animals away.

The United Nations (2008) point out that women and girls don't need toilets and bathrooms just for urinating and defecating. They also have a much greater need for privacy and dignity when menstruating. Women and girls have particular sanitation needs when they are menstruating which are rarely discussed and considered. During these times, girls in school face humiliation that forces them to abscond school. This affects them psychologically, emotionally as well as their performance in school.

### 2.4 Access to safe water and improved sanitation with regards to household economy

Crow & Odaba (2009) estimate that on average, 36.5 percent of poor Kenyan households in the urban areas spend thirty minutes to collect water every day. They continue to say that users of water kiosks in cities fetch water 4–6 times per day. This means that a poor household spends roughly 112 minutes per day to fetch water at normal times, and as much as 200 minutes per day during times of scarcity. Time is money and its wastage translates to a lot of loss both for the individuals and the country at large. Instead of engaging in productive works, women and school going children spend most of their time collecting domestic water.

Kauffmann & Pérard (2007) state that millions of women are prohibited from accomplishing a little more than survival and remain cut off from participation in development activities. This is

not because they lack ambition or ability but because of a lack of safe water and adequate sanitation. Untold number of hours is spent daily by women and children in collecting water for domestic use. Women unfortunately bear the heavy brunt of inadequate access to improved water and sanitation. The long wait in water and toilet queues can mean that toddlers remain unattended to and household chores are delayed, eliminating possibilities of engaging in development works aimed towards economy growth.

Throughout the world there is a strong correlation between access to safe drinking water and economic growth (Kauffmann & Perard, 2007). That correlation may be explained in the sense that higher levels of access to safe drinking water are likely to increase the rate of economic growth by improving the health and education of a population and minimizing the costs of unsafe drinking water. Moe & Rheingans (2006) continue to say that water's crucial role in accomplishing the continent's development goals is widely recognized. Africa faces endemic poverty, food insecurity and pervasive underdevelopment, with almost all countries lacking the human, economic and institutional capacities to effectively develop and manage their water resources sustainably.

According to Fass (2010) budgets, whether household or national, are crucial in the development process and building of the economy. Household budgets aid in planning for the future. Young families in most cases have small monies to budget for especially because their sources of income are not stable. When these meager budgets have to also incorporate buying water and paying for improved sanitation facilities, then the household budget ends up being strained further. In some cases, sacrifices have to be made like having the girl child drop out of school in favor of the boy child due to limited finances.

Collignon, & Vézina (2000) state that the social and economic effects caused by a lack of clean water are often the highest priorities of African communities. There are a number of reasons why poverty has become an epidemic in Africa. Poverty can be the result of political instability, ethnic conflicts, climate change and other man-made causes. But one of the greatest causes of poverty in Africa is also the most overlooked, the lack of access to clean drinking water and improved sanitation facilities (Collignon, & Vézina, 2000). They argue that nearly

one billion people do not have access to clean, safe water and sanitation, that's the equivalent of 1 in 8 people on the planet

The lack of water is an often insurmountable obstacle to helping oneself as is well put by Baum, Luh & Bartram (2013). You can't grow food, you can't build housing, you can't stay healthy, you can't stay in school and you can't keep working. Without clean water, the possibility of breaking out of the cycle of poverty is incredibly slim. With unclean water sources often miles from villages, many of the able bodied members of a community are forced to spend hours each day simply finding and transporting water.

The United Nations estimates that Sub-Saharan Africa alone loses 40 billion hours per year collecting water; that's the same as a whole year's worth of labor by France's entire workforce (UNICEF, 2010). This is incredibly valuable time. With much of one's day already consumed by meeting basic needs, there isn't time for much else. The hours lost to gathering water are often the difference between time to do a trade and earn a living and not. Just think of all the things you would miss if you had to take three hours out each day to get water. When a water solution is put into place, sustainable agriculture is possible. Children get back to school instead of collecting dirty water all day, or being sick from waterborne illnesses. Parents find more time to care for their families, expand minimal farming to sustainable levels, and even run small businesses.

In many developing countries, women and girls walk on average over 3.5 miles each day to fetch water (Bapat & Agarwal, 2013). Bapat & Agarwal (2013) continue to state that women often spend more than 15 hours per week gathering water. Clean water, adequate sanitation facilities and better hygiene practices can prevent the spread of disease and even improve nutrition, as people are able to grow more crops when water is readily available. Collecting water is one of the most laborious tasks in many developing countries, and the task of trekking many hours to collect it often falls to women and girls. Providing easy access to clean water means that girls are able to attend school instead of spending hours collecting water.

## 2.5 Theoretical Framework

Inaccessibility to safe water and improved sanitation has many implications on the daily living of human beings, including health effects. The Germ theory states that diseases are mainly caused by microorganisms which are small organisms that invade humans, animals and other living hosts (Loomis & Wing, 1990). Diarrhoea is one among the many water borne diseases that are linked to inaccessibility to safe water and improved sanitation. Water even from the safest sources can only be considered safe after it has been treated because it is prone to contamination. Diarrhoea is a deadly disease because it has been estimated to kill over a thousand children every day (Loomis & Wing, 1990). It keeps children out of school and uses up a lot of resources during treatment, resources which would have been directed to other productive works.

Rosenfeld (1984), when articulating the Social Contract theory, states that in nature human life is solitary, poor, nasty, brutish and short. In the absence of order and law, everyone would have unlimited natural freedoms, including the right to all things thus the freedom to plunder, rape and murder. There would be an endless war against all. To avoid this, free men get into contract with each other.

GBV in itself is punishable by law because it is an offense, yet men, women and children yet exposure to these risks when they are accessing their most basic needs of safe water and improved sanitation. By the fact that there are laws and policies governing human interactions one would claim that GBV should b a thing of the past. However, that is not the case at all since cases of rape and physical violence continue to be reported.

These incidences are not perpetrated by strangers, but on the contrary, by people living within Kaptembwo. This therefore means that the people of Kaptembwo can unite and say that if someone is raped while accessing safe water and improved sanitation, the perpetrators will be severely punished through following the appropriate official channels. This will bind the people of Kaptembwo, since they will have entered into a contract with each other, and will keep them away from perpetrating GBV and other forms of injustices. A communal approach is appropriate where one is their brother's keeper.

Radical Feminism theory advocates for a radical reordering of society where male supremacy is eliminated in all social and economic contexts (Gunew, 2013). When accessibility to safe water and improved sanitation is suboptimal, then the boy child continues to flourish at the expense of the girl child. School going girls are involved in the collection of domestic water and undertaking of household chores while their male counterparts go on attending school. When resources are limited and have to be shared between education and accessing safe water and improved sanitation, the girl child sacrifices her education.

Patriarchy contributes to all this because social norms stipulate chores for girls and boys. In the olden days, girls remained at home and did domestic chores while boys went out in the field to graze livestock, hunt and gather. The case is different today when hunting and gathering is no longer practices. The contentious question then arises in that when girls are doing domestic chores today, what does the boy child do?

### 2.6 Conceptual framework

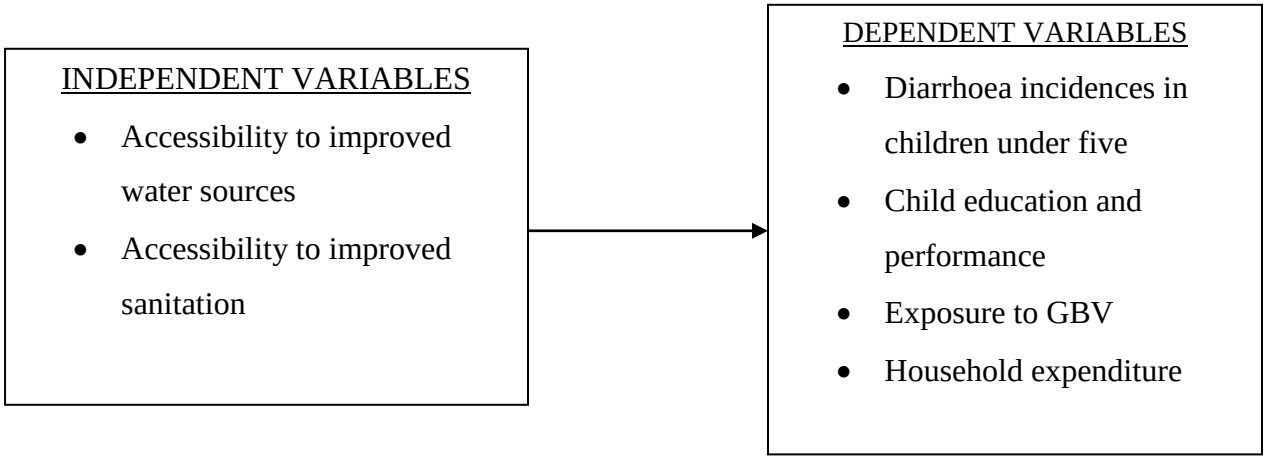
Figure 1.1 is a pictorial representation that brings out clearly the relationship between various variables in the study. The independent variables in this study were improved water sources and improved sanitation and how their accessibility or inaccessibility thereof interferes with the wellbeing of the population of Kaptembwo A. Children, just like everyone else, get affected by lack of safe water and improved sanitation. They get involved in the exercise of collecting domestic water using jerry cans which are heavy and can affect their neurological development. Increased diarrhoeal incidences among children under 5 has been associated with inaccessibility to safe water and improved sanitation. As a result, children miss out of school as they seek treatment. Also, household finances get directed to treatment of this water borne disease instead of towards productive works for the household. Children also get exposed to the dangers of GBV including physical and sexual violence when they have to fetch water from water sources that are far from the house. Moreover, if they have to use improved sanitation facilities that are far from the household after dark, they are at risk of exposure to GBV.

Inaccessibility to safe water and improved sanitation is not the main cause of GBV but it does accelerate occurrence as it facilitates exposure. People get exposed to GBV as they try to access domestic water and improved sanitation facilities that are quite a distance from the

household. Women and children are more vulnerable to GBV because they make up the large percentage of those of participate in collecting domestic water. There are three types of GBV that these vulnerable groups are susceptible to including sexual, physical and psychological violence.

A lot of finances also go into treating of diarrhoea incidences, thus affecting household finances which would otherwise be used for more productive works. When households have to buy water from vendors, this takes up a significant amount of the household budget and thus strains the household economy. Money that would have been used to pay school fees, buy balanced diet or directed to family investments ends up buying domestic water or in treating water borne diseases.

**Figure 1: Conceptual Framework**



# CHAPTER THREE

# METHODOLOGY

This chapter discusses the study area while bringing out its economic, social and demographic features. The sample size and how it was attained is also discussed in depth. Multi stage sampling, the sampling method that was used for the study is justified and clearly elaborated. Questionnaires, which were the mode of data collection, are explained. A step by step outline is given on how the questionnaire was piloted and why. Qualitative data for this study was analyzed using Statistical Packages for Social Sciences.

## 3.1 Location of Study

The study was carried out in Kaptembwo informal settlement of Nakuru Town, Kenya. Kaptembwo is divided into Kaptembwo A and Kaptembwo B. This study was conducted in Kaptembwo A. The Quality of Life Index of Kaptembwo A is ranked 21 with the general quality of life being poor (KNBS, 2010). Kaptembwo A is approximately 3 kilometres along Kaloleni road off Eldoret road. It lies on the North West of Nakuru town. The topography of the area is sloppy slopping from the North to the South. Kaptembwo A has a population that is low income and mixed ethnicity. Despite its mixed ethnicity, Kalenjins are dominant in the area. The top soil is loam soil and this contributes to the area being characterized by an unstable soil profile that is not self supporting. The area is dominated by muddy iron roofed houses (KNBS, 2010).

Kaptembwo A is an area that is linked to Water Service Providers network although the area still experiences water shortage. There is high rate of water rationing as well as illegal water connections in the area. There are water vendors in the area especially because the people have to substitute for the water shortage (KNBS, 2010). Improved sanitation coverage of the area is wanting. Due to the unstable soil profile of the area, many pit latrines end up sinking and collapsing. There are a few communal toilets which are funded by incline organizations. When pit latrines get full, many of them are not emptied but are abandoned and new ones are dug. Due to the many people who share the pit latrines, it is difficult to keep them clean (KNBS, 2010).

Solid waste management in the area is poor as residents throw their litter anywhere in the neighbourhood. Only a negligible fraction of the population in Kaptembwo A has rubbish pits. Drug abuse and consumption of local brews is rampant and this makes many residents reluctant to some issues like those involving maintaining a clean environment.

Kaptembwo A has an estimated area population of 21, 172. The dwelling type is majorly plots which are occupied by several households. There are approximately 453 dwellings with an average of 16 households per dwelling and most of the residents are renting the houses (KNBS, 2010). The main material used for roofing is iron or asbestos roof while the main material used for walling is mud.

The area is short of socio-economic infrastructure as they are limited in number. There are no shopping areas but a market is under construction (KNBS, 2010). There are two primary schools and one secondary school in the area. The area lacks a hospital facility, both private and public, although there is one health centre. Sports fields play grounds and social community halls are not present in the area. The main source of income for the male population of Kaptembwo A is temporary employment in factories and industries in Nakuru town, trade or business while the women are more engaged in trade and business (KNBS, 2010).

### 3.2 Study Population

Kaptembwo A has an estimated population of 21,172 people. There are 252 dwellings, which are plots built with averagely 16 houses per dwelling.

### 3.3 Research Design

For the purpose of this study, analytical descriptive research design was used. Descriptive Research aims at describing a particular state of affair or an incident but does not provide any reason as such why , how , when and by whom a particular event happened. It attempts to describe and explain conditions of the present by using many subjects and questionnaires to fully describe a phenomenon. This entailed interviewing people face to face or handing out questionnaires to fill out questions about themselves (Berg et al., 2004). On the other hand an analytical research answers questions why, how, when and by whom the incident happened. It provides suitable reason. It is an in depth study.

Analytical descriptive research design is most appropriate for this study because it can be used to investigate problems in realistic settings and patterns can be examined where they happen, the cost of surveys is reasonable considering the amount of information gathered. Moreover, large amounts of data can be collected with relative ease from a variety of people. This technique allows the researcher to examine many variables and to use multivariate statistics to analyze the data.

### 3.4 Sampling Procedure

Sampling is concerned with the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population (Yates, 1949).

Both probability and non probability sampling methods were used for this study. Multi stage sampling was used for the study due to the large population that is scattered thus making it impossible to make a list of the entire population. Multi stage sampling represents a more complicated form of cluster sampling in which larger clusters are further subdivided into smaller, more targeted groupings for the purposes of surveying. Despite its name, multi-stage sampling can in fact be easier to implement and can create a more representative sample of the population than a single sampling technique. Particularly in cases where a general sampling frame requires preliminary construction, multi-stage sampling can help reduce costs of large-scale survey research and limit the aspects of a population which needs to be included within the frame for sampling.

Kaptembwo A has a total of 252 dwellings which were considered as the larger clusters. These large clusters were subdivided further using random sampling based on the 30 percent Mugenda rule. This resulted to obtaining a representative sample size of 75 dwellings.

Based on the nature of study that seeks to analyze diarrhoeal incidences among children, the 75 dwellings were then further sampled using purposive sampling method. In each dwelling, two households were selected. One household was male headed and the other female headed. Moreover, these two households that were selected per dwelling had to have a child under the age of five.

### 3.5 Sample Size

The sample size of a survey most typically refers to the number of units that were chosen from which data were gathered. However, sample size can be defined in various ways. There is the designated sample size, which is the number of sample units selected for contact or data collection. There is also the final sample size, which is the number of completed interviews or units for which data are actually collected (MacCallum et al., 1999). For this study, a designated sample size of 75 dwellings was targeted. In every dwelling, 2 households were interviewed making a final sample size of 150 households.

### 3.6 Data Collection

Data for the study was collected using questionnaires that incorporated both open ended and closed ended questions.

**Questionnaires**

Before the questionnaires were administered, a pilot study was conducted in Rhonda of Nakuru County, an informal settlement inhabited by low income, mixed ethnicity population. This process of piloting gave the study the confidence that it was measuring what it intended to measure. Moreover, it allows for restructuring of questions that were otherwise not well defined which ensures that the respondents are getting the best survey experience possible. Also, it formed a basis for proper interpretation of results by providing a better understanding of the interview process from the respondents' point of view.

A survey visit to Kaptembwo was undertaken in the quest to allow for familiarization with the surrounding of the sampled dwellings. The questionnaires were administered to the 150 sampled households, with the help of 2 research assistants whom were recruited based on qualification and competence. They had prior been trained on conducting interviews and filling questionnaires. They were also taken through the study questionnaire and briefed on how they were expected to ask questions in order to get the desired response.

The exercise of issuing out the questionnaires was scheduled to be a 5 day exercise. The team of 3, the 2 research assistance and I, divided the 75 dwellings tasking each research assistant with 25 dwellings. In the 25 dwellings, two households were interviewed making a total of 50

households for each research assistant. In order to meet the target of interviewing all the 50 households in the scheduled 5 days, every research assistant had to interview 5 dwellings resulting to 10 households every day.

### 3.7 Data analysis

Data analysis, is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making (Hair et al., 2010). It entails the process of obtaining raw data and converting it into information useful for decision-making by users. Data is collected and analyzed to answer questions, test hypotheses or disprove theories (Hair et al., 2010).

Quantitative data collected using questionnaires was coded and analysed using the Statistical Packages for Social Studies (SPSS). This method of data collection was informed by the study objectives. Findings were expressed in the form of frequencies and percentages and presented in bar charts and tables.

### 3.8 Ethical consideration

This study took into consideration ethical measures. Respondents were informed prior to filling of the questionnaires about the aim of the study and consent was sort from them. Those who did not wish to take part were not coerced to do so. Anonymity was ensured during questionnaire filling in order to protect the identity of the respondents.

# CHAPTER FOUR

# STUDY FINDINGS AND DISCUSSIONS

## 4.1 Introduction

This study aimed at finding out if there are any gender implications of household inaccessibility to safe water and improved sanitation in Kaptembwo low income areas, Nakuru County. In this chapter, findings of the study are presented and analyzed in tables and charts as per the study objectives.

## 4.2 Accessibility to safe water and improved sanitation in relation to children

Unsafe water, inadequate sanitation and lack of hygiene not only affect the health, safety, and quality of life of children. The lives of an estimated 1.5 million children under the age of five are claimed as they die each year from diarrhoea (Mara, 2003). The majority of these deaths occur in sub-Saharan Africa where nearly half the population lacks access to improved water and sanitation. Children are more vulnerable to the health hazards associated with unimproved water supply and sanitation; their immune, respiratory, and digestive systems are still developing, and children play in areas where contaminants may accumulate

Wide gaps still exist in the accessibility to safe water and improved sanitation especially in informal settlements. In Kaptembwo informal settlements, 68.6 percent of the respondents reported to have access to water through piped water, buying from vendors and some collect rain water. Tap water is rationed and is made available by the Nakuru Water and Sanitation Company (NAWASCO) to the residents only once a week. It is on that day that they line up almost all day in order to get access to this precious commodity. In most dwellings, there is a communal tap in the yard that is shared by all households in that dwelling. On this particular water day, people wake up as early as 3.00 am to line up in order to be able to fetch the water in jerry cans which are stored in the house. If the jerry cans of water that one managed to fetch are exhausted before the next “water day”, as it is popularly known to the residents, then one has to substitute by having to buy from vendors. There are several water projects initiated by Non-Governmental Organizations within the area which sell water to the residents at a subsidized price.

During the rainy season, residents get a relief especially because they collect rain water which then substitutes for the tap water they get on Tuesdays.

"*Money that would otherwise be used to buy water from vendors during the rainy seasons now gets directed to other productive use including children's school fees and buying balanced diet for children. It is also during this time when majority of people will take up personal development due to the amount that gets saved. Women can take up hairdressing and tailoring courses, while men can take up mechanics"*

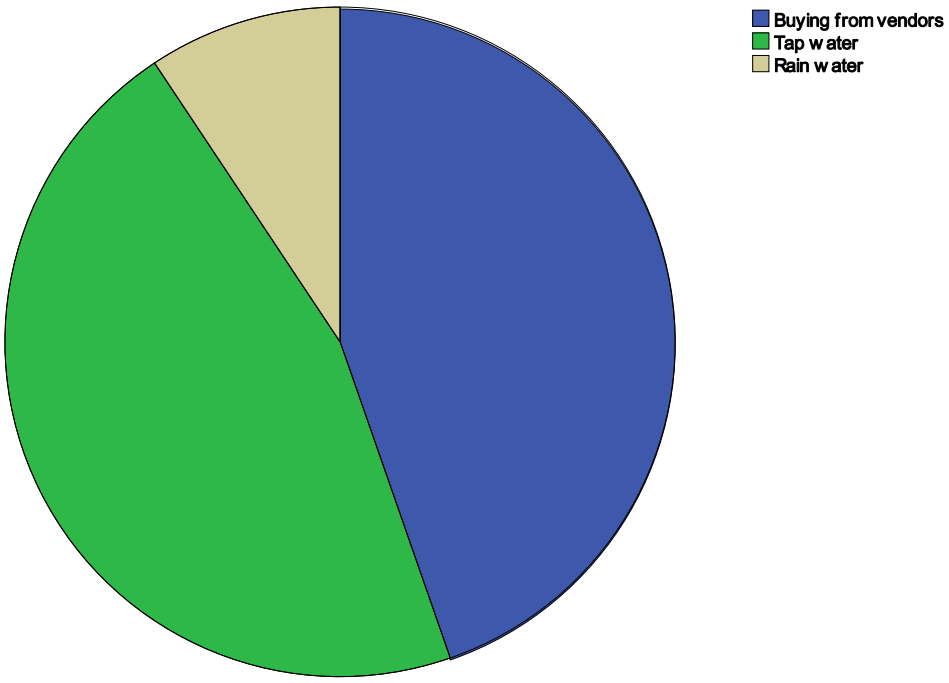



**Figure 2: Household major source of water**

Figure 2 above indicates that 46.1 percent of the respondents have access to tap water. However, 44.8 percent still have to substitute by buying from vendors. Despite there being tap water, majority have to substitute because the tap water they fetch every "water day" is enough to last them the entire week.

There are slight differences when it comes to household source of water based on the gender of household head. Figure 3 below indicates that male headed households seem to be buying water from vendors more often than female headed households. This can be attributed to the economic status of female headed households who cannot afford the cost implications of buying water from vendors. Out of the 67 households that buy water from vendors, 39 are male headed while 28 are female headed. Tap water is universal for all because when it is "water day" both male and female headed households get a chance to fetch the water. Due to the cost implications that come with buying water from vendors, 9 out of 14 female headed households have resulted to harvesting rain water. This helps cut down the cost of buying water significantly especially during the rainy season.

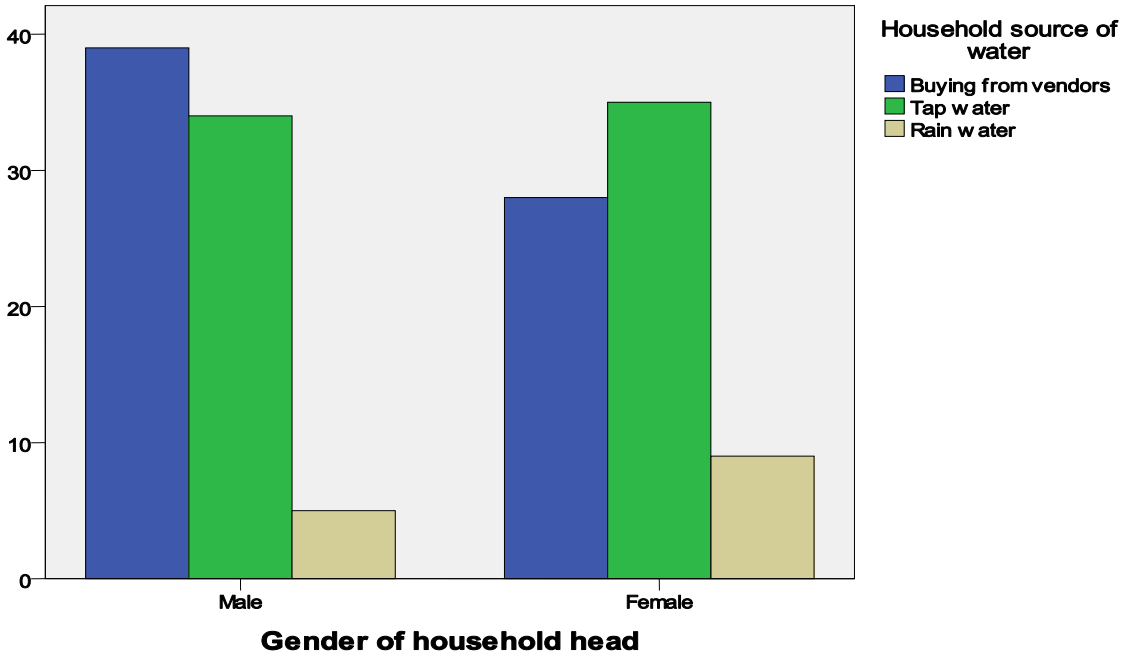



**Figure 3: Gender of household head against household source of water**

Having found out that the tap water is a communal tap outside of the household although within the dwelling, it is most likely that someone form each household has to be involved in fetching of this water. Moreover, considering that a lot of buying from vendors occurs, it was necessary to find out exactly which member of a household is involved more in this activity.

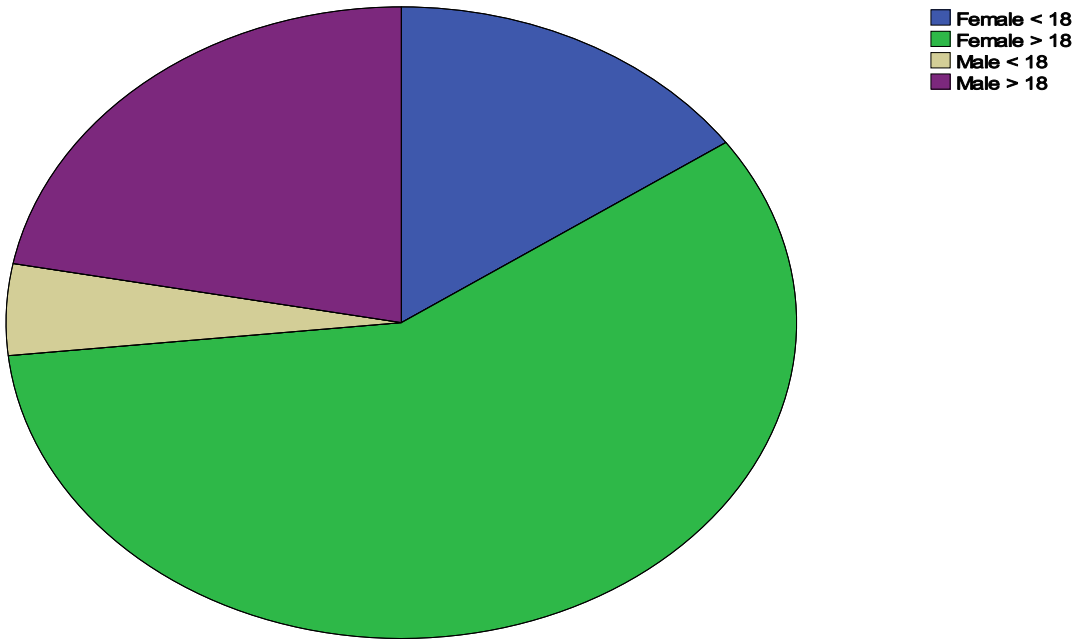



**Figure 4: Persons who collect domestic water**

Figure 4 above reveals that 58 percent of female adults are involved in domestic water collection, making them the highest percentage of people involved in the activity of collecting domestic water. Their male counterparts only make up 22 percent of adults who take part in collecting domestic water.

In this study, a child was defined to be a person who has not attained the age of maturity which is 18 years. Of the 20 percent of children involved in collecting of domestic water, 15.3 percent are females while 4.7 percent are male.

A comparison was made between male headed and female headed households in order to find out the differences that may exist in persons involved in the activity of collecting domestic water.

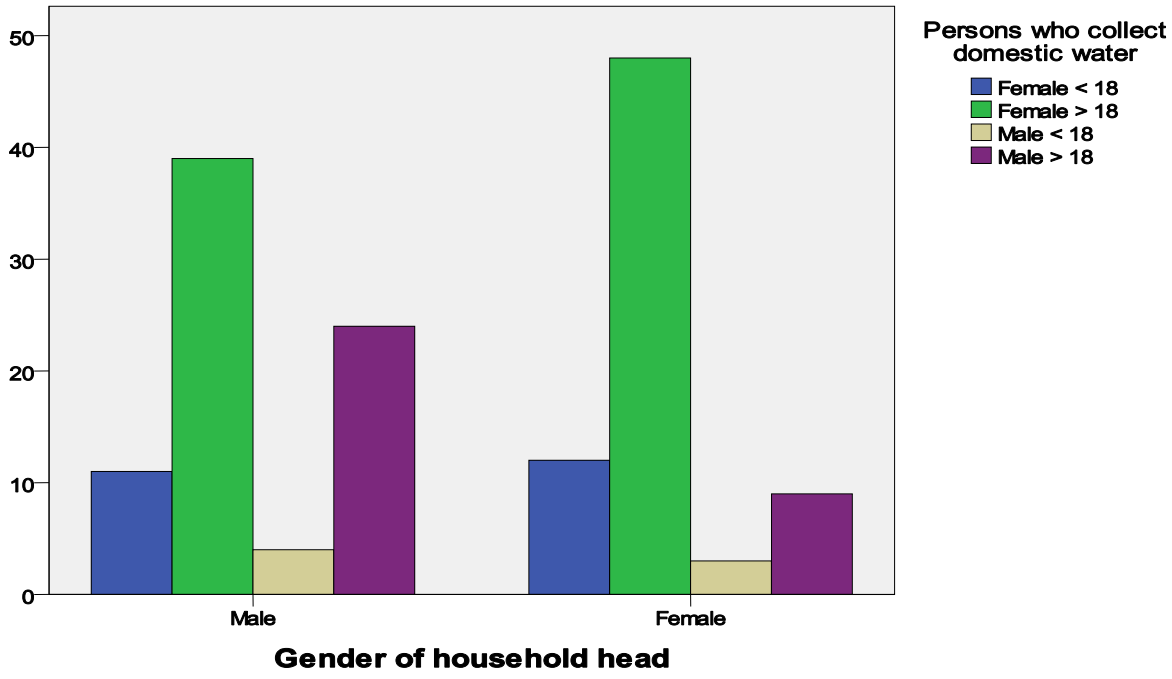



**Figure 5: Gender of the household head against persons who collect domestic water**

From figure 5 above, out of the 72 female headed households, 12 households had female members below the age of 15 involved in the activity of collecting domestic water while 48 females above the age of 15 were also involved. 3 males below the age of 15 and 9 males below the age of 15 living in female headed households were also involved in the activity of collecting domestic water. On the other hand, male headed households had 11 females below the age of 15 participate in domestic water collection. Moreover, 39 females above the age of 15 in male headed households also took part in domestic water collection. 4 males below the age of 15 collected domestic water and 24 males above the age of 15 also collected domestic water.

It is evident from the above results that in both female headed and male headed households, the girl child, both below and above the age of 18, participates actively in the activity of collecting domestic water. In female headed households, out of the 15 boys and girls under the age of 18 who participate in domestic water collection, 12 are girls and 3 are boys. Also, of the 57 children above the age of 18 who participate in domestic water collection, 48 are girls and 9 and boys. An evaluation of the male headed households does not paint a different picture. Of the 15 children below the age of 18 who participate in domestic water collection, 11 are girls while 4 are boys. Moreover, of the 63 children above the age of 18 who participate in domestic water collection, 39 are girls while 24 are boys.

Children below the age of 18 are school going and therefore having them involved in collection of domestic water has detrimental consequences. It is clear that the girl child gets to miss out on school work as compared to their male counterparts. This means that they either have to go to school after collecting a few jerry cans of water or schedule to do so after school hours in the evening. Collecting domestic water before going to school may make them get to school late and consequently be punished for late coming. Moreover, it also means that they are tired by the time they get to school and this affects their concentration in class. Collecting the domestic water after school hours is not any better especially because it leaves the children with little to no time for homework and conducting personal studies.

Given that the "water day" is on a Tuesday, it would mean that a majority of the girls miss out on school on that day so that they can remain behind and help with domestic water collection. This deprives them of not only their education but also they have little to no time at all to engage in extracurricular activities.

Children, more than the adult population, are heavily affected by the disease burden resulting from inaccessibility to safe water and improved sanitation. Despite a lot of advocay and lobbying being directed to the provision of safe water to the public, important to note is that these water from the tap that is considered safe needs to be treated. This is majorly because these safe drinking water sources are subject to contamination and can cause water borne diseases.

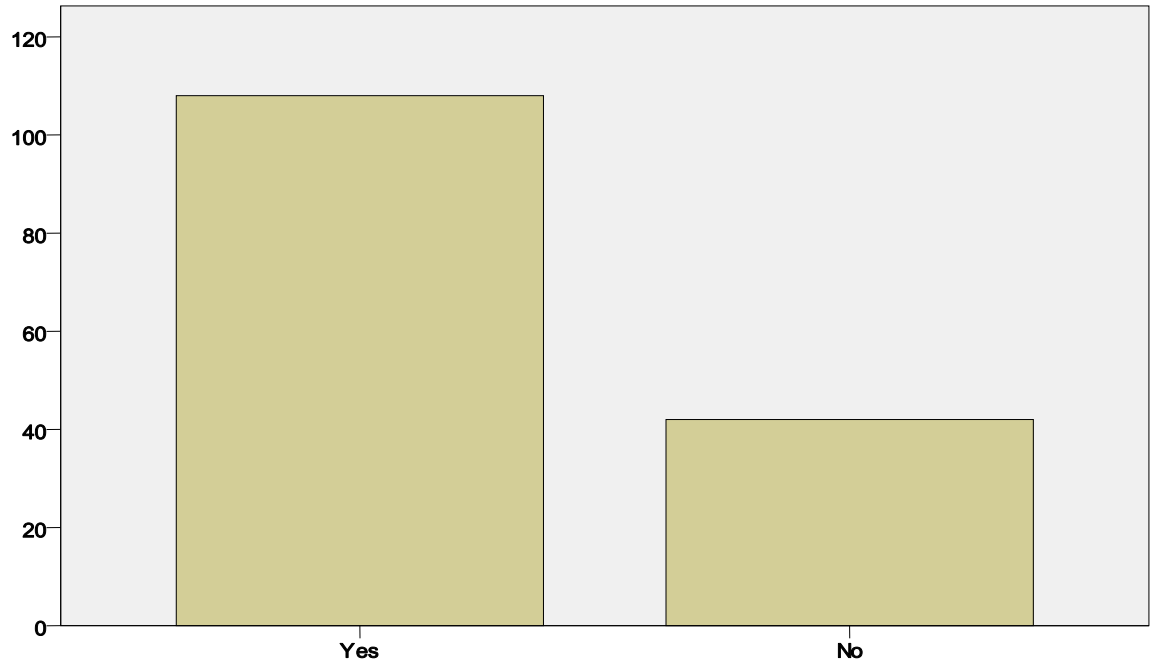



**Figure 6: Diarrhoea incidences among children under 5**

As shown in figure 6 above, 108 household heads reported to have had incidences where their children below the age of 5 experienced diarrhoeal incidences during two weeks before the study. 42 household heads on the other hand attested to have not experienced diarrhoea among their under 5 years children during two weeks before the study.

With the high rate of diarrhoea, the study sort to find out whether water treatment methods used were in any way related to diarrhoea in children under 5 years. This was important because water treatment strategies have great implications on household health and especially for the children. When water is taken raw directly from the source, the probability of ingesting contaminated water is high. This therefore means that there is a high chance that the household members will suffer from water borne diseases including diarrhoea.

From figure 7 below, it is evident from the respondents remarks that water treatment is not adhered to the latter. This is so because the data indicates that 25.5 percent did not use any water treatment method but instead took it raw. Moreover, 24.8 percent used boiling, 27.5 percent used bleaching agents such as chlorine while 20.3 percent filtered their domestic water before use.

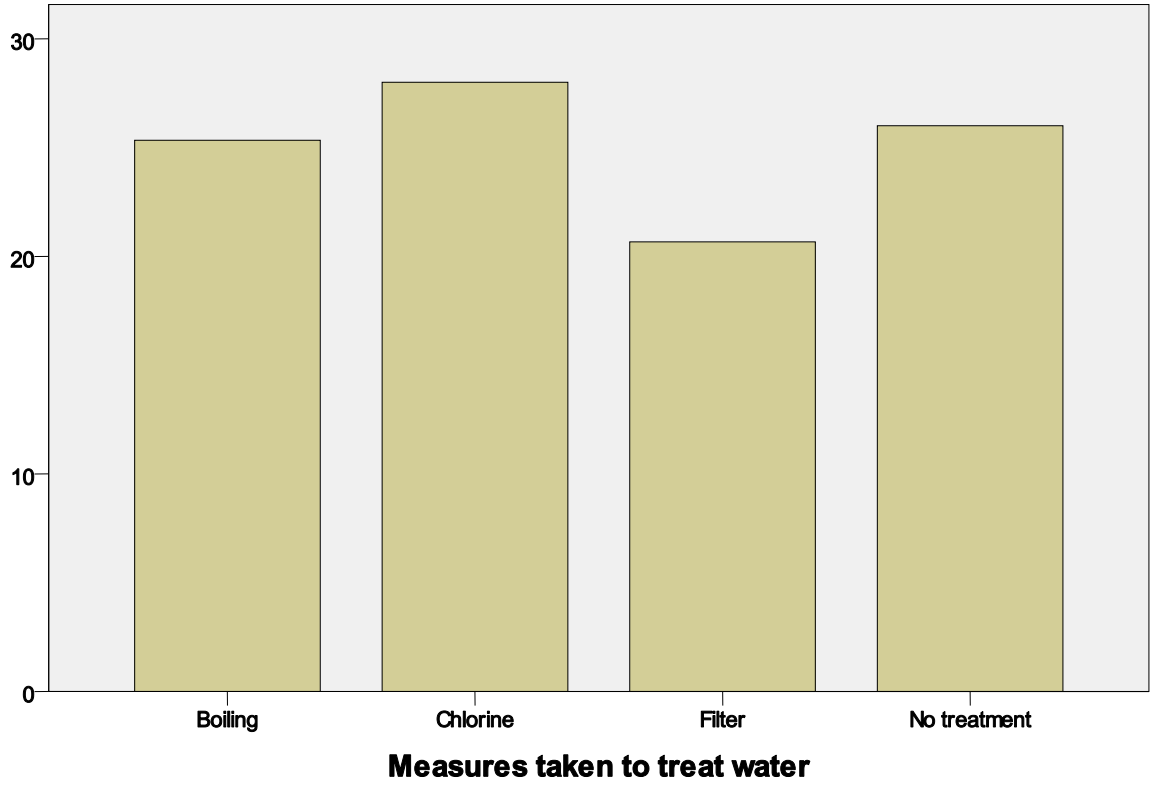



**Figure 7: Household water treatment measures**

A cross tabulation of the gender of the household head and the measures taken to treat domestic water was conducted in order to establish the differences that may be in existence. Out of the 78 male headed households, 20 boiled their water for domestic use, 18 added bleaching agents like chlorine, 18 filtered and 22 used no water treatment methods at all. On the other hand, out of the 72 female headed households, 18 boiled their domestic water, 24 used chlorine, 13 filtered and 17 used no treatment at all.

Male headed households use boiling as a method of treating their water as opposed to female headed households. This can largely be attributed to constraints in finances for the female headed households.

From one of the focus group discussions with the women, one woman said;

*"... we prefer to boil domestic water because charcoal is the most readily available source of fuel around here. After I finish preparing supper, I don't let the charcoal burning in the jiko to go to waste. Instead, I use it to boil drinking water, However, when all the charcoal has been used up, I don't usually add more charcoal to the jiko and thus end up not boil drinking water..."*

With this, it can be concluded that boiling drinking water is not a compulsory procedure. Rather it only occurs when the little charcoal they use to prepare supper is not burned completely. This may have contributed to the large numbers who do not use any water treatment methods at all specifically 22 being male headed households and 17 being female headed.

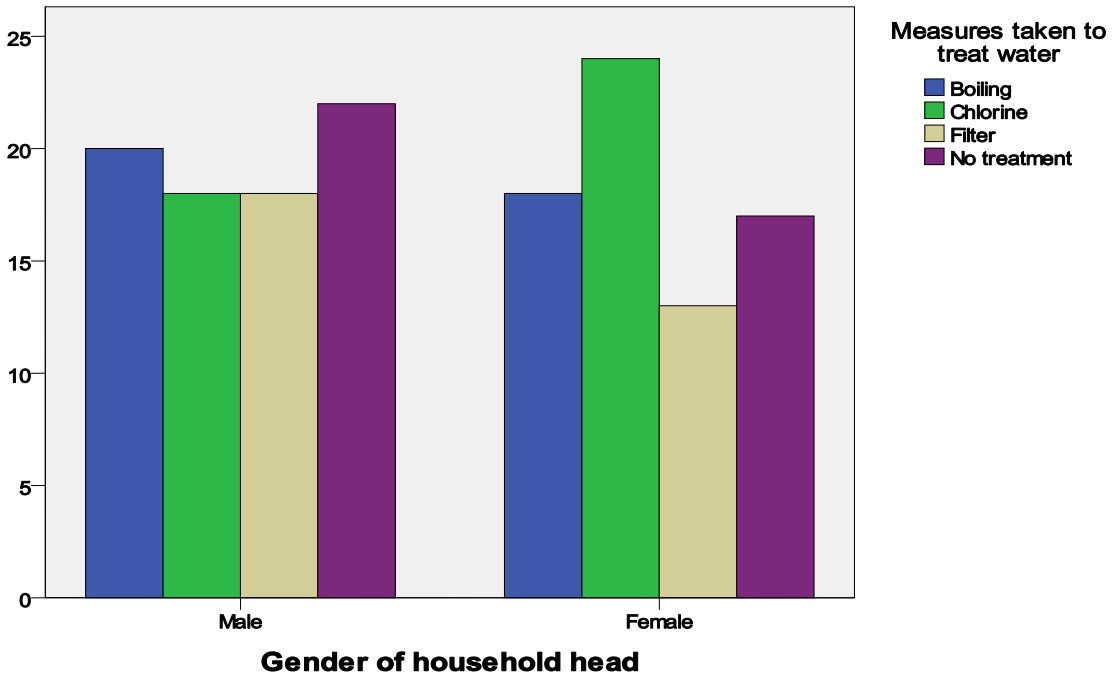



**Figure 8: Gender of household head against measures taken to treat domestic water**

From the above figure, it is clear that both female headed and male headed households strive to ensure that they treat their drinking water. This is so because out of the 111 households that treat their drinking water, 56 are male headed while 55 are female headed. Also, out of the 78 male headed households that were interviewed, 22 male headed households and 17 female headed households did not treat their domestic water.

Despite that a female headed household has a single source of income and could not regularly afford to buy charcoal to boil drinking water, 24 female headed households opted to use chlorine as a means of treating their drinking water.

This study also sort to evaluate the influence of the level of education of the household head has on the measures taken to treat domestic water. In order to evaluate the influence of respondent's level of education on measures taken to treat domestic water, a cross tabulation of the two variables was conducted and the results are presented in figure 9 below.

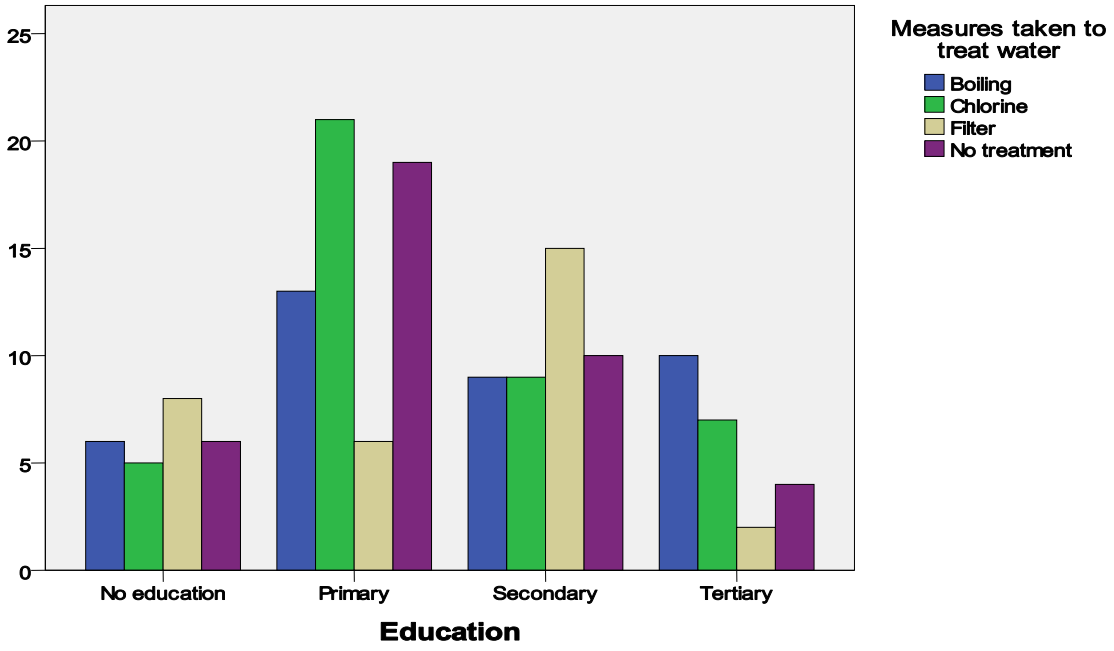



**Figure 9: Education against measures taken to treat water**

From figure 9 above, out of 25 people who did not have any formal education, 24 percent did not treat their domestic water at all, 32 percent filtered their domestic water, 20 percent used bleach and 24 percent boiled their domestic water. Out of the 59 who had at least primary education, 32 percent used no water treatment methods, 10 percent filtered their domestic water, 35.6 percent used bleach and 22 percent boiled their drinking water. Out of 43 respondents who had acquired secondary education, 23.3 percent did not treat their domestic water, 34.8 percent filtered their domestic water, 20.9 percent used bleach and 20.9 percent boiled their domestic water. Out of the 23 respondents who reported to have a tertiary education, 17.3 percent used no water treatment measures, 8.7 percent filtered their domestic water, 30.4 percent used bleach and 43.5 percent boiled their domestic water.

According to the WHO, diarrhoea occurs worldwide and causes 4 percent of all deaths. This amounts to around 2.2 million people globally every year, mostly children in developing

countries. The use of water in hygiene is an important preventative measure but contaminated water is an important cause of diarrhoea. Diarrhoea is a symptom of infection that is usually caused by a host of bacterial, viral and parasitic organisms most of which can be spread by contaminated water. Diarrhoea is more common when there is shortage of clean water for drinking, cooking and generally basic hygiene (WHO, 2013).

Water contaminated with human and animal faeces for instance from municipal sewage, latrines and septic tank is a special concern because it can cause diarrhoea. It is therefore important that domestic water be treated in order to ensure that the water is safe and free from disease causing microorganisms.

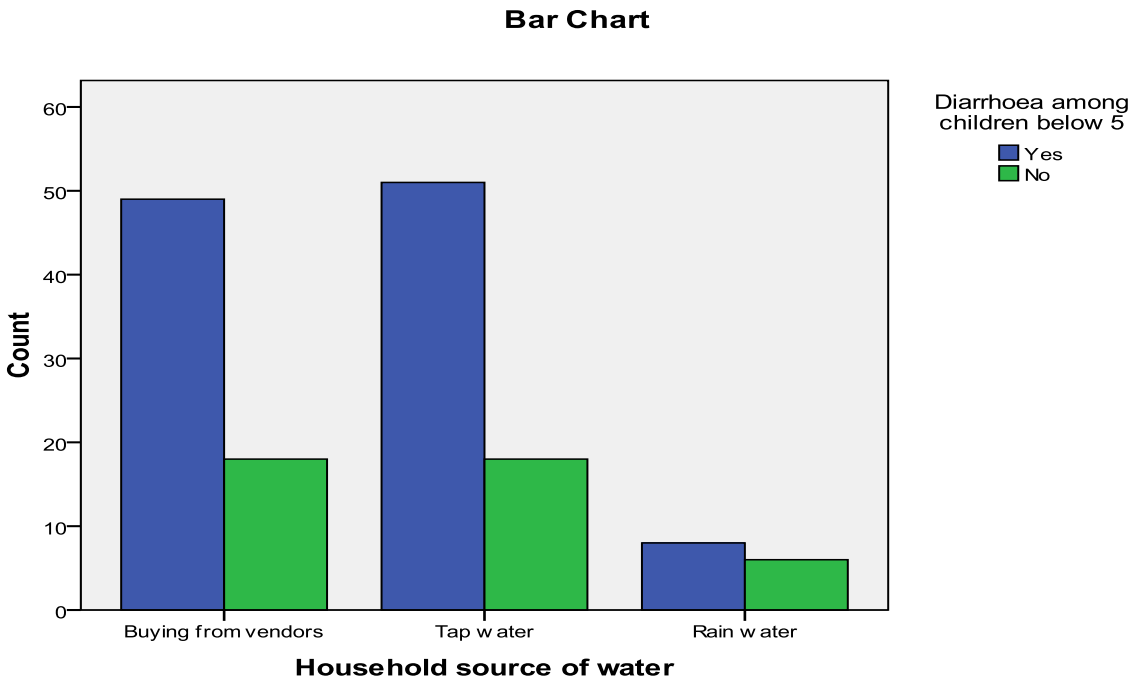



**Figure 10: Household source of water and diarrhoea among children below 5**

In order to bring out the relationship between the source of domestic water and its influence on the occurrence of diarrhoea among children below 5, a cross tabulation of the two variables was made and above are the results. Out of the 67 households that that buy water from vendors, 49 households experienced diarrhoea among children below the age of 5 while 18 households did not. Of the 69 households that used tap water as a source of their domestic water, 51 households reported to have had experiences of diarrhoea among their children aged below the age of 5 while 18 did not.

Rain water was being used by 14 households and out of this, 8 households reported to have experienced diarrhoea in their children aged below 5 years and while 6 households did not experience this at all.

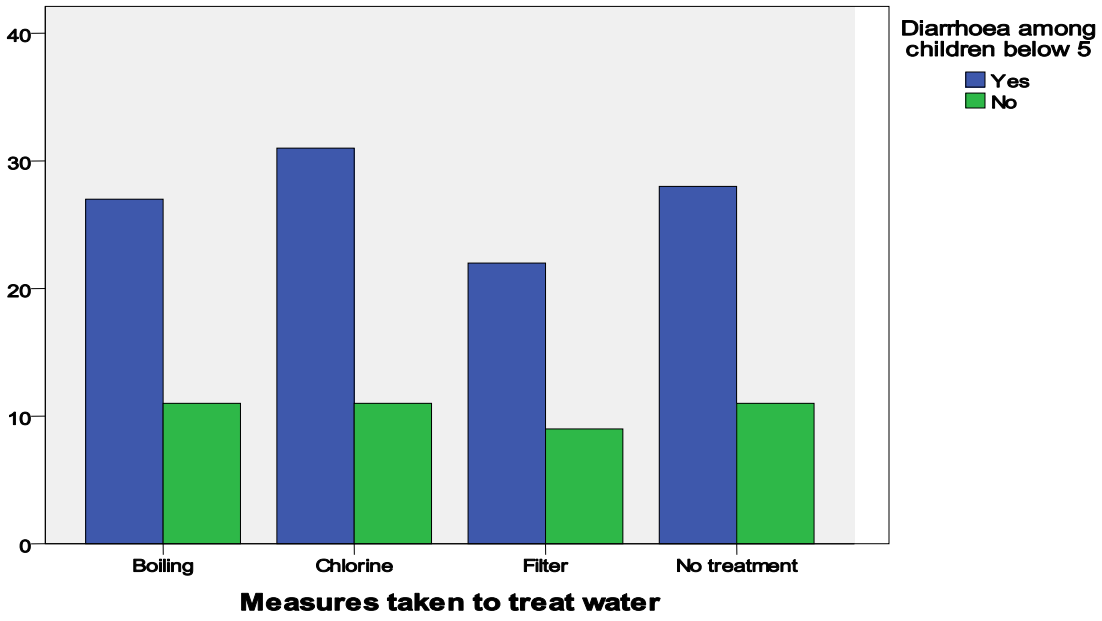



**Figure 11: Measures taken to treat water against diarrhoea among children below 5**

In order to establish the influence water treatment mechanisms have on occurrence of diarrhoea, a comparison of the two variables was done and the results presented in the cross tabulation bar graph above.

From figure 11 above, it is evident that despite the fact that households are treating their domestic water using the various ways, diarrhoea is still prevalent among children below the age of 5. This is evident because out of the 38 households that use boiling as a water treatment method, 27 experienced diarrhoea in their children who are below 5 years of age with only 11 reporting not to have had any diarrhoea incidences. Of the 42 households that use chlorine to treat their domestic water, 31 households experienced diarrhoea cases while 11 did not. Only 9 out of 31 households that used filter as a water treatment method did not experience diarrhoea incidences among their children below the age of five. Furthermore, 28 households that did not use water treatment methods on their domestic water experienced diarrhoea among their children aged below 5 years while only 11 did not.

Since diarrhoea is a symptom of infection that can be caused my any contamination of disease causing microorganisms, it is important to eliminate all possible causes of contamination. Water treatment is just one among the many preventative measures that can be employed to help minimize the incidences of diarrhoea in a population. Other ways such as sensitization of proper hand washing techniques and proper food handling can help reduce the number of diarrhoea incidences in the households.

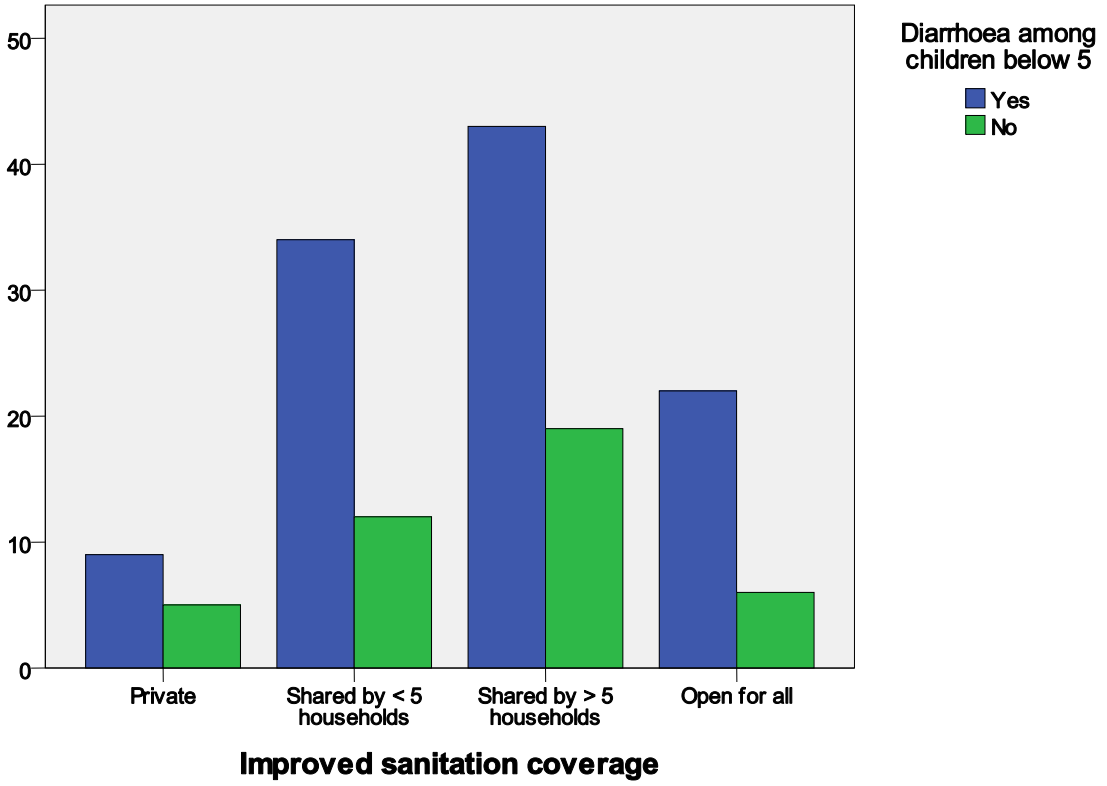



**Figure 12: Improved sanitation coverage against diarrhoea among children below 5**

In order to access the correlation between status of toilet and the occurrence of diarrhoea among children below 5, a cross tabulation of the two variables was derived. Out of the 14 households that had private toilets, 9 households reported having experienced diarrhoea in their children aged below 5 while 5 households did not. Among the 46 households that used toilets that were open for sharing by less than 5 people, 34 households experienced diarrhoea among their children aged below 5 while 12 did not. Moreover, out of the 62 households that used toilets that were being shared by more than 5 people, 43 households had experienced diarrhoea in their children aged below the age of 5 while 19 did not. Lastly, 22 households out of the 28 households that use toilets that are open for all experienced diarrhoea among their children aged below 5 while only 6 did not.

From the trend noted above, it can be said that there is an increase in the number of incidences of diarrhoea cases among children below 5 with an increase in the number of people who share a toilet facility.

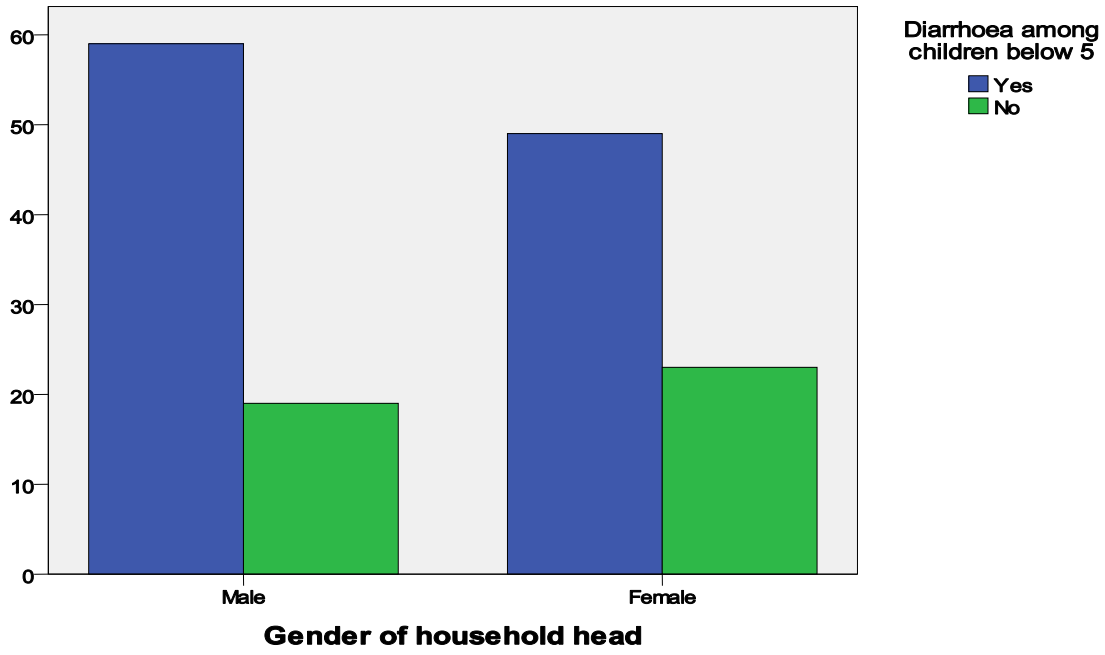



**Figure 13: Gender of household head against diarrhoea among children below 5**

It was important to evaluate the occurrence of diarrhoea and have a comparison between male headed and female headed households. Figure 13 above shows that 55 percent of diarrhoea occurences were experienced in male headed households while 45 percent of diarrhoea occurences were in female headed households. As identified above, female headed households were keen on treating their domestic water as compared to male headed households.

Diarrhoea incidences seem to be many in male headed households as compared to female headed households. This can be attributed to the fact that male headed households do not treat domestic water despite the fact that they buy more from vendors, a source that is much likely to have contaminants.

There is also a correlation between the household improved sanitation facility used and diarrhoea incidences. This is vital especially because if the toilet is shared by fewer people, the hygiene levels are expected to be high because maintenance of the toilet will be manageable as compared to if the toilet is open for all.

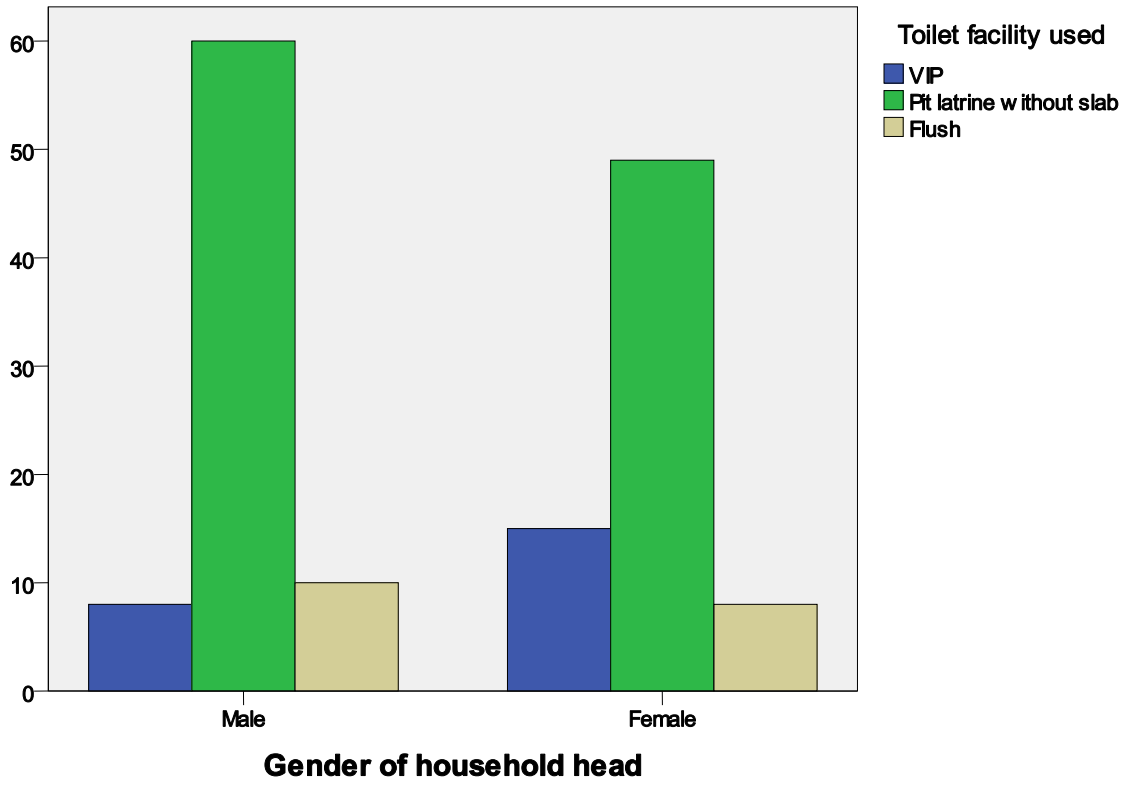



**Figure 14: Gender of household head against toilet facility used**

From the above table, it can be deducted that female headed households, despite their limited finances, strive hard to ensure that their families get access to proper improved sanitation facilities. This is so because out of the 23 households that have access to VIP, 65 percent are female headed while 35 percent are male headed. Moreover, out of the 109 households that use pit latrines without slabs, 45 percent are female headed while 55 percent are male headed households.

It is evident that flush toilets are an expensive facility to have in terms of the amount of water that will be required to flush as well as the expertise and manpower required for putting it up and maintenance (WHO, 2012). Despite these limitations that may hinder female headed households from accessing a flush toilet, 44 percent out of the 18 households that have access to this flush toilet facilities are female headed while 56 percent are male headed.

### 4.3 Household exposure to GBV while accessing safe water and improved sanitation

The study also sort to find out the implications that inaccessibility to safe water and improved sanitation had on the safety of men, women and children of Kaptembwo. Physical violence appears to be most rampant among all the other forms of violence. This can be attributed to the fact that whenever lining up in a queue to fetch water from the yard tap or buy from a vendor, people are more likely to push, scratch, pull each other's hair or even fight each other.

Sexual violence was reported to happen though not as often as physical violence occurred. Sexual violence ranged from unwanted sexual comments, sexual advances in exchange for favors like gaining access to safe water and improved sanitation and inappropriate touching or beating of sexual parts of the body without consent.

Although psychological violence was reported to occur, it was at the very minimal with 13% of the respondents claiming to have experienced it in the form of being stalked, receiving threats of harm or violence, verbal aggression as well as use of undue pressure.

There was a small percentage, 9.7 percent, of respondents who claimed to not have experienced any form of GBV while accessing safe water and improved sanitation.

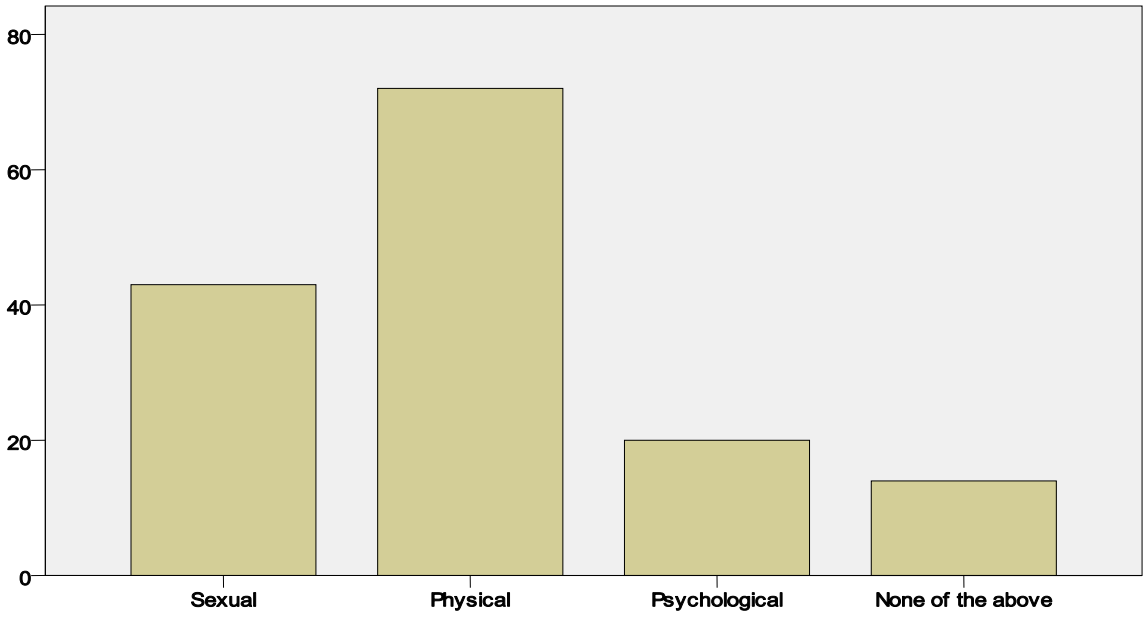



**Figure 15: Experienced forms of GBV while accessing safe water and improved sanitation**

This study also assessed GBV incidences by household in order to establish which household, either male headed or female headed, is more vulnerable to what type of GBV. A cross tabulation of the gender of household head and experienced forms of GBV was conducted in order to establish this.

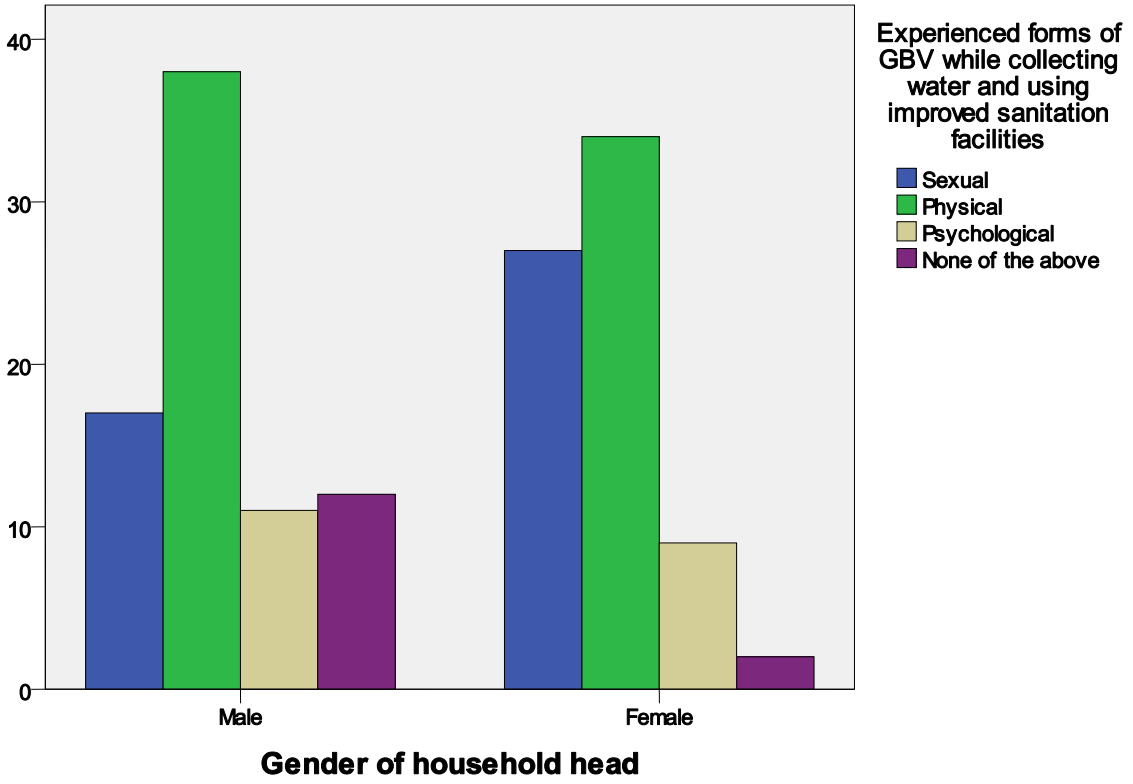



**Figure 16: Gender of household head against experienced forms of GBV**

From figure 16 above, it is evident that both male headed and female headed household have experienced GBV in its different forms while accessing safe water and improved sanitation. Though not in equal measures, this affects them in their day to day living. It is evident that female headed households report more cases of sexual violence with 27 households than male headed households who have 17 households reporting to have had one or more of their members being a victim of sexual violence.

"*One women was raped and several others touched inappropriately without consent when they had to access an improved sanitation facility after dark"*

On the contrary, males tend to be victims of physical violence more than females. 38 males reported to have been involved in a fight where there was either hitting, arm twisting,

punching, pushing and kicking among many other forms with their male counterparts especially at the water queues. 34 females also reported to have engaged in or witnessed forms of physical violence while accessing domestic water. Males are stronger physically and this gives them the confidence to engage in fights more as compared to their female counterparts who would rather avoid getting physical.

Moreover, both males and females in Kaptembwo reported to have been victims of psychological violence though not in equal measure. More females than males had either experienced or witnessed forms of psychological violence. Out of the 20 people that reported to have experienced or witnessed forms of psychological violence, 11 were males while only 9 were females. Women tend to speak out their mind unlike men who tend to keep issues to themselves. By speaking out their mind, women free out their stresses and seek consolation from peers. By bottling up every bad experience, men increase their chances of experiencing psychological torture.

This study also sorts to find out if the age of the household head affected the household exposure to GBV. Therefore, a cross tabulation of the ages of household head and the types of GBV experienced while accessing safe water and improved sanitation facilities was necessary.

From figure below, it is evident that GBV is experienced across all age brackets. It affects all from the young to the old. However, it is evident that households whose household head was aged between 26-35 years are most affected with 49 out of the 149 who reported to have experienced or witnessed GBV. The households where minimal incidences of GBV were reported were where the household head was aged 56-65 years with only 10 people reporting to have either witnessed or experienced GBV. This can be attributed to the fact that these households are more stable financially where they can easily be able to outsource services when it comes to collection of domestic water. With this economic stability, these families are able to afford housing where there is a private flush toilet and so the household members do not have to worry of experiencing GBV when they have to use these facilities at night.

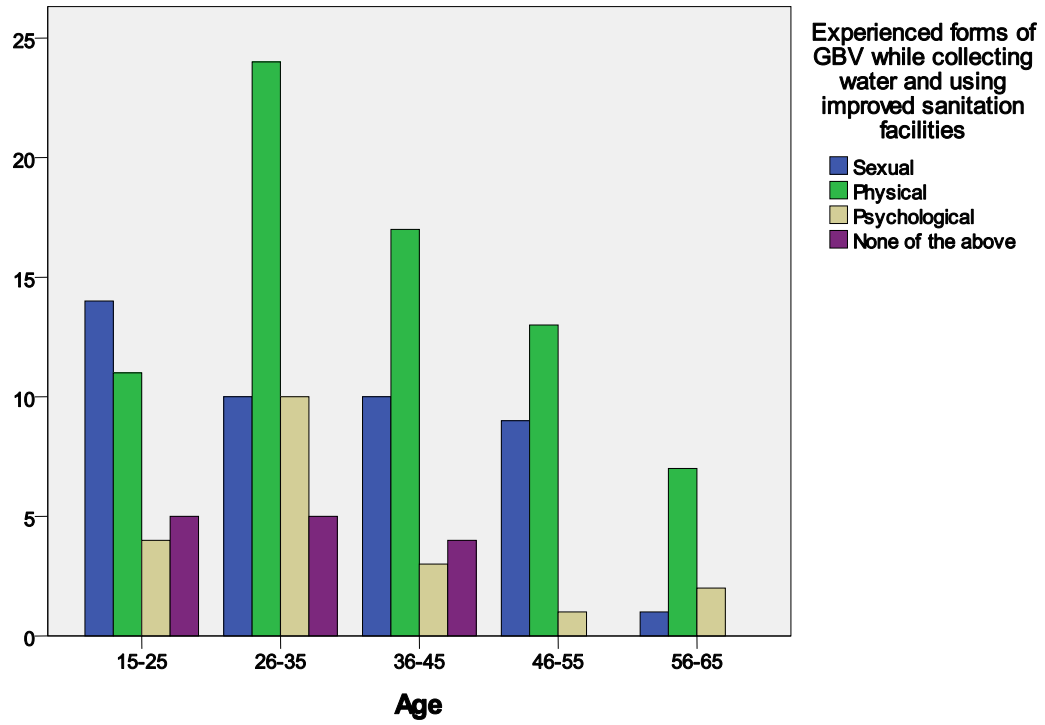



**Figure 17: Age of household head against experienced forms of GBV**

**4.4 Accessibility to safe water and improved sanitation with regards to household economy**

According to the constitution of Kenya, a youth is any person aged between 18 to 35 years. The findings of this study brought to light a number of key points including Kaptembwo being characterised by a young population. As indicated in figure 1.1, 22.2 percent represents persons aged between 15-25 years, 32 percent represents persons aged between 26-35 years, 22.2 percent represents persons aged between 36-45 years, 15 percent represents persons aged between 46-55 years and 6.5 percent represents persons aged between 56-65 years. The greater majority of 54.2 percent entails people aged between 15 to 35 years.

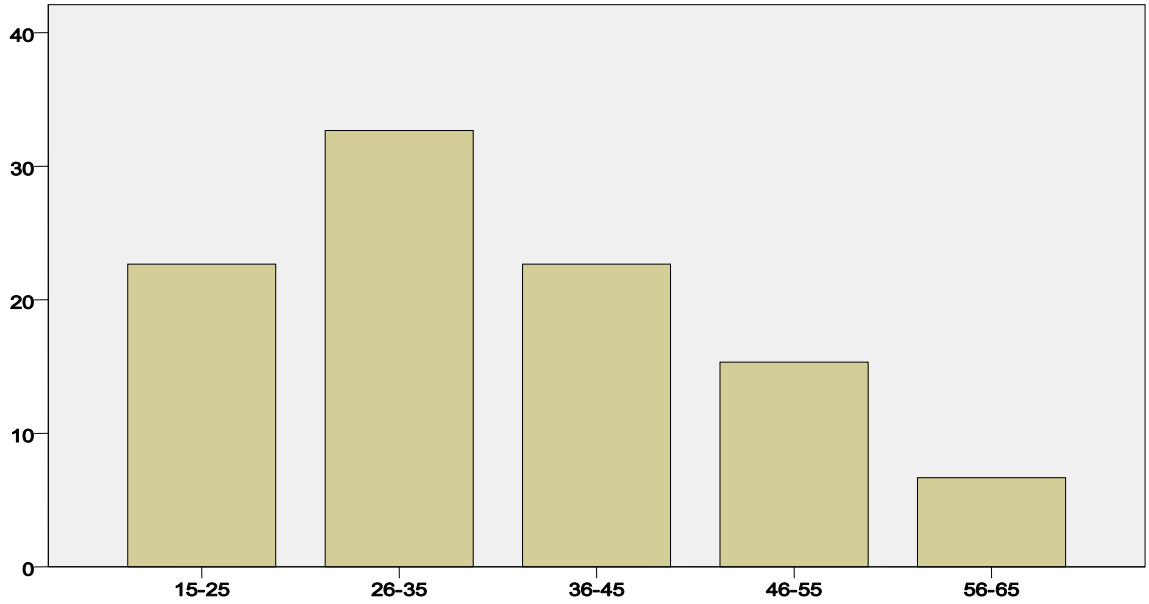



**Figure 18: Age of household head**

According to Rubalcava & Thomas (2000), a youthful population is one that is characterized by unstable incomes since this is when they are still looking for job. Majority of people aged between 15 to 35 years have young families as this is the reproductive age. Household incomes are majorly directed towards food, shelter and clothing and a slight shift in budget is detrimental to the young family.

It was important for the study to take into account the levels of education of the respondents. This is because in order to understand why a person behaves the way they do, levels of education of that individual are considered important because it greatly influences decision making. Someone's education level greatly influences the job they get and eventually their level of income.

From figure 19 below indicates that 38.6 percent of the respondents have attained at least primary education and above. However, 16.3 percent of the respondents reported not to have

gone to school at all. Of the entire team of respondents, 81.7 percent have attended at least a primary school, 28.1 percent have gone to secondary school while 15 percent have attained tertiary education.

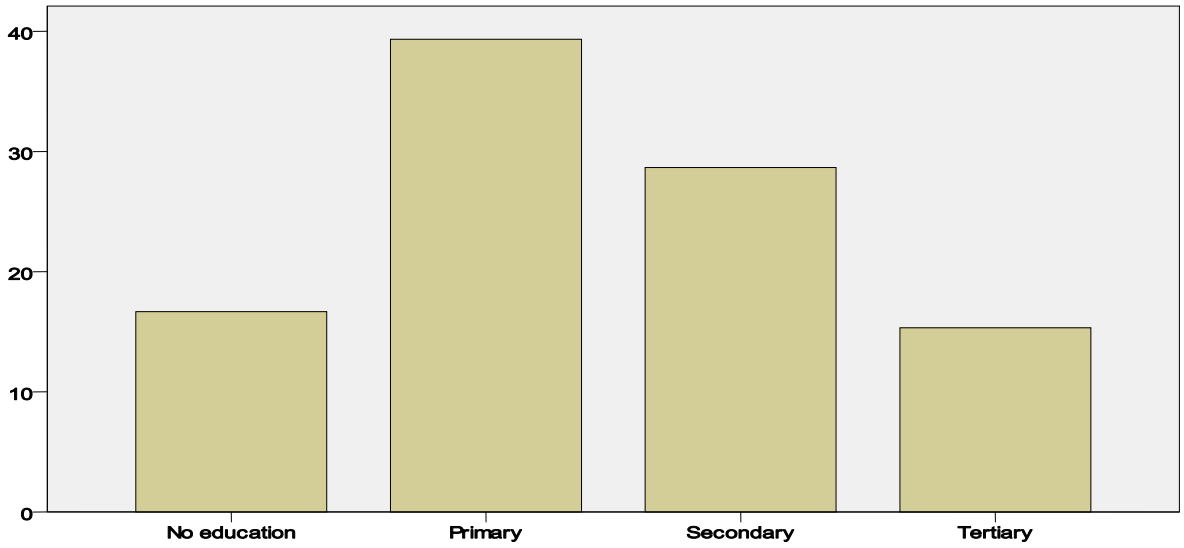



**Figure 19: Education levels of respondents**

The level of income determines whether an individual lives in a rented or self owned home. On renting, income also determines the kind of environment one lives in terms of amenities like children's play ground, security and accessibility to basic commodities such as safe water and improved sanitation.

This study sort to find out whether many of the respondents owned the houses they lived in. This was necessary because when one owns the land and the house they live in, they are free to make any changes they deem appropriate in the quest of making their environment ideal. For example one may drill a borehole or harvest rain water to curb the water shortage challenge that much affects the residents of Kaptembwo.

Moreover, making decision to improve or modify certain important aspects to suit their needs will be easy as opposed to if they did not own the house. This includes the aspect of improved sanitation facilities whereby they will remain well maintained and whenever they need repair they will be attended to quickly.

From the findings of the study, it was established that 81.7 percent of the respondents do not own the houses they live in while only 16.3 percent own the houses they live in. This among many other factors can be a contributory factor as to why many of the houses in Kaptembwo have dilapidated toilets, drainage systems, dysfunctional water systems and dirty environs.

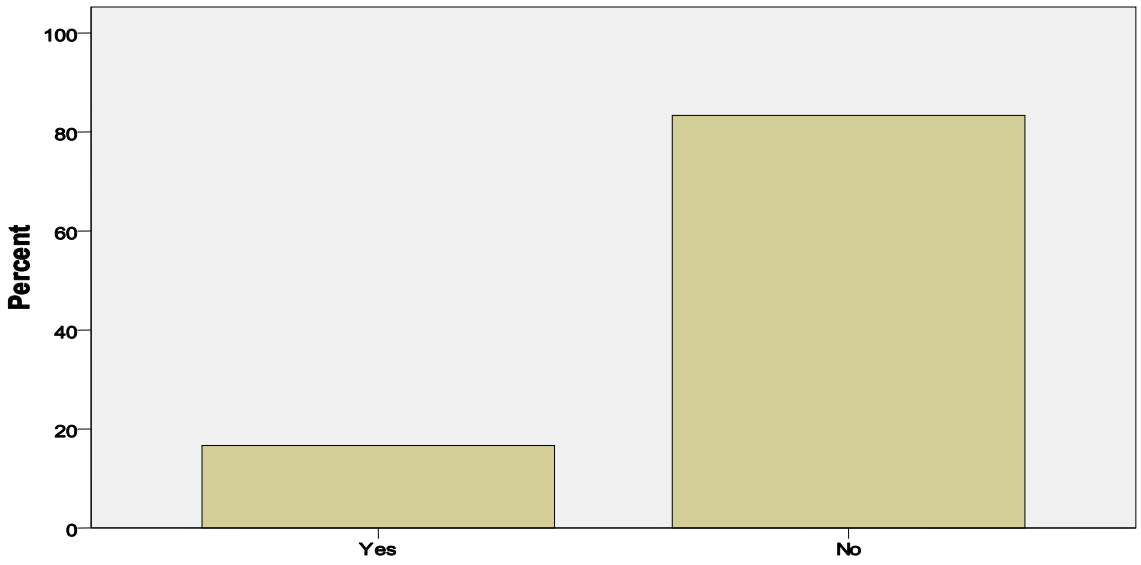



**Figure 20: Ownership of dwelling place**

Ownership of dwelling place goes hand in hand with whether one is comfortable in their environment or not. This is especially because the power to rehabilitate the environment largely depends on whether the individual owns the place or not. According to the results of the study, 80.4 percent of the respondents claimed they were not comfortable in the houses that they lived in but changing the situation to suit their needs was a bit difficult because of the

restrictions of the landlords/landladies and also the diverse pool of cultures and attitudes of people living in Kaptembwo which made it difficult to adjust certain issues.

Table 1 below shows a cross tabulation of the ownership of dwelling place and the comfort ability of their environment. It is evident that out of the 25 who owned the houses they lived in, 6 were comfortable while 19 were not comfortable in their environment. This can be attributed to the fact that other aspects of Kaptembwo's sanitation are wanting including the drainage and sewer systems. Of the 125 respondents who did not own the houses they lived in, 21 reported to be comfortable while 104 were not comfortable in their environment.

| | | Are you comfortable in your environment | | |
|---|---|---|---|---|
| | | Yes | No | Total |
| Do you own the house you live in? | Yes | 6 | 19 | 25 |
| | No | 21 | 104 | 125 |
| Total | | 27 | 123 | 150 |

**Table 1: Ownership of dwelling place and the comfortability of environment**

The study went further ahead to seek what exactly the people of Kaptembwo were not comfortable in.

According to figure 21 below, the people of Kaptembwo are not satisfied with the water and sanitation of the environment they live in. This is because 62.1 percent of the respondents said that water and sanitation was the most burning and urgent issue they would like to change in their environment. Security, water and drainage systems of Kaptembwo are an issue in Kaptembwo, but they are not as urgent as the water and sanitation issue. This is why majority of the respondents would rather have safe water and improved sanitation provided to them adequately first.

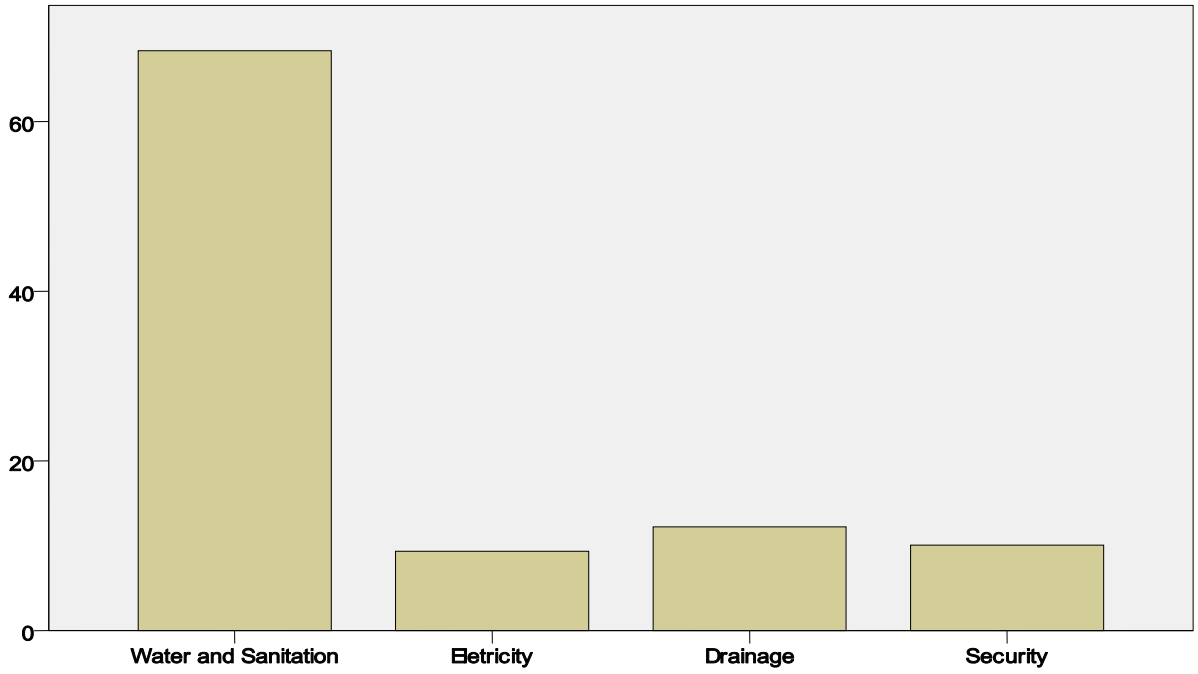



**Figure 21: Priorities to make environment ideal**

It was identified that the people of Kaptembwo are not comfortable with the situation of water and sanitation in the area but can do little to nothing about it especially because they have limited finances. Due to this, they have to find substitutes buy harvesting rain water during the rainy seasons and buying from vendors.

Buying water from vendors takes up quite a substantial amount of money from the residents of Kaptembwo. A great majority that is 81.7 percent pay between Ksh.11 to Ksh.15 on average per 20 litre jerry can of water. 10 respondents that is 6.5 percent said they had to part with roughly Ksh.18 per 20 litre jerry can of water while 26.8 percent said they pay roughly Ksh. 8 per jerry can of water. The variations were brought about by the fact that various villages that constitute Kaptembwo have different water supplying vendors and each vendor charge different rates per jerry can of water.

Female headed households experience a lot of strain if they have to substitute tap water that can hardly take them through a week with buying from vendors. This can be attributed to having single source of income as compared to a make headed household that is more likely to have double source of income.

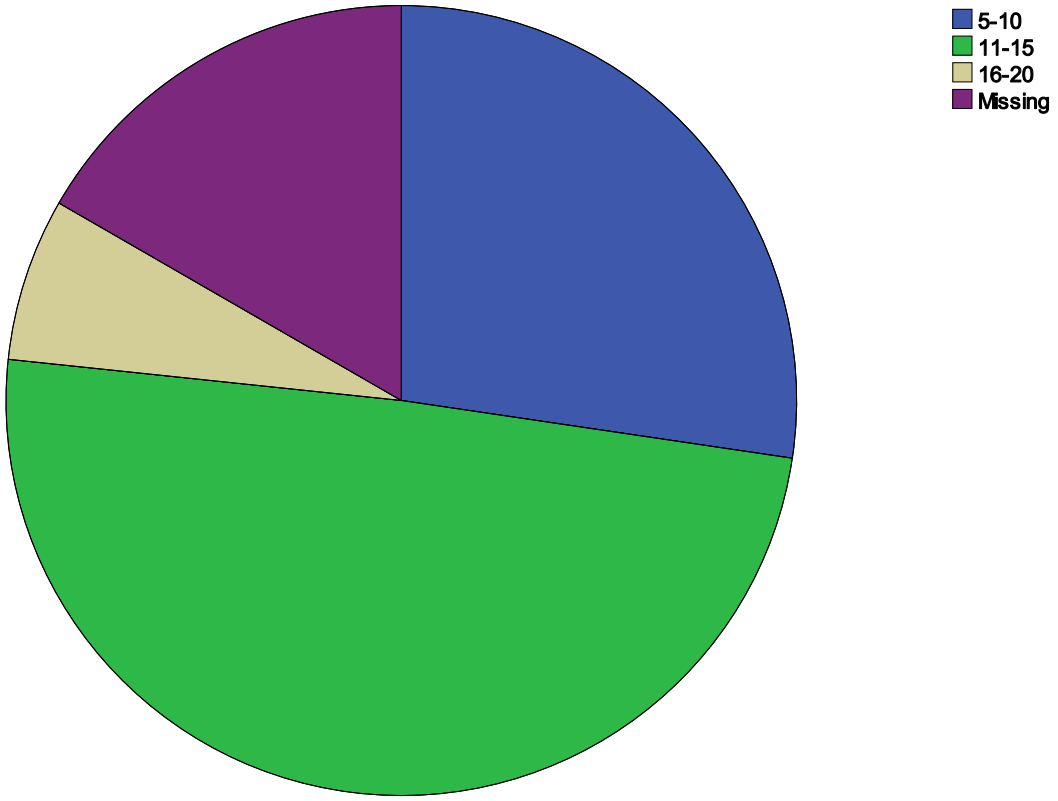



**Figure 22: Price per 20 liter jerry can of water**

# CHAPTER FIVE

# CONCLUSION AND RECOMMENDATIONS

## 5.1 Conclusion

When safe water and improved sanitation is sub-optimal, mortality, morbidity and death rates in a population are likely to be high; this was the main drive of the study.

Inaccessibility to safe water means that other means of obtaining it have to be employed including buying from vendors and harvesting rain water. Majority of the time children are involved in collection of domestic water and this ends up affecting their neurodevelopment since they have to carry heavy jerry cans on their backs (Rubalcava & Thomas, 2000). Also, children have to collect domestic water either in the morning hours before school or in the evening after school hours.

Collecting domestic water in the morning before school means that the children will get to school tired and exhausted, if even they will attend school that day. This has heavy repercussions on their concentration in school as well as their performance eventually. When children have to miss out on school days due to the inaccessibility to safe water and improved sanitation, their education is affected to a great extent. It is essential to have this children attend school constantly in order to maintain high levels of concentration. When this is adhered to, the children will more likely cover the syllabus to completion and this will affect their performance positively.

Water borne diseases like diarrhoea are mainly caused by lack of safe water. Diarrhoea keeps many children away from school and treating it results to heavy financial burden on the family as well as the nation at large. A lot of time and resources end up being wasted which would have otherwise been put into productive works. Primary education is basic and is directly related to the keenness put on water treatment and the methods employed. Therefore, allowing children attend school will create awareness by enlightening them on the importance of treating domestic water. This will go a long way in preventing water borne diseases including diarrhoea and in the long run translate to savings in terms of time and money.

Inaccessibility to safe water and improved sanitation exposes men, women and children to GBV. When buying water from vendors, women are exposed to sexual violence while men are more likely to engage in physical violence. Psychological violence occurs when threats have to be issued when accessing safe water and improved sanitation. Walking afar from the household to access safe water and improved sanitation after dark hours exposes women to the risk of rape.

Younger household heads aged below 45 experience GBV in higher numbers as compared to their older counterparts. Younger household heads have finances that are not stable due to the fact that they are not in stable jobs. Therefore, they do not have disposable income which they can use to have someone collect domestic water for them like it is the case in households where the head is older. Therefore, this means it is the household members who themselves who go to collect domestic water and in the process they witness or become victims of GBV. Unlike younger couples, older household heads have stable incomes and they use their resources to invest in private improved sanitation facilities which minimize their exposure to GBV.

It is evident that inaccessibility to safe water and improved sanitation directly impacts on the finances of the household which ultimately reflect on the national economy. When a young family with unstable finances has to budget for buying water and paying to access improved sanitation facilities, it takes up money that would otherwise be directed to school fees for the children, balanced diet or other developmental works like buying family land. When children suffer water borne diseases such as diarrhoea, the family finances are also strained in the treatment procedure. Moreover, children miss out on school when they fall sick due to poor sanitation or ingesting contaminated water.

There are vast dynamics that come into play when safe water and improved sanitation is inaccessible to a population. It more or less affects their entire livelihoods. Children are severely affected by this in many ways including their routine attendance of school as well as performance. Low performing students in the long run end up not proceeding with higher education to pursue professional courses which guarantee them good and well paying jobs. When children do not proceed to institutions of higher learning, chances are that they will marry early and get children at an early age. Assessing from a bigger picture, this serves to

contribute to the vicious cycle of having young families with unstable incomes and the inability to access safe water and improved sanitation facilities safely.

### 5.2 Recommendations

Recommendations made by this study are based on the objectives and the findings analyzed above.

More sensitisation on the importance of treating domestic water is essential. This is so because even safe water like tap and piped water is prone to contamination especially if the pipes are broken. This can be done through use of print media, workshops or organising events where the youths can participate in educative plays, skits and dance as a way of communicating the message. This is essential as it will aid to control outbreaks of water borne diseases such as diarrhoea which make children stay away from school.

Each dwelling should organize to have a security guard appointed each day in an arrangement where the residents themselves do it in turns. This appointed security guard will escort women and girls to improved sanitation facilities and water points if in case they have to use these facilities after dark. This will help reduce GBV cases against women and children.

Education is key. With education comes the enlightenment of the importance of treating domestic water. Also, education guarantees to a greater percentage the probability of getting a good and well paying job. Moreover, education tends to delay marriage and getting babies thus ensuring that when one starts a family, they are well able to provide basic amenities like safe water and improved sanitation safely without much exposure to GBV.

Parents should be made aware of the importance of allowing their children attend school. Measures should be taken to report those parents who would rather have their children remain behind and collect domestic water while their peers attend school. Relevant authorities should also apply strict and harsh punishment to those parents who willingly let their children miss out on school while attending to domestic chores. This way, children will be allowed to be children in that they attend school when it is time and play when it is time.

Much effort should be placed on the attainment of the SDG goal 6 on safe water and sanitation. This is essential as it will ensure the safety of women and children, time and energy spent on

collecting domestic water will be directed to more productive works and children will remain in school, a measure necessary to break the poverty cycle.

### 5.3 Suggestions for further research

More and continuous research about gender implications of inaccessibility to safe water and improved sanitation in low income areas recommended include:

1. An economic analysis of the gender implications of the inaccessibility to safe water and improved sanitation will aid to deeply evaluate how households and the country as a whole is affected economically by lack of safe water and improved sanitation.

2. A health analysis of the gender implications of household inaccessibility to safe water and improved sanitation with the aim of clearly bringing out all the health issues that arise from lack of safe water and improved sanitation.

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# APPENDICES

## Questionnaire

INTRODUCTION

I am a student at Egerton University pursuing a Master of Arts in Gender and Development Studies. I seek to collect data with regard to gender implications of inaccessibility to safe water and improved sanitation in Kaptembwo, Nakuru County.

Data collected will be handled with utmost privacy and will be used for the benefit of residents of Kaptembwo. Relevant stakeholders will be sensitized to take necessary measures to curb the problem of inadequate safe water and improved sanitation in the area.

Judy Ngina

_____

**General Information**

1. Age _____
2. Sex
    a) Male
    b) Female
3. Marital status
    a) Married
    b) Separated
    c) Single
    d) Dead
4. Employed in the last twelve months
    a) Employed for cash
    b) Employed not for cash
    c) Not employed
5. Education
    a) No education
    b) Primary
    c) Secondary
    d) Tertiary

**Household Information**

6. Do you own the house you live in?
    a) Yes
    b) No
7. Are you comfortable in the kind of environment you live in?
    a) Yes
    b) No
8. If no, what would you have done differently to make your environment ideal

9. Do you have access to water
    a) Yes
    b) No
10. What is your source of water for domestic use
    a) Buying from vendors
    b) Tap water
    c) Rain water
11. Do you pay for water?
    a) Yes
    b) No
12. If yes, how much? _____
13. On average, how long do you take to collect water for domestic use daily?
    a) Water on premise
    b) Less than 30 minutes
    c) 30 minutes or longer
    d) Don't know
14. How many 20 liters jerry cans does your household spend per day? _____
15. Who are the persons who usually collect drinking water
    a) Female above 18
    b) Male above 18
    c) Female under 18
    d) Male under 18
16. What measures do you employ during treatment of domestic water
    a) Boiling
    b) Bleach/chlorine
    c) Filter
    d) No treatment

17. Have you ever experienced any of the following ( could be either you or a person you know) while collecting water for domestic use or using a toilet

| **VIOLENCE** | **ONCE** | **TWICE** | **REPEATEDLY** |
|---|---|---|---|
| Unwanted sexual comments | | | |
| Sexual advances/ sex for water | | | |
| Touching in a sexual manner without consent | | | |
| Beating sexual parts of the body | | | |
| Beaten up | | | |
| Hitting | | | |
| Pinching | | | |
| Hair pulling | | | |
| Arm twisting | | | |
| Punching | | | |
| Pushing | | | |
| Slapping | | | |
| Kicking | | | |
| Biting | | | |
| Assault/threats with a weapon | | | |
| Threats of harm | | | |
| Threats of violence | | | |

| | | | |
|---|---|---|---|
| Stalking | | | |
| Verbal aggression | | | |
| Use of undue pressure | | | |

18. What kind of toilet facility do members of your household usually use?
    a) Ventilated improved pit latrine (VIP)
    b) Pit latrine without slab/ open pit
    c) Flush
    d) No facility
19. If flush or pour flush, where does it flush to?
    a) Piped sewer system
    b) Septic tank
    c) Pit latrine
    d) Unknown place/ not sure
20. Status of the toilet facility
    a) Private
    b) Shared by less than 5 people
    c) Shared by above 5 people
    d) Open for all
21. Has any child below the age of five in your household experienced diarrhoea in the past two weeks?
    a) Yes
    b) No

## Area Map

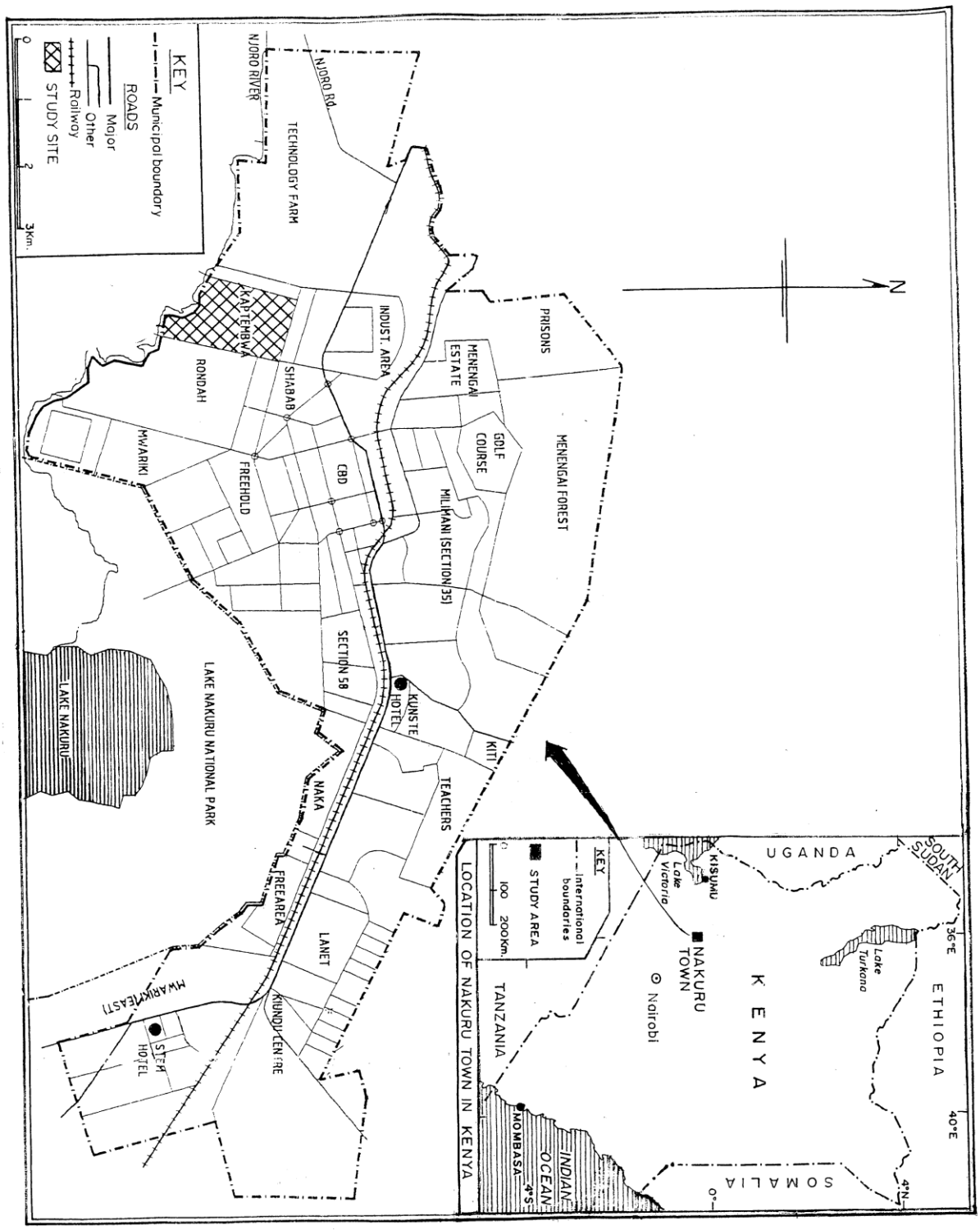


**Figure 23: Kaptembwo area map, Nakuru**