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Exploring Access to Portable Water and Sanitation Practices in a Post-Conflict Environment: The Case of Gulu District, Northern Uganda

Peyton Going
SIT Study Abroad, peyton.going@snc.edu

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Peyton Going

Gulu, Uganda

Advisor: Dr. Constantine Loum

Academic Director: Martha Nalubega Wandera

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Apwoyo Matek

(Thank you very much)

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Abstract

Over the course of 30 days of fieldwork in October and November of 2016, data was collected through interviews conducted with local government officials, researchers and academics, and village community members of Gulu District.

The aim of this study was to determine the extent to which agencies have improved water and sanitation in the region. The case study of Gulu utilized in-depth interviews with key informants, focus groups, and observations, and sought to determine who the local stakeholders in water and sanitation are, the water sources and sanitation facilities available and their uses, the perception local people have about their access to portable water and sanitation facilities, the effects the post-conflict environment has had on progress, and the gaps in services for availing portable water and sanitation. Care was taken to complete this research in accordance with research ethics expectations. Before beginning the study, the research proposal was approved by the local Research Review Board. Also, approval was sought and granted by the Uganda National Council for Science and Technology. Before conducting any interviews, a letter of introduction was written, as well as consent forms. The letter of introduction was used in cases where a bureaucratic government office was being approach in order to establish legitimacy. Further, consent forms were presented and signed before the start of each interview. In the case where the interviewee did not speak or read English, the consent forms were verbally translated by the translator, and the interviewee would give verbal consent with the translator signing the form as a witness.

The study found that while access to portable water sources and sanitation facilities has undeniably improved in the region, there are concerns with the quality of the facilities available and questions about whether or not the efforts made so far and the existing sources and facilities are able to be sustained- partly due to discrepancies in perceptions of who is responsible for operation and maintenance of them. What I feel can be done to address this would be for the local and national stakeholders to come together and spend some time planning an integrated and cohesive approach to align budgets and prioritize educating communities on how to properly manage and operate the facilities that they have been provided with so that they can be utilized in the most efficient and effective way. By spending more time and money on this aspect, they could, in the long term, reduce the amount of time and money spent on resource allocation and repairs, and the communities themselves could be more self-sufficient in terms of taking care of their basic needs.

Acronyms

AfDB- African Development Bank

AMREF- African Medical Research and Education Foundation

IDP- Internally Displaced Persons

LRA- Lord's Resistance Army

NGO- Non-Governmental Organization

PEAP- Poverty Eradication Action Plan

WASH- Water and Sanitation for Health

Chapter One

1.1 Introduction

Globally, 189 million people fetch their water from surface water as their main source of drinking water, and 946 million people are still practicing open defecation. Approximately 44% percent of the world's population retrieves their water from a source outside of the home, and the prevalence of handwashing with soap after using the toilet is estimated to be about 19% (As cited in Global Health Action, 2016). These estimates demonstrate just how massive of an international issue water and sanitation practices are. In Uganda, however, the proportion of the population drinking surface water is at about 8%, and the proportion of the population still practicing open defecation is 7% (As cited in Global Health Action, 2016). This, coupled with data that shows that national sanitation coverage stands at 74.8% and that nearly 80% of the population in Uganda should have access to improved drinking water sources, shows that Uganda undeniably has made great improvements in terms of reaching national standards; however, it is less revealing of the quality of the water from the sources and of the sanitation facilities in use. Further, the sustainability, as well as the operation and maintenance, of the facilities currently in place, particularly in the post-conflict environment, cannot be reflected in statistics.

The specific area of study will be centered around the access to portable water as well as sanitation facilities in the post-conflict region of Northern Uganda. More specifically, this research will take place in Gulu District. The issue at hand is that there is a national push for improved access to safe, portable drinking water and sanitation facilities across Uganda, but how successful are these provisions and what challenges are there in implementing them? Thus, this research seeks to determine the extent to which local and international agencies have improved access to portable water sources and sanitation facilities, and how sustainable their efforts have been.

1.2 Background

Improved access to water and sanitation facilities is being recognized worldwide as essential for development and sustainability. In Uganda, 2007 brought with it a Joint Water and Sanitation Program, with funding from the African Development Bank Group, to address the disparities in the national coverages that have been significantly affecting some of the most marginalized people in the country (Theriault, 2012). It is interesting to note that this program started just on the tail end of a 20-year long war involving the government of Uganda and the northern-based Lord's Resistance Army rebel group that attracted the attention of many humanitarian agencies from the international community to address the emergency conditions in areas of Northern Uganda.

The official start of the Ugandan civil war was in 1986 when Yoweri Museveni came to power as president of Uganda through military means. Because of regional and ethnic divides enforced during the colonization of Uganda by the British in the late 1800s until they gained independence in October of 1962, the reigning presidents of Uganda typically favored their region of origin, while the rest of the country felt marginalized. Museveni was no exception, as he came from a region in the west- considered to be part of the south in terms of the North-South divide. Thus, Northern Uganda was subject to socio-economic exclusion compared to the rest of the country. The lack of physical, social, and institutional infrastructure in the north, as well as lack of opportunities for socio-economic development were some of the motivating factors behind more than 20 rebel groups springing up within two years of Museveni's new government (Angoma, 2007; Finnström, 2006). One of these rebel groups ended up being the Lord's Resistance Army, led by Joseph Kony. Unfortunately, the civilians in the north suffered greatly- being victimized and killed by both the LRA and the government army. Around 1996, there was forced displacement of civilians to government "protected camps", with numbers totaling over one million people by 2004 (Branch, 2011). Civilians were allotted 48 hours to leave their villages and go to the camps, otherwise they would be considered rebel collaborators. This was said to be done to cut off the LRA's access to food and other supplies, as well as to gather as many people as possible in one area to protect them. The Ugandan army failed to adequately protect the people inside of the camps, though, and the camps became targets for LRA attacks and for the abduction of children to become LRA soldiers. Movement became restricted to only one kilometer outside of the camp, and because

of this, people did not have access to their land or productive resources, resulting in the inability to provide food for themselves and leading to a dependence on food relief. However, with increasing rebel activity and the Ugandan army's lack of effective security, humanitarian agencies had some major challenges in accessing and providing services to some of the camps (Mutambi et al., 2007). In addition to the issue of food security and malnutrition, though, was the issue of water and sanitation. Access to water in some camps was between 4-8 liters per person per day, while the daily recommended rate in the Sphere Minimum Guidelines for Disaster Assistance is 15 liters per person for day (Mutambi et al., 2007). Additionally, latrine coverage was estimated to be over 145 people per latrine stance, while the standard for emergency situations is 20 people per latrine stance (Mutambi et al., 2007). These are significant disparities with significant consequences regarding the health and well-being of the people, and is amid what has been described as the world's most forgotten humanitarian crisis (Mutambi et al., 2007).

When eventually the less than acceptable standards of living within the IDP camps gained more international attention as the war continued, discussions were more widely held on the humanitarian crisis occurring within the camps. Further, with the arrival of various NGOs to the camps to address the emergency situation, they were able to provide mechanisms and means of access to water and sanitation facilities within the camps, like constructing boreholes, pit latrines, and sensitizing the community on how to care for and maintain these structures, as well as proper hygiene practices. In 2006-2007 when people were freed from the camps and allowed to return home, they had more knowledge about safe water and sanitation practices, but depending on the location of where they re-settled, they may not have had continued access to boreholes or latrines or other mechanisms that would have helped them to maintain the practices they acquired in the camps, and they would thus have to revert to old behaviors and practices.

The government of Uganda, however, has noted the importance of sanitation practices, and the impacts it has on water and health of the community, as well as that there are major links between sanitation and development. In the National Sanitation Policy for Uganda, created in 1997, it even listed out the effects that poor sanitation practices have. This list included morbidity and mortality due to preventable diseases; negative effects on the economy due to people missing work from sanitation-related illness, as well as stagnant waste water and the absence or misuse of toilet facilities contributing to a discouragement of tourism and fishing industries; pollution of

underground and open water sources; contamination of "protected water supply" due to poor hygiene practices throughout the collection and storage stages of water handling; and a high dropout rate for students who suffer from sanitation-related illnesses due to poor sanitation facilities at school, thus effecting education. To address these issues of sanitation and hygiene promotion that have been laid out in the National Sanitation Policy for Uganda, the government has established national targets, as well as created a group to work through such issues as coordinating sanitation and hygiene promotion efforts, as well as to review budgeting and funding. While these efforts have raised the attention to the issue of safe sanitation and hygiene practices, there is still an issue that there is a gap between the improvement of safe drinking water coverage and the improvement of access to sanitation facility coverage. Some factors for this discrepancy include past marginalization for resource allocation, low prioritization of sanitation and basic hygiene by local governments, and not enough time for changes to take place at the household level and the institutional level. This is because in the household, long-term and sustained efforts are required for behavioral changes, and institutionally, action is necessary from various actors, both governmental and non-governmental, and both at the national and local scales (Improved Sanitation, Hygiene, and Poverty).

On a more local level, in terms of the water and sanitation situation in Gulu District, Northern Uganda, according to a 2013-2014 report, Gulu District had 1,165 water sources that were functioning at approximately 82%, and an access to safe water coverage at about 74.3%. However, it is important to note that in rural areas coverage is lacking, and some have to walk more than 3 kilometers to access unprotected water sources such as wells or rivers. In terms of latrine coverage, 18 villages were declared to be "open defecation free", as the latrine coverage rose from 66% in 2012/2013 to 70% in 2013/2014 (Akena, W., Odong, G., & Okot, J. O.; 2015). In an attempt to further promote and improve sanitation, as well as to reduce the risk of preventable diseases, the local government of Gulu District plans to reward villages with the highest latrine coverage. According to Martin Ojara Mapenduzi, the LCV Chairman of Gulu District, the reward will not be monetary; rather, it will be something that "will encourage families to build facilities such as latrine, kitchen rack and rubbish in their homestead" (Owich, J., 2016). It is unclear the requirements or criteria for the latrines, but the aim is to transition from a curative to a preventative stance in terms of dealing with health issues, as well as to ensure that communities live in clean environments.

1.3 Problem Statement

Globally, there is a high demand for safe and reliable access to water, but there is also an impending water scarcity due to climate change, population growth, and agriculture and industrial activities. However, in Northern Uganda, after facing many years of conflict, more so threatening than the water scarcity is the water quality. With a major component of the roots of the conflict in Northern Uganda being the marginalization and oppression of the people of the north, keeping them poor and without opportunities, there is a push to give more attention to development and poverty reduction in the region. Because the government of Uganda recognized the major effects water and sanitation have on the health and education of people in relation to poverty reduction, water, sanitation coverage, and improved health behavior became an integral part of Uganda's Poverty Eradication Action Plan.

Currently in Uganda, 60-70% of water sources are contaminated with the bacteria E. coli found in feces, making it unsafe to drink if not boiled first (Agaba, 2016). Most households are aware of the process of boiling the water to disinfect it, but the problem is whether or not people actually take this step. If the knowledge is out there, it is up to the people to implement the practice in their daily lives; but it is hard to change the attitude and behavior of people, which is a major pending problem. In fact, the government of Uganda in their National Sanitation Policy even deemed behavior change to be "a prerequisite to improved sanitation" (1997). In addition, there is data to show that nearly 80% of the population in Uganda should have access to improved drinking water sources, but with 83% of the population living in rural areas in Uganda, there is reason to be skeptical of this statistic. Further, with only 20% of the population having access to improved sanitation facilities, according to the criteria and data collected by the World Factbook, it raises questions about why this gap exists between improved access to drinking water and improved access to safe sanitation facilities if efforts are supposedly made to address both water and sanitation together. Thus, this research intends to explore the extent to which agencies have improved access to water and sanitation facilities in Gulu District, and the implications it has in terms of sustainable portable water accessibility.

1.4 Objectives of the Study

Because Northern Uganda, and in terms of this research specifically Gulu District, is operating in a post-conflict environment, the region experienced a massive influx of external humanitarian support at points in the conflict when emergency aid was necessary. Before 2006, there were over 300 NGOs operating in Northern Uganda, and as the violent conflict subsided and there was a transition from emergency support to rehabilitation, many of the NGOs withdrew. Now, there are only about 50 NGOs remaining who work with the community on various issues (Personal Communication, 2 Sept. 2016). In addition to international non-governmental support, the government of Uganda as well as local agencies have worked to create programs and initiatives to address the current issue of water and sanitation accessibility. Now, since the study is in a post-conflict environment, to what extent have water and sanitation programs in Gulu District improved access to safe portable water and sanitation facilities?

Specific Objectives:

1. To determine who the WASH stakeholders are and what their roles in the community are
2. To determine among communities their water sources and sanitation facilities and their respective uses
3. To determine the perception that local people and stakeholders have about clean water availability and sanitation practices
4. To explore how the post-conflict environment affects the progress being made in improving water and sanitation
5. To determine gaps in services for availing clean portable water and improvement of sanitation

1.5 Scope of the Study

The scope of content will range from determining the activities of agencies and institutions working on improving access to water and sanitation facilities, to examining how the beneficiaries perceive the effectiveness of water programs and sanitation facility access in the post-conflict society. The research was conducted starting October 25, 2016, and ran until November 23, 2016.

1.6 Significance of the Study

Access to clean water is inarguably a fundamental, universal human right. It is simply a fact of life that everyone needs water to survive. In fact, it is even determined to be a basic need on Maslow's Hierarchy of Needs, meaning that it is absolutely essential for life and that the physiological need for water must be satisfied before any other needs, like safety and love and belonging, can be met. Caritas Gulu Archdiocese, a charity arm of the Catholic Church that works to provide social services, relief, rehabilitation, and development to the people living in the Acholi Sub-region, even conducted a needs assessment study in three districts in the Acholi Sub-region in May of 2013. The study indicated that a majority of the households, 40%, used boreholes as their main source of water, while 34% used a river, 16% used a seasonal river, and 10% used an unprotected well ("Problem Identification"). The study revealed that access to safe drinking water in the area was only at 40%, which was significantly lower than the national average of 70% ("Problem Identification"). So, in order to successfully address or resolve other issues facing Northern Uganda, particularly in terms of the aftermath of the conflict, it is imperative to be certain that the basic need of water is being met. In addition, sanitation directly affects the health and well-being of individuals. Without proper sanitation, preventable diseases can plague a community and stall any attempts at prosperity and development. While an average of 62% of people in Uganda have access to a latrine, only 30% of people in northern Uganda have access to sanitation facilities-the most staggering being in Karamoja where only 2% have access (UNICEF, 2009). It is important to note that water and sanitation are closely related issues that are highly dependent on each other, and so they should be addressed together. Without proper sanitation and care of resources and the surrounding environment, water sources would not remain clean and safe. This has been made clear with a recent study that found that 70% of families in rural Uganda and 60%

of families in urban areas of Uganda have drinking water that is contaminated with feces (Agaba, 2016). By taking steps to ensure that issues of water and sanitation are resolved together, more sustainable systems are likely to develop. By addressing and finding solutions to the disparities regarding access to water and proper sanitation in Northern Uganda compared to the rest of the country, more attention can eventually be paid to other disparities such as infrastructure and development, and more progress can be made.

Chapter Two: Literature Review

2.1 Importance of Water for Development

In September of 2015, world leaders agreed to a list of 5 Sustainable Development Goals with the intention of eliminating extreme poverty from the world by 2030 ("AfDB's High 5s"). It is believed that to attain these ambitious goals, they must first be realized in Africa. The five goals include Light up and Power in Africa, Feed Africa, Industrialize Africa, Integrate Africa, and Improve the Quality of Life for the People of Africa; but, according to senior advisor to the President of the African Development Bank, Professor Kevin Urama, "water is central to the achievement of all the Sustainable Development Goals" (Mohamed, A., 2016). It has been acknowledged that without transformation of the way water resources are managed in Africa, it will be incredibly difficult to complete the development goals. Further, in Uganda as well as in other developing countries, a deficit in water supply can be linked to poor water supply governance (Naiga, R., Penker, M. & Hogl, K., 2015). The governance can happen at the central state level, through privatization, or by local self-governance. While there are critical issues at every level of governance like less than adequate public budgets and corruption at the central state level; competition and the perceived conflict it brings between privatization and equity; an unclear role for the state and community; and assumed free-riding on a local level, there is a growing body of literature that suggests inclusion and participation at the local level is recommended for successful operation and maintenance of local water infrastructure (Naiga et al., 2015).

2.2 Concerns About Water Quality

Further, rather than just the quantity of the water, there is high concern revolving around the quality of the water. According to UN Water, water quality has become an international issue of concern. The human population is growing, industrial and agricultural activities have expanded, and global climate change poses a major threat to the hydrological cycle and thus puts major pressure on water resources. These factors add to the challenge of accessing safe water, as well as could potentially fuel competition and conflict for resources (USAID Uganda). With already 800

million people lacking reliable and consistent access to safe water, and about 2.5 billion people lacking access to modern sanitation, this is a pressing and pertinent issue worldwide (USAID Uganda). According to the World Health Organization, as much as 3.2 million children living in developing nations die each year as a result of unsafe drinking water and poor sanitation (Mugira, 2015). However, it is interesting that in Uganda, the total amount of access to improved drinking water sources is 79% of the population, while the improved access to sanitation facilities is only at 19.1% (World Factbook). However, Carter, Tyrell, & Howsam in "Impact and Sustainability of Community Water Supply and Sanitation Programmes in Developing Countries" claim that the actual water coverages are likely much lower when taking into account the statistical procedures of deriving the coverage as well as that most dysfunctional water sources are not controlled for (1999). In addition, surface water sources such as wells, rivers, streams and ponds are common public sources of water, but they are the ones which are contaminated the easiest. According to environmental scientist Jeconeous Musingwire, rain water creates runoff that is filled with mud and human waste due to open defecation or from shallow latrines, and that eventually ends up being deposited into the water sources, making them unsafe to drink (Mugira, 2015). Further, animals drink straight from those surface water sources, too, causing contamination. In these cases, both the quality and the quantity of water are cause for major concern.

2.3 Discrepancies in Definitions

To understand the implications behind improved access to water and sanitation facilities, it is important to first understand what it means to have "improved" access to such things. According to the 2002 Uganda Population and Housing census, improved sanitation coverage is defined by only the type of latrine or toilet being used, and the information was collected through a government representative asking the citizens which type of facility they used, but the answers were not personally checked for validity. The types of facilities that were considered unimproved were uncovered pit latrines, the bush, and other (Improved Sanitation, Hygiene, and Poverty). The Ministry of Health, however, collects its data by physically inspecting the sanitation facilities. In addition, they have extra criteria including that latrine pits are required to be at least 15 feet in depth, that waste has to be at least 3 feet below the latrine hole, and that adequate privacy must be provided to deter people from going to seek more privacy in the bush or elsewhere (Improved

Sanitation, Hygiene, and Poverty). Further, the statistics according to the World Factbook show that sanitation facilities in Uganda are estimated to be improved at about 19.1%. Because data on this is collected globally, it is likely that the criteria for sanitation facilities are much higher because developed countries are also being included in the data collection. Because of this, there are many discrepancies between different sources and literature about the situation concerning improved sanitation. Even within the National Sanitation Policy for Uganda, the definition provided in terms of improving sanitation includes goals of "safely disposing of human excreta by any appropriate means, developing and maintaining safe water chain… safely disposing of solid and liquid wastes," and so on. These definitions are fairly broad and non-descriptive, leaving much up for individual interpretation.

2.4 Challenges Facing Gulu District in Terms of Water and Sanitation Implementation

Following a period of war that lasted over 20 years in Northern Uganda, there is still much that needs to be done in terms of infrastructure and development within the region. During the time of insurgency when the IDP camps were formed, there were high concentrations of people congregated in a relatively small area. Now that the camps have disbanded, though, and people have returned to their respective areas in various locations within the region, providing access to improved means of portable water and sanitation facilities is one of the areas of development that the government of Uganda is still working on addressing and alleviating. Part of the challenge comes from the lack of funding, resource allocation, as well as the difficulty in being able to access remote areas and assess the needs. Even when the hardware and facilities are there, though, it does not necessarily mean that people use them or use them properly- which can have major effects on their health and wellbeing.

Dependency Syndrome, in this case, refers to relief aid risking a creation of a "'dependency mentality' or 'dependency syndrome', in which people expect continued assistance. [Which] undermines initiative, at individual or community level" (Harvey, P. & Lind, J., 2005). Generally, this is seen as something negative and to be avoided; however, this is not to suggest that in times of crisis and emergency that emergency aid and relief should be withheld. Further, views of

dependency are also linked to a belief that recipients of aid are lazy, uncooperative, and actively trying to cheat the system. Because of this, dependency can be seen as "contrasted with a variety of positive values or terms, notably independence, self-sufficiency, self-reliance, and sustainability, and seen as a particular problem when relief assistance has been provided over a long period" (Harvey, P. & Lind, J., 2015). This is particularly relevant in the case of the IDP camps people in Northern Uganda were confined to for around 10 years, where they were provided with latrines and water sources upon arrival of emergency aid. While being able to depend on the aid in the emergency situation to alleviate suffering and save lives is undeniably a good thing, extra effort in the forms of sensitization and training is also needed to promote self-sufficiency and promote ownership over the facilities when the aid workers are gone is needed to counter this dependency that may have developed from the time in the camp.

Health behavior involves activities that shape our physical, emotional, mental, psychological, and spiritual selves; and factors such as socioeconomic status, culture, beliefs, attitude, values, genders, and religion have influence over the types of health behaviors that we engage in. Socioeconomic status encompasses education, income, and occupation- with a higher education level being a predictor of good health because "with knowledge, people can make informed decisions about their health and, as a result, are more likely to engage in health-enhancing behaviors (Hayden, 2014) In the 1950s, the path to the development of The Health Belief Model was paved when US public health researchers set out to enhance the effectiveness of programs pertaining to health education in communities. Further, culture is a major influence on behavior because culture shapes the norms and accepted practices of our daily lives. Because culture can be so strongly woven into some societies, "sometimes, even armed with the information and the skills [to make changes], people still don't use what they know and [instead] do what they know how to do" (Hayden, 2014). In other words, just because someone has the knowledge or information to know they should make a change in their lifestyle does not necessarily mean that they will make that change. For example, many people have knowledge of the health concerns that come from drinking diet soda as a result of the artificial sweetener aspartame, but because people are so accustomed to drinking it, as well as the danger is not something that you can physically see, many people do not stop drinking the diet soda. This same idea is seen in other communities when it comes to trying to implement safe sanitation practices. Similarly, behavior and attitude stem from these cultural practices that influence behavior because individuals have their own perceptions of

what are true based on what they have been socialized to belief, and so their behavior will reflect that. This theory of health behavior, then, can help lead to some understanding in the difficulties, yet importance, of sensitizing communities in the practices of WASH.

Chapter Three: Research Methodology

3.1 Introduction to Research Methodology

The research that has been done lasted for 30 days and mainly utilized interviews and focus groups. The interviews were with a variety of people from various levels and areas of society. Interviews were conducted with district officials, academics, researchers, and local community members. The focus groups were also made up of various members of the community. This helped to best capture a view of what the various roles in terms of water and sanitations implementation and practices are, as well as the varying opinions of the successes and failures of the implementations and current mechanisms.

The information on the water and sanitation situation during the IDP life was gathered during a four-day long stay in a village in Kitgum District, Northern Uganda- where a translator/gate keeper was integral in helping to find correspondents who had spent part of their life living in an IDP camp in Kitgum during the time of the insurgency, and were therefore able to provide some insight into what life during that time was like in terms of water and sanitation.

3.2 Research Design

The research design is case study of Gulu District in which in-depth interviews, focus groups, and observations, and some report reviews were used to collect data. A diverse group of people, a total of 38, who have different experiences and knowledge to bring to the research were selected to provide the information for this study. This was done to try to address the objectives from different angles, and thus get a more comprehensive understanding.

3.3 Area of Study

The area of study was mainly in the area of Gulu District, with some time spent in the municipality as well as some time in villages just outside of Gulu. Within the municipality, interviews were conducted with district officials, scholars, and researchers. In the villages outside of the municipality were where focus group discussions with local people occurred.

3.4 Study Population

The population that was studied were those who were deemed to have information and knowledge regarding water and sanitation in Northern Uganda, and those who are beneficiaries of the water and sanitations mechanisms that are supposed to be in place, and who have experiences and critiques to share concerning them. It was important to contact these people at the various levels, from the district officials who how information regarding resource allotment and implementation of mechanisms due to their roles in the government, down to the community level beneficiaries, because it helped to bring out a well-rounded view of what is going on in the community, and the success and failures of the projects so far.

3.5 Sampling Procedure

The sampling procedure was conducted using the snowball sampling procedure. The interviews mostly occurred at the district level initially, and from there further potential contacts arose from suggestions of who else in the community would have information to share or interesting insights regarding the research topic. This led to other government officers being interviewed, as well as researchers and academics. This method of snowball sampling was intended to be the most efficient use of time and resources, as it was supposed give a direction and ensure contact with others who have relevant information to share in the area of water and sanitation. However, because of the bureaucratic tendencies of the government structure, it was very difficult to achieve those first initial contacts. This led to a very slow start to the research process. Through gatekeepers who had connections within the government, though, and others who had connections within the villages, both district officers and community members living in villages were able to be reached.

3.6 Sample Size

The sample size for this research was to aim for a minimum of 20 interviews from people at various levels and within various categories of the community. In the end, a total of 38 people were interviewed- including 13 key informants of various roles in society, and 25 community members who made up 4 focus groups.

3.7 Data Collection Methods

The main method of primary data collection was through interviews with people from diverse categories and levels in the community in order to get a good cross-section of interviewees and perspectives. Academics, researchers, and district level government officials were all utilized as key informants. Because this was a qualitative study, it was important to use these individual interviews to seek depth of information. The approach taken with the individual key informants was a semi-structured approach. Some open-ended questions had been pre-prepared to initially guide the conversation, but there was intentionally space left for questions to arise as the informant talked. Handwritten notes were taken during each session, and with the permission of the interviewee, in some cases a voice recorder was used to ensure that all of the information was captured verbatim.

Also, four focus groups were utilized as a way to connect with more people at one time, and to get a variety of opinions on a specific topic. Based on characteristics of a good focus group, there should be a minimum of six members involved in the group. Of the focus groups used for this research, one had six members, one had seven members, one had eight members, and the last one only had four members and did not necessarily meet the criteria for characteristics of a good focus group. However, due to the situation on the ground, this was what was manageable. A more structured approach was taken for the focus group interviews compared to the key informant interviews. A set list of guiding questions had been prepared in advance to make sure that all four focus groups were questioned about the same topics. However, with each new focus group came new learning and more experience, so the interviews always ended up being flexible enough to adapt to the circumstances at hand. Handwritten notes were taken during each session to capture the information being shared.

3.8 Data Analysis

The research is qualitative, with the utilization of quantitative data acquired from secondary sources to drive the research question, as well as to support the qualitative results. The data collected from the qualitative research was analyzed for content through critical reading, to attempt to draw connections and find patterns between the information gathered and come to conclusions concerning the research question.

3.9 Limitations of the Study

Some limitations that arose throughout the month of the research was communication and arranging the interviews. Being that the research was conducted in Northern Uganda, not everyone who was interviewed spoke English. This happened more so at the community level, as the officials and academics were educated and knew English well, but the community members did not have as much experience in English so a translator was necessary. Any time a translator is used, it is important to make sure that the question being asked is being understood by the translator clearly, so that they can most appropriately ask it to the interviewee, and this is also the case for when the translator is repeating the answer back in English. However, sometimes there is no way to avoid this. This did not seem to be a huge issue, though, as the questions that were asked were fairly simple and straightforward.

An additional challenge was that there are cultural differences when it comes to understanding concepts of time. In the Western culture, people call and set up appointments and write them down and it is expected that both people make it to the appointment on time and if not, they must call and let the other person know that they will be late. The culture here in Northern Uganda, though, is more relaxed. People stop to chat, help each other out, or have to seek shelter and wait out a rain storm before continuing on with their day- there are a whole host of reasons why someone might be late to a meeting, and it is okay. It was important to remember as someone who was trying to set up an interview with the locals, that this is the culture, and that it is important to call and remind people of the appointment, but to be patient if people do not show up exactly on time. Similar to this, when trying to set up meetings with the district officials, it was very difficult to first of all get ahold of them, and then to try and set up a time to meet with them. Because they were local governmental officials, they were very busy men, and meeting with a student who was doing some small research was not very high on the priority list relative to the other responsibilities they had. Often times, a meeting would even be scheduled and confirmation would be made, but the time of the interview would come and the interviewee would not show up due to another meeting coming up. Because of this, the beginning of the research period was very slow, and it was very difficult to move forward with the research because the district officials were intended to be the starting point from which more contacts would be acquired.

Another cultural factor that made aspects of the research more challenging is the concept of privacy. In this culture, it is uncommon to hear people explicitly say that they are going to use the bathroom. Rather, people will make remarks that they are "going for a short call" or "have to make a long call". Given this, it felt uncomfortable and seemingly a sensitive topic to approach a focus group and to inquire about their toilet practices. Further, it was proven to be difficult to determine the extent to which people practice safe sanitation. In an attempt to not ask leading questions, it was never outright asked whether or not people wash their hands after using the latrine. Even if those questions had been straightforwardly asked, it is unlikely that people would have admitted to not washing their hands or to relieving themselves in the bush, as they were aware that the topic of the research was water and sanitation, and would have perceived themselves to be failing some sort of test had they been given the chance to say yes or no to a question about personal hygiene. Being aware of this, the questions about sanitation were intentionally open-ended and left room for the interviewees to answer how they were most comfortable.

3.10 Ethical Considerations

Ethical considerations are the primary concern of any researcher. It is imperative to be aware of any potential concerns, and to be prepared to address them as they come up. Before the research could even begin, a comprehensive proposal of the research topic was drafted and submitted to the Local Review Board for approval. Further, approval was sought from the Uganda National Council for Science and Technology. Approval was granted by both, so the research was able to continue.

It was important to know how to access respondents, and it was helpful to depend on a "gate keeper"- someone who is familiar with the population that is intended to be studied. These gate keepers provided access to the respondents, and acted as a bridge between the researcher and the respondents, particularly with the focus groups conducted in the village. The gate keepers were very helpful in accessing the district officials- as the local government can be bureaucratic so it was important to have some sort of connection, for accessing the three different schools that were observed, and for accessing and gathering focus groups in a village. Compensation and incentives are also components of conducting research that need to be paid attention to. Timing, being clear

in what the compensation or incentive is intended to be used for, and how much are all things that were kept in mind and planned for before an interaction involving it. This is another area where a gate keeper was very helpful, because they have the cultural knowledge and experience to be able to give advice on what is appropriate. For this research, when compensation was provided, it was given to the focus groups after the interview had occurred, and they had not been told that they would be given anything until after the interview was completed. The first focus group was compensated with bars of soap for each participant, and it had been purchased just down the street at a local shop. The other groups were given some money to purchase refreshments for themselves after the interview.

Additionally, informed consent is imperative and cannot be emphasized enough to conduct ethical research. Having a pre-drafted consent form was essential, and also the presence of a translator/gate keeper if working with non-English speakers was necessary. The interviewee was always presented with the consent form before the interview ensued. In some cases, an audio recorder was used with the permission of the interviewee. For the focus groups, because they did not speak English, the consent form was verbally translated by the translator, and each member gave verbal consent to participate before the interview took place.

Because of past experiences, place of origin, and prior knowledge and education from previous reading and research, it is impossible to completely remove researcher bias to a subject. However, by noting that the bias is there and by understanding how it shapes certain perceptions of information gathered in the field, it helped to open the mind to the information being received. Following this, bias can shape the types of questions asked and the methods of research used. There was a conscious and specific effort made to try to avoid asking leading questions, because this could have altered the information being gathered and would shape the findings in the light of a specific bias.

Chapter 4: Findings and Discussion

4.1 Who Are the Stakeholders in Regards to Water and Sanitation in Gulu and What Do They Do?

At the district level, the urban and rural areas within the district are under the authority of separate institutions. The municipality is under the authority of the National Water and Sewerage Corporation, while the local government has numerous offices working together in collaboration to address water and sanitation within the rural areas of the district. The National Water and Sewerage Corporation is a "public utility company that is 100% owned by the Government of Uganda" (NWSC, 2016). Currently, they have a presence in 174 towns throughout Uganda, and offer 78% service coverage within their areas of authority. However, it is in their plans to reach 100% service coverage to provide "everyone with clean safe water within a radius of 200 meters in all the towns and urban centers entrusted to [them]" (NWSC, 2016). Within Gulu, the regional office of the National Water and Sewerage Corporation exists to supply the local people with portable water in a cost effective manner. To do this, people living within the municipality are able to apply for the pipe connections and then pay monthly for the services. In this way, the office is geared towards assuring that the community is able to access portable water that meets international standards (Personal Communication, 11 Nov. 2016).

To address the rural communities, though, there is a collaborative effort between the Ministry of Water, the Ministry of Health, and the Ministry of Education and Sports to address water and sanitation. The District Water Office is responsible for water supply, sanitation, and hygiene around small water points and rural growth centers. When they go out to put in place a new facility, they start by conducting a baseline survey to find out where the community is at in terms of sanitation and hygiene practices. Their "dream is that where [they] put a facility in place then [they] would make sure to prevent sources of contamination- which definitely is poor sanitation and hygiene" (Personal Communication, 1 Nov. 2016). Once informing the community about where they need to be in order to get the facility, a committee called the Water and Sanitation Committee is assembled through an election by the community of which local people should constitute it, and then these members are trained by the District Water Office with support from

extension staff. These committee members are then expected to act as chains in addressing the issues that may arise within the rest of the community.

The District Health Office, though, is responsible for coordinating, planning, and implementing health activities within the community. They are expected to coordinate all partners in the health sector, including government, private, and NGOs in making sure that policy guidelines are followed. More specifically in terms of water and sanitation, their office plays a large role in the "software" aspect. They provide information on community access to clean water and proper sanitation, they test the quality of water, they inspect homes and their surrounding environments, they check for safe latrines and proper waste disposure, as well as address personal hygiene (Personal Communication, 2 Nov. 2016). When a problem arises, the office assembles Village Health Teams who act as agents of the community to go and address the communities, armed with facts about the preventable water borne diseases within the community to engage them and explain how poor hygiene and sanitation can lead to these diseases. So while the District Water Office is focused on a larger community level, the District Health Office narrows down their scope by taking interest in the more personal household level.

The District Education Office, then, has authority over water and sanitation practices within schools. They monitor, inspect, and offer support supervision to strengthen the quality of teaching and learning by examining the learning environment and making sure that it is safe and appropriate. They look for boreholes, latrines, rubbish pits, hand washing stations, and the general cleanliness of the compound and make a report. By policy, all schools are required to have at least one borehole, at least 1 stance per 50 students for latrine coverage, and the schools are also supposed to have Sanitation clubs. What happens, particularly in the case of less than adequate latrine coverage, is that students might come to school unable to find a toilet to use or the line might be too long, and, particularly in the case of young girls who are menstruating, they do not have access to the facilities they need and end up not going to school (Personal Communication, 4 Nov. 2016). This can have a major impact on the education of young community members, and is a large driving reason behind improving the learning environment.

Because the role of the local government in implementing water and sanitation within the rural areas of Gulu District is split up between three different departments, this requires extra care in making sure there is coordination between the three different branches for their work to be

cohesive and effective. The benefit of sharing the responsibilities among different departments is that it would be far too much for one department to handle all on its own and, just like anything, if each stakeholder plays their role well, the system will work well (Personal Communication, 2 Nov. 2016). However, lack of funding and budget allotment for water and sanitation activities have left gaps in responsibility pertaining to coverage where another department may then feel the need to compensate for where the other fell short (Personal Communication, 1 Nov. 2016). This disconnect from different priorities and different budgeting can be a huge challenge, but when there is a problem, all three departments are supposed to meet, inform each other of the problems, and then proceed to have dialogue around it (Personal Communication, 2 Nov. 2016). From this perspective, it makes sense to divide up the responsibilities based on the overarching authority of each department. The District Water Office has responsibilities in the hardware aspect of implementation of facilities, the District Health Office is concerned with WASH at a household level with respect to ensuring that people practice safe sanitation to reduce the risk of preventable diseases, and the District Education Office has authority over the implementation and education of WASH within schools. However, these are a lot of moving parts that are very dependent on each other to succeed; it requires frequent and consistent communication and dialogue about issues, integration of common goals, and cohesion of policies and practices at each level. Because they all have differing budget allocations and priorities, though, this leaves room for gaps in the system that prevent it from being as effective as it could be.

While both the local government and national government have roles within Gulu District, AMREF Health Africa also is a WASH stakeholder in the area. AMREF Health Africa is an international organization with its head office based in the capital city of Kampala. It does work in 35 different districts in Uganda, and has been in Northern Uganda for about 30 years (Personal Communication, 9 Nov. 2016). In Gulu, AMREF has been implementing actions aimed at improving access to safe water and sanitation practices for the communities. In 2012, they received funding from the EU to implement a five year urban and peri-urban sanitation program. Through this program, they have targeted 20 schools and 30 villages within Gulu Municipality to support. They had conducted assessments of schools that were the most in need since the funding was not enough to reach all of them, and the government aided schools were the ones considered first (Personal Communication, 9 Nov. 2016). AMREF conducts their work by addressing both software and hardware needs. Concerning software, they focus on increasing mobilization and

sensitization by training and forming school health clubs, maintenance committees, and water user committees for operation and maintenance of WASH facilities. Also, they work with and train local leaders to promote WASH, and they inform community members on their rights to water and sanitation. They also take an economic approach by training women on the reuse of waste for composting and for making items to sell so that they can sustain themselves (Personal Communication, 9 Nov. 2016). In the schools, they have a unique approach to promoting water and sanitation by holding a school WASH competition. It is planned with all the schools AMREF supports, and even the parents are encouraged to participate. The schools compete in WASH through demonstrating proper operation and maintenance of all facilities in the surrounding community, they promote WASH messages through drama and poems, and the best performing schools get gifts like smart stainless steel tanks for storing drinking water, a cow, or individual gifts for the best performing students like basins and plates (Personal Communication, 9 Nov. 2016). In terms of hardware, though, AMREF has constructed 20 rain harvesting tanks of 20,000 liters each, and every school they support has gotten one. They have also constructed drainable water borne toilets, because the challenge of land and cost of digging has made pit latrines unstainable. In addition, they have constructed hand washing facilities, as well as have distributed portable garbage escapes to collect rubbish in for easy transport to the rubbish pits. In these ways, AMREF has played an integral role in promoting ownership and sustainability of the resources they have provided to their associates.

At a more local level, community members are also stakeholders in the water and sanitation sector. Because there is an overarching goal to make it so that communities feel responsibility and ownership over the water sources and sanitation facilities, there is training and sensitization that happens at the local level. Communities are encouraged to have a Water Source Committee mobilized for each water source in the village. This Water Source Committee is supposed to be made up of nine community members who are elected by the rest of the community. Their responsibilities might range from ensuring that the water source and the area surrounding it is clean and protected, to collecting money monthly from each household that uses the water source. This money that is collected is then supposed to be saved and used as funds for when the water source inevitably breaks and needs some sort of repair. However, there have been some problems with this sort of system. In one village visited, the water source was a protected spring well, and the Water Source Committee had dwindled down to only one sole woman who was the "care taker"

of the spring well. While the area around the protected well appeared to be clean and well taken care of, a suggestion was made that the community should put up a fence around the source for even more protection. The woman explained that they had constructed a fence around the source, four times in fact, and that people kept stealing it. In addition to this challenge, some people in the community allegedly fetch their water at night, so there is no time to be able to catch them to collect their contributions for the funds (Personal Communication, 10 Nov. 2016). Another village had a Water Source Committee made up of nine members who were in charge of the protected spring well, and originally they had cleaned up around the water source and collected money at the end of each month for operation and maintenance costs, but recently they had taken to mobilizing people to go and clean around the source and if they failed to do so, they would be fined. Also, there were suspicions that the committee members had been using this money between themselves and when funds were needed for repairs, they would just go door to door to collect the funds; but in this way, they may not be able to collect enough funds for the immediate repair of the facility (Personal Communication, 14 Nov. 2016). So while the communities are supposed to have some sort of committee that has been trained by local government or other agencies in water and sanitation, as time goes on and without reinforcement, these committees begin to disintegrate or stop practicing their responsibilities.

The role of the Water Source Committee is an integral part to the success and sustainability of the water source, as well as the sanitation facilities. These local leaders within the community are supposed take responsibility and ownership over their water points. This is so essential because if the local leaders are sensitized to the importance of water and sanitation practices, and the importance of maintaining their resources, then they can more effectively govern the rest of the community to follow their lead. Also, because they are supposed to act as representatives for their communities in the local council. When an issue arises in a community, "their agenda comes through their representative", and the planning of the local government is through a down up approach, so the issues can best be addressed and resolved if the local community, with the encouragement from their local leaders, participate (Personal Communication, 4 Nov. 2016). Then, with all of these moving parts of the district departments, international organizations, local committees, and local people in place and all cooperating and fulfilling their responsibilities, ideally all of the needs would be met; but this is not the case due to differing priorities, differences in budgeting, and deference and/or lack of knowledge of responsibilities.

4.2 Water Sources, Sanitation Facilities, and Their Uses at the Community Level

When talking about water sources at the community level, it is important to understand that within Gulu District, there is the urban area which is referred to as the municipality, and then there are the surrounding rural areas. Within the municipality, the preferred source for water is piped water that is connected to homes for them to access through taps. According to the National Water and Sewerage Corporation, the stakeholder responsible for the piped water within the boundaries of the municipality, the current coverage for piped water in Gulu stands at about 6,000 households, which has increased from ten years ago when the coverage was about 3,000 households (Personal Communication, 11 Nov. 2016). The main source of the raw water comes from Oyitino dam where water is collected and then pumped to a treatment plant to be treated at a mass level. The water is then able to be piped to the households, from main lines which then branch off into individual line, where households can then access the water from their taps. Although the water is treated before it reaches the house, because the water has to travel so many kilometers through very old pipes, it picks up various micro-organisms along the way, and thus for safety it must be once again treated at the household level- either by boiling or through a filter (Personal Communication, 7 Nov. 2016).

Because not everyone living within the municipality is covered by this piped water, though, they must retrieve their water from elsewhere. However, drilling of new boreholes within the municipality is forbidden because of the high population of people living within a condensed area and the subsequent congestion, the ground water is not as safe to drink. Additionally, use of boreholes, shallow wells, and natural springs could be seen as a threat to business growth, as people who receive piped water services pay monthly bills. While people can still use boreholes that have been in place before, the National Water and Sewerage Corporation also offers Public Stand Pipes, which are water taps for community use within the municipality (Personal Communication, 11 Nov. 2016). According to the National Housing and Population Census in 2014, there were approximately 152,276 people living within Gulu Municipality (2014). This way, people living within the community have a few options for collecting safe, portable drinking water; however, only 70% of people within the municipality are currently covered by this service. It is the goal of the National Water and Sewerage Corporation, though, through their Infrastructural Development

Plan, to expand their coverage beyond the boundaries of just the urban areas and into the rural areas, where they hope to supply water to every village in Gulu District by 2020 (Personal Communication, 11 Nov. 2016).

In terms of sanitation within the municipality, there is a big push to transition from latrine usage to drainable toilets. This is because in urban and peri-urban areas, there is not enough land to accommodate a high concentration of people drilling pit latrines so that the national standards of one stance per 50 people are met, and so the latrines become drilled so close together and there is a fear of waste making its way into the water systems and contaminating them (Personal Communication, 4 Nov. 2016). This contributes to the policy that new boreholes cannot be drilled within the municipality, because the soil is left to degrade the waste from the pits, but the high density prevents the soil from being able to do this, so ground water use within the urban and peri-urban areas is riskier (Personal Communication, 4 Nov. 2016). Currently, though, a majority (80%) of the population in Gulu rely on pit latrines, about 7% rely on septic tanks, and in a few cases, some families have no toilets (Namata, Kagurusi, & Berhanu, 2015). So, there is a push to move away from pit latrines towards the use of drainable toilets that use a septic tank, or for more families to be connected to the sewerage service coverage. Currently, the National Water and Sewerage Corporation only has about 13% of connected households getting access to sewerage services, but they hope to improve this with a target of reaching 70% by 2020 (Personal Communication, 11 Nov. 2016). It is critical that this transition away from the pit latrines happens in the near future, as the unsustainability of pit latrines is becoming apparent. By policy, "latrines are required to be located at least 30 meters/100 feet from the residential house to prevent flies from contaminating food, and to protect the homesteads from the unpleasant smell" (Namata, Kagurusi, & Berhanu, 2015). With the large and increasing population, and reduction in availability of land, though, this policy is not possible. For the health of the community, this issue is pertinent.

In the rural villages, the coverage for access to safe portable water is at about 69%; this could mean a borehole, a protected spring well, or anywhere where the water does not have bacterial contamination (Personal Communication, 1 Nov. 2016). However, while 69% sounds like pretty good coverage, the service criteria is that one borehole should serve 300 people. That means if 300 people are scattered or clustered in an area with a radius of 5 kilometers and there is

one borehole in the middle, then the government considers them covered. But some people who were interviewed had problems with this, because they do not believe that people, namely the women and young girls, who have to walk 2.5, or even 1, kilometer should be considered covered. Because the women and young girls act as "the pipe that brings water to the house" it affects various aspects of their lives like time spent going to school and time that could be spent on other activities around the house- depending on how many trips they have to take to fetch water, how long it takes them to get there and back, and how many other people are trying to access the borehole as well (Personal Communication, 28 Oct. 2016). So, it was believed that the government does not take into consideration the factors of predominantly women and young girls walking a certain distance carrying 20 liters of water on their heads, as well as the demand at home influencing how frequently they have to take that trip. Another factor that increases skepticism about the reality of 69% coverage is the functionality of the water source. Sometimes, facilities are said to exist, but may not be functioning. That means if a "facility is not working, it's as good as if that facility is not there" (Personal Communication, 1 Nov. 2016). So although the statistic shows that "most" people in the rural areas of Gulu have access to safe water, when it is explained, "it should come back to actually less, less people have access to safe water" (Personal Communication, 1 Nov. 2016).

In contrast to the ground water situation within the municipality, though, the ground water in the villages is considered to be very safe. Because the population and density of people is not so high in the villages, the water can travel through the soil and wetlands where the natural treatment can take place, making the water purified and safe to drink (Personal Communication, 1 Nov. 2016). The local people use this ground water for drinking, cooking, washing, bathing, for giving to the animals for drinking, and for making clay bricks for building. All of these various uses of water show just how important access to portable water is, especially considering that the typical means of transportation of this water is via a 20-liter jerry can that the women and young girls most commonly carry on their heads. If they are having to take numerous trips to their water point in a day, depending on the demand for water at home, it is pretty essential for the water point to be in a near and accessible place.

4.3 The Perception Local People Have About Access to Safe Portable Water and Sanitation Facilities

While statistical data is important to have more broad and general knowledge about the current coverage of portable water and sanitation facilities, it is also critical to understand whether or not the local beneficiaries believe that they are covered and have adequate access to portable water and sanitation facilities. Out of four focus groups conducted in three villages on the outskirts of Gulu Municipality, all four claimed that the source from which they fetch their portable water is accessible and within a near distance. These sources were a protected spring well, an unprotected well, and boreholes. Out of these focus groups, none of them treated the water they collected before using it, and one woman had even claimed that she had never even thought of it. However, while they believed that their water was accessible, there were concerns about what was in the water. In the village where the local people take their water from a protected spring well, there were concerns raised about the worms they have in their water. They said that these worms gave them typhoid, but that they have to keep using this water because they do not feel they have any other alternative. In one of the villages that used a borehole for their source of water, they had concerns about rust and dirt in their water. They believe that the rust comes from the pipes, and that they get typhoid from this source; however, nothing was being done to address this issue. Another village had a similar issue with concerns about rusty water as a result of the borehole pipes, and this drove other community members to fetch their water from a nearby unprotected well. They believed that the water they got from the unprotected well was cleaner and of better quality than the water they got from the borehole, even though during the rainy season the runoff would flood the well with dirt and debris, and during the dry season a "green plant" (algae) would grow on the surface of the water. To address the issue of the rusty water produced by the borehole, some community members had made a report to the local authorities, who advised them to collect funds and to contact a local technician to repair the borehole; however, the funds were never collected and the borehole remains unrepaired.

This continuation of drinking visibly dirty water is an example of where it is difficult to change Health Behaviors. While the people can see that there are worms in the water or that there is rust or algae, if there are not immediate and known reactions to drinking the water, like diarrhea, cholera outbreaks, dysentery, etc., then people are going to continue to drink the water, especially

if they feel that they have no other alternative. Further, even in the case of the rusty borehole water where some village members took initiative to contact the local government, but then had the burden of responsibility end up back in their hands to collect money and contact a mechanic, if they felt that the rusty borehole water was immediately and directly affecting their health in a way they recognized, then there would be more immediate action to collect the funds and repair the borehole. However, they may be of the mindset that because they are not seeing any apparent and obvious side effects that they can directly link to the water, then they can just continue to drink it the way it is. While they would welcome someone to come and fix it, it is not a priority that they feel they need to take responsibility for to address and fix. Even if there are no immediate health risks resulting from drinking the water, though, the presence of contaminants and pathogens in water can have long term health effects, including reproductive problems and neurological disorders (CDC, 2014). Because of this, it is important that people not only have the knowledge about the potential implications of drinking contaminated water, but also that if they suspect that their water is unsafe that they should take action to address it.

In terms of sanitation, it was generally believed within these focus groups that they had access to sanitation facilities. Pit latrines constructed out of locally found materials like logs, homemade clay bricks, and grasses were the most widely used form of latrines. However, if there were enough funds for an improved ventilated latrine with a concrete slab, a vent, and an iron sheet roof, that was preferred. Within the villages, it was understood that the men of the families were responsible for digging the pit and constructing the latrine, which they said could take anywhere from two weeks to one month to construct. The size and depth of the pit latrine would depend on how many people were anticipated to be using it, as well as how high or low the water table underground was. Once the latrine is built and in place, though, it is typically the responsibility of the women, although the other users are encouraged, to clean and maintain the latrine. However, there is typically a negative attitude about this aspect of maintenance of the latrines because no one wants to be "working in a place with feces" (Personal Communication, 15 Nov. 2016). Another challenge with the pit latrine is that termites disturb the logs that are used in the construction of the latrine, and sometimes they collapse. Similarly, since they are made out of more temporary materials compared to if they had the improved ventilated latrines, it involves a lot of maintenance to keep repairing them. In some areas where people are renting their homes, there is also some frustration if a landlord does not provide a latrine for the tenants, because this then puts pressure

on the surrounding families who do have latrines because then other families end up using them. Aside from these issues, though, the focus groups felt that with the latrines, diseases associated with sanitation, like cholera and dysentery, are no longer there, and that the availability of the latrine saves them from having to use the bush where they would get scratched by thorns or would be in danger from snakes and other animals, particularly at night.

In addition to the four focus groups conducted within three villages, three schools which are being supported by AMREF were also examined. Each school that was visited had WASH facilities such as hand washing tanks, rain harvesting tanks, a borehole, and latrines and drainable toilets. Some schools also had a smart stainless steel container for storing drinking water, and some had portable rubbish bins for collecting garbage. Further, each school visited had a Health Club or Sanitation Club made of students and headed by a teacher, with responsibilities ranging from ensuring that the hand washing stations are filled with water; sweeping, mopping, and general cleaning around the boreholes and toilet areas; as well as sensitizing their friends through songs, poems, and other forms of drama. In one of the schools, it was even the responsibility of the Health Club members to report if another student is intentionally breaking the water taps or other facility parts, and if so, the parents of that child have to pay for the repairs. In two of the schools visited, in addition to the Health clubs, they also each had a specific person employed to be in charge of operation and maintenance of the WASH facilities. In terms of access to the sanitation facilities, it is the national standard that there should be at least one stance for every 50 students. The schools visited met these standards, with one school having a ratio of about 1:46 for boys and 1:53 for girls, and another school having a ratio of 1:21 for boys and 1:27 for girls. While these schools supported by AMREF are successfully meeting the student to stance requirement, according to data collected by the Gulu District Department of Education and Sports in September of 2016, there are some schools in the rural areas of the district that have a pupil to stance ratio as high as 1:257. Out of the 55 schools included in the report, only about 47% of them had a pupil to stance ratio that either met the 1:50 standard, or that were within five pupils of that standard.

In terms of access to water, each school that was visited had a borehole as well as various rain harvesting tanks from which they could also draw water for drinking or hand washing. During the dry season when there is no rainfall, though, they become dependent on the boreholes, which causes congestion at the water site with everyone needing to use it. It is the intention, though, with

the availability of rain harvesting tanks in the schools, for them to preserve enough water in them to make it through dry season. A school that has three tanks- two that store 10,000 liters and one that stores 20,000 liters that would be about to store 40,000 liters of water during dry season- would be in a position to serve the students at the school through a term (Namata & Mujuni, 2015). Because of poor operation and maintenance, with schools tending to forgo the efforts in taking proper care of the tanks after a few years, though, this is rarely the case- which leads to the reliance on the borehole. However, because of the little rainfall, there is also less groundwater than usual, so people have to pump extra hard to get water to come out; this puts even more of a strain on the borehole- making it more likely to break. On average, the boreholes break about once or twice during a term (there are three terms per year), and particularly during dry season when the borehole is the sole source for water, there is an urgent need for it to be repaired. Money is budgeted from the school fees that parents pay for their children to go to the school and some of it is allotted for such repairs as rectifying broken boreholes. Two of the three schools visited, though, also share this one borehole not only with the students attending the school, but also with the surrounding community members. In the case of one of the schools, the community members do not regularly or reliably contribute to the funding for the borehole; in the case of the other school, though, the community members who share the school's borehole contribute a monthly fee, and the school even keeps track of who has paid by maintaining receipts from the transactions.

While it was the perception of the people in the local villages and schools that were visited that they have access to portable water in terms of proximity, there were concerns raised particularly in the villages, about the quality of water due to either the presence of worms, dirt, or rust. Also, during the dry season, people become congested at the water sources because the rain harvesting tanks are no longer an option during those periods, so the quantity of water also decreases. However, it was discovered the self-treatment of the water, particularly in the villages, was not a common practice, and some people had never even thought about it. This is concerning because it means that people have been drinking dirty water, and that the issue is not being addressed in a way that could lead to a satisfactory resolution. In the village with the worms in the water, it was just accepted that they had to drink that water because they had no other alternative, and in the village with the rusty water, they had brought it up to the local council who had placed the responsibility back on the community itself, and nothing had resulted from it. There was no sense of urgency or passionate concern over the circumstances surrounding the water quality, and

"some even say 'you know we have been drinking this for the last so many of hundreds of years'. So it's a whole attitudinal- it's a whole cultural mentality and so on and so forth. So that means a lot of work has to be done in the area of enlightenment, sensitizing the people" (Personal Communication, 28 Oct. 2016). One way the communities facing questionable water could address the issue themselves would be for them to boil the water and thus kill and harmful bacteria. This would not necessarily be an ideal solution because of the time and inconvenience of having to boil the water all the time, but it would be preferable compared to the alternative option of drinking water. Additionally, this would be a practice that would require very involved sensitization and knowledge provision regarding the consequences of drinking dirty water, particularly in situations where the water might not appear to be dirty, but may contain bacteria unseen by the eye.

Similarly, in terms of sanitation practices, there was a perception that access to sanitation facilities was adequate. Through software activities carried out by local government departments, AMREF, and other stakeholders, sensitization has been done to engage the communities in how important it is to practice safe sanitation by making them aware of the benefits as well as the disasters if not properly practiced. In this way and with this knowledge, the communities then take on the responsibility to construct the necessary facilities and to carry out the operation of ensuring that the surrounding environment is open defecation free. But, constructing the latrines and other activities involved in practicing proper sanitation can involve a lot of work, and without follow up from local agencies who are invested in enforcing safe sanitation, people tend to relax and revert back to older, simpler habits. Further, what makes implementing and improving safe sanitation practices more difficult compared to improving water sources is that people know that they need water to survive, but without enforced sensitization, they might not always see the value in proper sanitation practices (Personal Communication, 9 Nov. 2016). So, just because the latrines are there does not necessarily mean that they are being used. Sometimes, because of convenience, younger children might go behind the house, or if someone is out fetching water and feels the urge they might go out there- which is even more dangerous (Personal Communication, 1 Nov. 2016). However, with persistence and follow up, people are becoming more and more comfortable with using latrines because of the safety and privacy they offer compared to open defecation in the bush.

4.4 Effects the Post-Conflict Environment Have on the Progress Being Made in Improving Water and Sanitation

During the war in Northern Uganda, there was in influx in humanitarian aid, and many organizations were present in the area doing various activities to try to improve living conditions for the local people, particularly when they were all gathered in the IDP camps. And so "during the time of insurgency when people were in the camps, it was also [an] opportunistic time for the humanitarian agencies to teach people some basics on water and sanitation requirements. And this time in the camps was not only a time for teaching it was also a time for obliging people to have these facilities because proximity to each other [was] in the hundreds and sometimes in the thousands" (Personal Communication, 28 Oct. 2016). The focus was on emergency aid, though, so often times many facilities were given to people, and the "soft" component of sensitizing the communities was not given enough time. While people in the camps were trained and sensitized in terms of operating and caring for the facilities, there were also still plenty of other humanitarian workers around to aid in this process. Because of this, the goal of ensuring sustainable WASH services may not be possible if the communities are not encouraged to make consistent contributions towards the facilities (Namata & Mujuni, 2015).

Time spent in a village in Kitgum District, Northern Uganda revealed what it was like to live in an IDP camp during the time of insurgency. People were over crowded in a very dirty camp where they had limited access to safe drinking water and sanitation was very poor. Diseases like cholera, diarrhea, dysentery, typhoid, and even tuberculosis were widespread and common (personal communication, September 12, 2016). People would have to walk to the dam, which was approximated to be about a 1.2 kilometer walk from where village currently is, to fetch water. Additionally, the dam is a commonly used water source for various animals to drink from. So, it was apparent that water obtained from the dam would not be very safe to drink, but if that was the only water source available then people would have no option except to use it.

With the arrival of Oxfam in 2003-2004, though, conditions started to improve. Water pipes were installed from sources of water found underground, and then motorized machines were used to pump the water from the ground into two large tanks which held 10,000 liters each. Also, jerry cans had been distributed to each family, and approximately one 20-liter jerry can would be allotted for each member of the family, not counting infants or young children. Once a day,

families were allowed to line up at the tanks to fill as many jerry cans as they could carry, and that would serve as their water for the day. Immediately after getting water, water guard or chlorine tablets would have to be added to the water in the jerry cans and left to sit before it was safe for consumption. This daily ration of water would then have to be distributed between cooking, drinking, bathing, washing dishes, washing clothes, and also to make mud bricks that were used for building huts or other structures. As an alternative to using the tanks, NGOs were eventually able to install more boreholes around the camp. Certain hours would then be allotted by the government soldiers for people to walk to the borehole locations under protection and fetch water (personal communication, September 9, 2016).

Additionally, in terms of sanitation, when Oxfam arrived to the camp they brought with them slabs to construct pit latrines as well as soap to distribute. A total of approximately 375 pit latrines were constructed in the camp to serve about 27,000 people, which was a significant improvement compared to the previous alternative of everyone having to use the bush. To maintain these sources of water and the sanitation facilities, NGOs sensitized and trained people living in the camps so that they would be able to care for and maintain these developments themselves. Some of the ways NGOS went about doing this was by providing families with soap for washing their hands and dishes, by providing a hose with which to clean the compound, and also by training them to use ash to spread in the latrines to kill germs and clean it. Other sanitary measures that were introduced were elevated dish racks and rubbish pits. Elevated dish racks were used for the purpose of drying dishes so that once they were washed, they could be placed up on the dish racks to keep them away from the dirt or from animals so that they would not become re-contaminated. Also, rubbish pits were dug to dispose of waste, and once they were near full they would be burned. In terms of delegating who was responsible for certain tasks, camp commandants were appointed and were responsible for organizing people to dig latrine, and block leaders were in charge of maintaining the pit latrines by spreading ash in them (personal communication, September 12, 2016). In these ways, the agencies brought in and provided people with the tools and materials they needed for the water and sanitation facilities they were using during the time of the camps.

When the conflict subsided and people were able to return to their homes in their respective areas of the region, they no longer had access to the facilities they had grown accustomed to in their years spent in the IDP camps; and for some of the younger community members, they had

grown up in the IDP camps and so that lifestyle was all they had ever known. This lifestyle has thus affected the attitudes of people. Before the war, the Acholi were very hardworking people, but since being confined to the IDP camps for so many years, the people have "lost the attitude of hard work and [have] promoted the attitude of having someone to come and bail [them] from whatever hardship [they] are in" (Personal Communication, 4 Nov. 2016). There are efforts being made to try to change this attitude and improve their mindset of taking responsibility, but that requires a lot of work and even more follow up because "people don't change quickly even when they have information. They don't take care of themselves and the facilities [that are] being used for water to the extent that even when there is a new water facility or safe source of water, they do not keep it safe until consumption. That means they break the safe water chain" (Personal Communication, 1 Nov. 2016). So even if the water that they collect from the source is clean, the means of collecting, transporting, and storing the water (namely via a jerry can) can cause the water to become contaminated. Preventing this is something that must occur at each individual household level. This is an example that shows that even when the hardware and facilities exist, without the software sensitization being enough to promote changed behavior within a community or if the community is not aware of the dangers of contaminating their own water, that people will not feel the sense of responsibility, ownership, and control over their health and well-being stemming from water and sanitation practices.

In addition to this issue of responsibility and attitude, is that when people were gathered together, it was easy to install a few boreholes and other water points in that area, but now that people are far more spread out there is the issue of resource allocation. Because of low funding or because of other development issues taking priority within the existing budget, it becomes very difficult for resources to be adequately spread out between the villages, especially because some of these villages are in some remote and hard to access areas. It is areas like this where one borehole might be placed to serve 300 people, but also where those 300 people could be spread out over a five kilometer radius. In some instances, to try to combat this challenge and to provide those people living on the outskirts of that radius, the cheaper option of installing shallow wells is sometimes utilized. Although fetching water from the borehole is a preferable option in terms of water quality, the shallow wells are at least an alternative for people who might otherwise have to walk five kilometers to fetch water (Personal Communication, 4 Nov. 2016). Because water from the borehole is ground water that is supposed to be tested when the borehole is installed to make sure

it is safe, though, the borehole is the preferable option compared to the shallow well, which would easily be contaminated.

Based on these findings, it is clear that culture and attitude have been significant factors in the struggle to change the health behaviors of the beneficiaries of the implementations of water and sanitation facilities. Because before the conflict, for hundreds of years people were utilizing open, unprotected sources of water, there is a mindset and attitude that it is okay and safe to continue to drink from those sources today. Further, because of the attitude that developed during the extended period of time spent in the IDP camps where people became "accustomed to free services" and "reluctant to take full responsibility of operation and maintenance of the installed facilities", efforts towards improving portable water services and sanitation facilities will face many struggles to become a sustainable goal due to lack of time spent on educating the population on the importance of changing health behaviors.

4.5 Gaps in Services for Availing Portable Water and Improving Sanitation

When it comes to services that are offered for availing portable water and improving the sanitation situation, there are certain gaps visible. Within the municipality, only 13% of the population are covered by the sewerage pipe system that the National Water and Sewerage Corporation offers. That means that 87% of the population is relying on either a pit latrine, an improved ventilated latrine, a drainable toilet, or in some cases even open defecation. With the emphasis being placed on transitioning from pit latrines to drainable toilets due to land concerns, that means services need to be in place for the septic tanks that the toilets drain into to be emptied when full. However, this is where a gap appears. The city only has two cesspool trucks available-one owned by the district, and one owned by the municipality. To further complicate this, sometimes the trucks are broken down or do not have oil, so they do not run (Personal Communication, 9 Nov. 2016). The same challenge is there with other disposable waste. In some locations, like at the main market, there are several large dumpsters that serve as a mass disposal site for waste where a truck is supposed to come and collect the garbage for disposal elsewhere; but due to the issue of the lack of truck availability, there dumpsters often just sit there with waste overflowing and spilling all around the ground and in the surrounding areas. This common thread

of lack of transportation was again mentioned by a local government official, who expressed how their office was challenged by not having consistent access to a means of transportation. They expressed that "the NGO system delivers services faster to the community contrary to the government system which has a lot of bureaucracies and at the end of the day timely delivery of services is affected" (Personal Communication, 1 Nov. 2016) This makes it difficult for them to "be able to check and have a quick response to community issues when they're raised" (Personal Communication, 1 Nov. 2016). This especially poses a challenge when it comes to accessing more remote villages, and also prohibits consistent check ins and follow ups to see how communities are adapting to keeping up with the sensitization implementations, as well as to see how well they are maintaining the facilities in place.

Consistently, a concern raised by the local government was the lack of funding and finance. This inadequate funding not only hampers the ability to facilitate the construction of new water sources and sanitation facilities, it also affects how much time and effort can be put towards following up in communities in terms of sensitization and software activity implementation. An officer at the District Water Office enforced this idea by expressing that "the government has not prioritized functionality of water facilities. There is little money given to that. We've tried to create systems, but my experience has shown that when you create systems which are new, for the systems to become habits in community, we need to follow up until it is tested that the community have accepted systems and the systems are operational" (Personal Communication, 1 Nov. 2016). Further, this is also complicated by the employment structure within the government. All three departments involved in water and sanitation at the local government level expressed concerns about being understaffed, making it difficult for their offices all to complete their responsibilities to their fullest extent. For example, it is the policy of the Department of Education to inspect each school in the district twice in a term, but in practice it only happens once due to their only being one health inspector on staff (Personal Communication, 4 Nov. 2016). Further, while the Village Health Teams are supposed to be "agents of the community" linking them together with the local government, it is a weak system because of the aspect of volunteerism, and sometimes the members are not very committed (Personal Communication, 2 Nov. 2016). Without the funds to ensure that everyone is adequately covered by access to portable water and sanitation facilities, as well as the follow up necessary to promote behavior change in terms of managing the existing facilities, it will be harder to achieve a satisfactory level of improvement.

While at the district level, the main priorities consist of supply and distribution of water by opening up new sources of water for people, it is important to stress that this is not the only aspect of water management. To make it complete, there needs to be that aspect of protection, where there is the assurance that the point where water is being taken from is safe and that it is of good quality and is not polluted; but, "that aspect of protection has a lot of gaps" (Personal Communication, 4 Nov. 2016). The gap comes from a disconnect between the different sectors involved in water and sanitation management, where there needs to be a more integrated approach in regards to planning and enforcing regulations. Similarly, regarding the protection of the water sources, the responsibility of operation and maintenance is supposed to fall upon the shoulders of the community members who are using that water source. However, it was the perception of some local government officials that "they are not aware that maintaining the functionality of these boreholes rests in their hands. So now they are mixing it up, [and] people do not want to collect the small, small deal because they say it is the responsibility of the government to put the borehole and to maintain it for them" (Personal Communication, 4 Nov. 2016). Ideally, the communities would have a set system where once a month the Water Source Committee would collect a fixed amount of money to save for when the water source needs repairing. In practice, though, it is common for communities to not prepare for the water source breakage by not collecting money monthly or by not collect enough money monthly, or even more challenging than a low collection would be that the families in the community are actually too poor to contribute enough money for repairs (Personal Communication, 1 Nov. 2016). This concept was seen in the focus group interviews as well, as the communities were aware that they should be collecting money on a monthly basis, but none of them consistently were. And so there is a gap in the acknowledgement of who is responsible for operating and maintaining the water sources, as "[the communities] should know that the burden of any repair will be on them as long as the repair needs minor intervention, so that they take the responsibility of using the borehole sparingly and to make those contributions" (Personal Communication, 4 Nov. 2016). Without this burden of responsibility enforced and be practiced, the protection aspect of management of the water will continue to face many challenges.

A major gap that is important not to overlook is that of the way the government considers people to be "covered" by improved water sources. As explained by multiple interviews from various departments in the local government, if a borehole or other water source services 300

people within a radius of 5 kilometers, then they are considered to be covered. Also, non-functioning boreholes are not taken into considerations, so while it is counted, it is really as if the water source is not there at all. This has major implications in terms of not only availing portable water to people, but also in regards to improving sanitation conditions. In a study conducted by T. Namata and F. Mujuni in 2015, they assessed selected primary schools in Northern Uganda to explore ways to achieve sustainable operation and maintenance of the existing water and sanitation facilities. They discovered that while different stakeholders have "invested large sums of money towards improving access to safe water, sanitation and hygiene practices in Uganda" that "communities still encounter water related challenges because the facilities are poorly maintained" (2015). Specifically, in schools where accessing water meant traveling a distance (in this case two kilometers from the school), they had dirty and poorly maintained latrines. Because the children preferred not to use the "dirty and smelly latrines", they were more inclined to urinate and defecate in the open (Namata & Mujuni, 2015). This link between adequate access to water sources and maintaining sanitation facilities and hygiene practices is an important one, because without availing access to portable water within a reasonable distance, efforts towards improving sanitation will fail. This demonstrates how related water and sanitation really are, and how dependent they are on each other for their individual successes.

Chapter 5: Conclusion and Recommendations

5.1 Conclusion

While there certainly have been many improvements in terms of access to portable water and sanitation facilities in the years following the conflict, it does not seem that the data and the statistics that are supposed to be representative of these improvements really reflect the situation on the ground. It is true that many individuals and institutions have much improved access to the basic facilities necessary for safe water and sanitation practices, but where there is a disconnect that could affect long term sustainability is in regards to the operation and maintenance of the existing facilities. The local government and other outside actors, because of their system that decentralizes and distributes the responsibilities pertaining to water and sanitation across various departments, face challenges of differences in priorities and budgets which in turns affects the efficiency and effectiveness of their efforts. While it certainly makes sense to utilize a system like this, because of the many various levels and aspects of water and sanitation implementation that are interdependent on each other, there needs to be a more cohesive and integrated approach for it to be successful on all levels.

Further, the post-conflict environment has had the effect of leaving a misconception that partners or some outside force will always be there and readily able to come in with support when there are troubles or problems. This, coupled with insufficient time spent on sensitizing communities and enforcing software activities to work towards behavior change has left a gap in the perception of whose responsibility it is to operate and maintain the hardware that is in place. While the government and other partners believe it falls on the shoulders of the community members utilizing the facilities to take ownership and responsibility for operating and maintaining them, the community members are either not aware or not committed to this. Without more time spent training and enforcing these practices, the hardware that is currently in place will inevitably cease to function and thus the efforts that have been contributed so far will be unsustainable. Regrettably, there is currently not enough time, money, or manpower to spend a significant amount of time in each community training them and then enforcing the behavior change with follow ups, but with alterations in budgeting and prioritizing and a more cohesive approach from the different partners, steps can be taken to improve the current situation.

5.2 Recommendations

In order to create an environment in which the existing facilities that have contributed to the improvement of access to portable water and sanitation facilities, steps needs to be taken to make sure that they are operated and maintained in a sustainable way. For this to happen, all of the WASH stakeholders need to cooperate to come up with a comprehensive and integrated plan of action to take to address the improper management of the facilities at the community level, and to promote communities to take responsibility of the existing facilities into their own hands so that they can be their own advocates for proper water and sanitation practices.

By coming together and ensuing dialogue, the stakeholders could come up with a plan from which they could maximize their budgets by critically assessing where the weak spots in the existing system are and where money is being wasted. By redirecting the wasted time, money, and efforts into implementing a plan that more strongly and consistently focuses on sensitizing and educating communities in resource management and operation, they could more effectively support the effort to make real and lasting behavior changes in communities. By spending more time and money on these software concerns in the short term to enforce the necessary behavior changes, both time and money could be saved in the long run. If communities become more self-reliant and take proper care of the resources they currently have available, there will be less need for time and money to be spent on repairing or replacing facilities. Thus, the focus can shift from addressing the basic needs of people, to progressing in more advanced development and infrastructure plans.

Further, future research could be done to more closely examine the effectiveness of addressing the implementation of water and sanitation practices from so many different departments who also have responsibilities and obligations in different areas. Rather than splitting the responsibilities between the District Water Office, District Health Office, District Education Office, as well as the National Water and Sewerage Corporation, if there was one all-encompassing department that could address all the pieces that each department currently have responsibility over, is it possible that there could be a more cohesive approach? With one department that has all the concerns of both hardware and software implementation in mind, would it promote a more integrated approach due their priority solely being on improving the water and sanitation situation in Gulu District and addressing any of the issues that arise? Would it make sense, then, rather than

relying on the District Health Office and the District Education Office to have responsibilities pertaining to water and sanitation in their given areas of authority, namely health centers and schools, that they become more so partners willing to work with an overarching department on the water and sanitation issues and less so the main stakeholders in WASH implementation in health centers and schools? Thus, perhaps a more focused and integrated department could accomplish and be more successful in a cohesive, efficient, and effective approach to addressing the concerns regarding water and sanitation in Gulu District.

References

AfDB's High 5s: A Game Changer in Africa's Development Discourse. African Development Bank Group.

Akena, W., Odong, G., & Okot, J. O. (2015). Gulu District Council Score-Card Report FY 2013/2014. *Local Government Councils' Performance and Public Service Delivery in Uganda*. Retrieved from http://www.acode-u.org/Files/Publications/PSDA_38.pdf

Angoma, O. S. (2007). From Politics of War to Politics of Peace- Northern Uganda: Whose War, Whose Peace & Whose Justice? University of Birmingham.

Carter, C. R, Tyrell, F. S and Howsam, P (1999). Impact and Sustainability of Community Water Supply and Sanitation Programmes in Developing Countries. Journal of the Chartered Institution of Water and Environment 13: 292–296.

CDC. (2015). Water-related Diseases and Contaminants in Public Water Systems. *Centers for Disease Control and Prevention.* Retrieved from http://www.cdc.gov/healthywater /drinking/public/water_diseases.html

Finnström, Sverker. (2006). Wars of the Past and War in the Present: The Lord's Resistance Movement/Army in Uganda. Africa: Journal of the International African Institute, 76(2), 200-220.

Global- Health Action. (2016), 9: 32833 - http://dx.doi.org/10.3402/gha.v9.32833

Global Water Partnership (GWP). (2002). Dialogue on Effective Water Governance. Stockholm, Sweden.

Harvey, P., & Lind, J. (2005). Dependency and humanitarian relief: a critical analysis. *Humanitarian Policy Group Research and Briefing*. London, United Kingdom.

Hayden, J. (2015). Introduction to Theory. In *Introduction to Health Behavior Theory*. Retrieved

From https://books.google.co.ug/books?hl=en&lr=&id=9YZSAAAAQBAJ&oi

=fnd&pg=PR1&dq=changing+behavior+theory&ots=-BwjvsB1A2&sig=STkFOZgvo

BWcaFqU3UQDvpLsek&redir_esc=y#v=onepage&q=changing%20behavior%20

theory&f=fale

Improved Sanitation, Hygiene, and Poverty. N.d. Retrieved from http://www.wri.org/sites/

default/files/pdf/mapping_a_healthier_future_sanitation.pdf

Mohamed, A. (2016). Water central to achieving High 5s and Sustainable Development Goals in

Africa. African Development Bank Group. Retrieved from http://www.afdb.org/en/news-and

events/article/water-central-to-achieving-high-5s-and-sustainable-development-goals-in

africa-16102/

Mugira, F. (2015). Uganda: Surface Water Quality More Worrying than Scarcity. Watersan

Perspective. Retrieved from https://waterjournalistsafrica.com/2015/09/05/uganda-surface

water-quality-more-worrying-than-scarcity/

Mutambi, R., Hasunira, R., & Oringa, V. (2007). Intersectoral Action on Health in a Conflict

Situation: A Case Study of Kitgum District, Northern Uganda. Retrieved from

http://www.who.int/social_determinants/resources/isa_conflict_uga.pdf

Naiga, R., Penker, M. & Hogl, K. (2015). Challenging pathways to safe water access in rural

Uganda: From supply to demand-driven water governance. International Journal of the

Commons. 9(1), pp.237–260. Retrieved fromhttps://www.thecommonsjournal.org/

articles/10.18352/ijc.480/

Namata, T., Kagurusi, P. T., & Berhanu, A. (2015). Smart technologies for urban and peri-urban

communities: Amref Health Africa's experience in promoting water borne/pour flush toilets

Exploring Access to Portable Water and Sanitation Practices in a Post-Conflict Environment 45

in Northern Uganda. Water, Sanitation and Hygiene Services Beyond 2015: Improving

Access and Sustainability.

Namata, T., & Mujuni, F. (2015). Achieving sustainable operation and maintenance of water and

sanitation facilities: findings from selected primary schools in Northern Uganda. Water,

Sanitation and Hygiene Services Beyond 2015: Improving Access and Sustainability.

Owich, J. (2016). Gulu to Reward Villages with High Latrine Coverage.

Acholi Times. Retrieved from http://acholitimes.com/2016/10/19/gulu-to-reward-villages

with-high-latrine-coverage/

Problem Identification. Unpublished Caritas Handout.

Theriault, K. (2012). AfDB Promotes Improved Access to Water, Sanitation and Health Services

in Rural and Urban Uganda. African Development Bank Group. Retrieved from

http://www.afdb.org/en/news-and-events/article/afdb-promotes-improved-access-to-water

sanitation-and-health-services-in-rural-and-urban-uganda-8771/

UNICEF. (2009). Humanitarian Action in Uganda.

USAID Uganda. Access to Safe Water, Sanitation, and Hygiene Activities Factsheet.

Appendices

i.   Sample Basic Interview Questions

1. Where do you draw your water from?

2. What is that water then used for?

3. Is the water treated or boiled in any way before use or consumption?

    a. Why or why not?

4. What is used to fetch the water and where is it stored?

5. Who is responsible for operating and maintaining the water source?

    a. What responsibilities come with that position?

6. What happens when there is a problem with the water source?

7. Tell me about toilet practice in your home

8. What kind of toilet do you have?

9. Who is responsible for building it?

    a. Where do the materials come from?

10. Who is responsible for maintaining it?

    a. What responsibilities come with that?

ii.   Letter of Introduction

SIT Study Abroad
a program of World Learning

1 Kipling Road, PO Box 676, Brattleboro, Vermont 05302-0676 USA
Tel 802 258-3212 | Toll Free 888 272-7881 | Fax 802 258-3296 | www.sit.edu/studyabroad | www.worldlearning.org

Plot 54
Lower Churchill Drive
Gulu

25th/10/2016

Dear Sir/Madam,
 Re: Peyton Ann Going

The purpose of this letter is to introduce to you Peyton Ann Going who is one of the 9 international students on a 15-week Post-Conflict Transformation Program in Uganda under the auspices of School for International Training (SIT). SIT is an accredited institution of higher education of World Learning based in Vermont; USA that runs field based academic programs in over 50 countries all over the world. As part of their learning experience, the students are expected to complete a practicum project (fieldwork) on a Post Conflict Transformation related topic of their choice, for four weeks.

Peyton is interested in exploring the Disparities in Water and Sanitation Implementation in Northern Uganda. Peyton's practicum will run from October 25th to November 23rd 2016. At the end of her practicum, she will be expected to write a paper, a copy of which will be available at the SIT offices located on Lower Churchill Drive, Plot 54, Gulu Municipality. SIT will be fully responsible for Peyton's accommodation, food and transportation expenses during the entire practicum time.

The research that Peyton is conducting is being overseen by academic advisor Dr. Constantine Loum of Gulu University and the processes which Peyton will be using to conduct interviews have been approved by a Local Review Board and deemed ethical and culturally appropriate.

While Peyton is in position to provide you with details of her interests, do not hesitate to get in touch with me on 0772-515983 or martha.nalubega@sit.edu, should you require additional information.

Any assistance rendered to her will be highly appreciated.

Yours faithfully,

Martha Nalubega Wandera
Academic Director
Uganda: Post-Conflict Transformation Program
School for International Training

iii.   Consent Form

Dear Participant,

Thank you for agreeing to participate in my study. I am an undergraduate student currently studying in the School for International Training's Post-Conflict Transformation study abroad program based in Gulu. I am currently conducting a four week-long research project whose aim is to understand the access to safe water and sanitation facilities in Gulu District, Northern Uganda.

Your participation in this study is completely voluntary. You are free to not respond to any questions or discontinue the interview at any time. An audio recorder may be used to record this interview and used later to transcribe interview responses. Any audio recordings will be deleted at the end of the study in December 2016. Please note that the outcome of this study will be an academic research paper that can be accessed by the public at the School for International Training Office located at Plot 54, Lower Churchill RD, Gulu.

Thank you again for your participation!

Consent:

Name of Participant: _____

Signature: _____

Date: _____

I give permission for my name to be used in the report (Circle one): YES   NO

Student's Contact Information:

Peyton Going

Contact: 079128978 or peyton.going@snc.edu

iv.   Letter of Approval

Dear Sir/ Madam,
This is to notify you that the Uganda National Council for Science and Technology (UNCST) approved the above protocol on 14th November 2016.

The approval is subject to the following condition:
1.   Payment of the research administration and clearance fee of 300 US Dollar. Payment is made to Standard Chartered Bank Speke Road Branch (or any other branch); the account title is UNCST and the account number is 8705611811400. If however you wish to pay in Uganda shillings, the account number is 0105610632101. If you intend to wire the research fees, the swift code is SCBLUGKA. Note that bank charges will entirely be the researcher's responsibility. After payments, please bring the bank pay slip or transaction sheet to
UNCST accounts office upon which a receipt will be issued to you. Please quote YOUR NAME and THE ABOVE REFERENCE NUMBER on your pay slip

2.   Obtaining of clearance to the study districts from the Research
Secretariat, Office of the President; The process of obtaining clearance from the Research Secretariat, Office of the President is handled by UNCST on behalf of the researcher. Once approval has been secured, you will be notified.

Yours sincerely,
Hellen N.Opolot
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY
Hellen Opolot
Senior Science Officer
Uganda National Council for Science and Technology
Plot 6 Kimera Road , Ntinda
Tel: 0414-705513/ 21
        0772-620279/ 0702-620279
Website: www.uncst.go.ug<http://www.uncst.go.ug/>