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# The Industrial Impact on Wetlands in Jinja and the Nexus of Industry, Wetlands, and Community (A Rights-Based Sustainable Development Approach)

Ranger Ruffins  
*SIT Study Abroad*

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**The Industrial Impact on Wetlands in  
Jinja and the Nexus of Industry,  
Wetlands, and Community**

**(A Rights-Based Sustainable Development Approach)**

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**Project Location: Jinja, Uganda**

**Spring 2015**

## **Dedication and Acknowledgments**

First I would like to dedicate this paper to my family in America for supporting me and my decision to come to Uganda for study abroad. I would also like to dedicate this paper to my homestay mom Prossy for becoming my Ugandan family and allowing me to become comfortable and welcomed during my studies.

I want to first thank my advisor Ernest Nabihamba and his Secretary Harriet for welcoming me so openly into their office and giving me a space to work and call my own. This study would not have been possible without their guidance, advice and assistants in finding contacts. In addition I would also like to thank the Jinja Municipal Council for allowing me to work in their building and use their space. This study was also made possible due to the places I visited and people I talked to so I would like to thank the LCs in the Loco village, Masese village, and Budhumbuli village that so graciously provided their time. I would also like to thank those members in the community that took the time to participate in the study as well as the ecologist from NaFIRRI, and the two environmental officers I spoke to. Lastly, I would like to say a huge thank you to the University of North Carolina Chapel Hill as well as the staff of SIT for making this experience possibly and so incredible.

## **Abstract**

Uganda is a beautiful country filled with an extensive amount of natural resources, one of the most profound being wetlands. It is said that these wetlands are a crucial source of food and water for almost 3 million people (NEMA, 2012 and Oguttu et.al, 2008). They also provide many more invaluable socioeconomic benefits for the country. As Uganda experiences increasing development as well as a rapidly increasing population, the wetlands become increasingly necessary, at the same time they become increasingly threatened. It is written in the 1995 Ugandan constitution that Ugandan policy is aimed at ensuring sustainable development for the protection of the environment as well as the prosperity of the people, however this has been debatable.

This study looks at the nexus between industry, wetlands, and local villages in Jinja Uganda, analyzing the dynamics and views between various stakeholders. The overall goal was to evaluate how this nexus applies to rights-based sustainable development with a greater hope of gaining insight into how development can be done without compromising the environment as well as the rights of the people.

Guided interviews with various stakeholders such as, village leaders(LC), and ecologist, industrial personnel, and environmental officers were conducted to gain a range of point of views on a number of dynamics with in the study. In addition, informal interviews as well as a focus group was done to gain similar results. The other people consulted were a health care worker, development studies student, as well as other community members. Three villages, Masese, Loco, and Buhumbuli were visited for the study, as well as three factories, Steel Rolling Mills, Skyfat, and Nile Agro.

The study found that the relationship between the village and neighboring industries is complex. Both parties rely on the wetlands for various activities and everyone recognizes that these activities have detrimental effect on the wetlands as well as the future of Uganda. The respondents realize their county has various policies to prevent this degradation, but feel as though the implementation is faulty due to corruption, lack of communication, and underfunding. As a result the village members feel they are neglected and not considered when it comes to wetland protection and development. The study concluded that rights-based sustainable

development is the necessary approach for Ugandan development, but that due to poor implementation of policy, this is not currently occurring. With better communication, lack of political influence, and increased respect for the local villages, Uganda can find the balance between development and environmental protection.

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## 1.0 Introduction

This study was designed to look at the regulations, impacts, and dynamics of factories/industries on the people in Jinja, and learn how these factors affect the people's everyday usage of the wetlands. While the objectives did yield results for this inquiry, the researcher quickly realized that it was more beneficial to focus on the entire nexus of industries, communities, and wetlands in Jinja. By asking various stakeholders questions about their point of view on wetland degradation, regulation/implementation, and development, this study gained insight on the relationship between industries and local communities and used this qualitative approach to understand the possible implications these factors have on the wellbeing, and ultimately the rights of the communities in Jinja. In a broader scope, this paper also questions the approach to development by looking at dynamics of the nexus in relation to the overall development of Uganda and how it successfully and unsuccessfully follows a rights-based approach to sustainable development.

*“Wetlands are a source of livelihood to the majority of Ugandans and hence directly contribute to National Development plan, vision 2040 and attainment of the Millennium Development Goals. However, wetlands are under a lot of pressure from conversion for industrial development, settlements, agriculture, sand and clay mining. Most of these degrading activities are perceived to be of greater importance than wetland conservation itself”* (Ministry of Water and Environment, Wetlands Management Department, 2012).

The last sentence of this quote has great importance to this study and development in Uganda. *“Most of these degrading activities are perceived to be of greater importance than wetland conservation itself.”* The essence of this sentence is commonly found in development strategies. The strive to live day to day, to make money, to catch and grow food, and to have water, are all reasons for these degrading activities in the wetlands. Many people cannot see beyond these actions because, for the most part, these activities are a means of survival. It is often hard for people to see the long-term benefits of conservation. It can be difficult for some to realize that environmental conservation is, indeed, a means of survival as well. However, this idea of “short-term” practices and mindset does not only apply to the people directly using the wetlands. Many governments have a similar short-term view of how to use such resources, and arguably how they approach development.

Many development practices are focused on expansion of the economy and infrastructure, little attention is paid to the environment and conservation. In a country like Uganda, and in most developing countries, this cannot be the sole focus. The country depends on these resources for health, land, fisheries, human settlement, energy, infrastructure, water, and food (Ugandan National Development Plan, 2012). One of the primary natural resources are the Ugandan wetlands. It is said that these wetlands are a crucial source of food and water for almost 3 million people (NEMA, 2012 and Oguttu et.al, 2008). Wetlands provide a variety of benefits to the community and country. They are essential for filtering and cleaning water, recharging groundwater sources, protecting shorelines, and are great sources of nutrients for surrounding soils. In addition, they provide shelter and nurseries for fish. Wetlands are an important source of biodiversity and are a primary factor in maintaining Lake Victoria's complex ecology (Oguttu et.al, 2008). This valuable source also provides essential ecosystem services. Wetlands are key in serving the locals with food, farming, grazing area for animals, and raw materials harvested for crafts (Oguttu et.al, 2008). This resource provides no less than 37 valuable services and products, and contribute hundreds of millions of dollars per year to the national economy (NEMA, 2012).

While this an invaluable source for the country and development, the wetlands have suffered from degradation. A main "survival activity" done on the wetlands, is the development of factories and industry. One of the primary areas this can be seen is in Jinja. Jinja is the second largest city in Uganda and is located in Eastern Uganda. It also happens to be the location of the source of the Nile. It is 60km<sup>2</sup> and 42-48 km is made up of wetlands (Jinja Water Report, 2010). While Jinja is fortunate enough to have an extensive network of wetlands, it also has multiple industrial buildings. Lake Victoria is the chief receiver of industrial and municipal waste in eastern region of Uganda. The major sources of wetland and water pollution come from municipal waste, agricultural waste, and industrial waste. In a study conducted in 2007 they looked at point source pollution in the Jinja area. In the study they mentioned, "Several companies from Jinja's industrial sector discharge large volumes of untreated effluents into the rivers Nile, Walukuba and Kikenyi, as well as into Jinja's urban wetlands and into Lake Victoria" (Oguttu et.al, 2008). Lake Victoria is the largest lake in Africa and serves a multitude of symbolic as well as functional purposes. In addition, the people in Jinja are surrounded by high concentration of waste in an area with immense environmental and developmental



significance. For this reason, this study was conducted in Jinja and looked at the impact this waste has on the people.

While the Ugandan government has made efforts to protect these wetlands, its institutions and policies have failed to show great improvement. There has also been encouragement of industrial growth that seems to take precedent over conservation. This is not unheard of, but in this study by looking at the nexus of industry, wetlands, and people, the study argues that within the rights-based and sustainable development frame work, environmental consideration needs to be at the forefront of these efforts, and that the violation of natural resources can interfere with human rights, as well as developmental progress.

By conducting informal and guided interviews along with focus group discussions and observation, the study gained a variety of views within the nexus. The study found that the relationship between factories and communities is complicated but overall negative. A lot of this is due to communities' heavy reliance on the wetlands. The study found that the wetlands are under a lot of pressure from not only industrial based degradation but community based. However the general sense from the stakeholders is that while local encroachment is extensive, industrial encroachment is intensive and will likely have longer lasting effects on the wetlands. The various stakeholder recognized the need to conserve wetlands as well as support development, but reported that this is a challenge due to poor implementation of Ugandan environmental policy. The collective sense was that this was due to corruption, underfunding, and disconnects between various institutions. The study concluded that the wetlands, industrial, and village nexus still has many challenges and that the way they are being handled is not along the lines of rights-based sustainable development, and in fact could be a hindrance to achieving this form of development.

## **2.0 Background:**

### Rights-Based Approach and Sustainable Development:

In Chapter one of the Ugandan National Development Plan, in the opening paragraph, it is stated what the aim of this plan is:

*“The thrust is to accelerate the socio-economic transformation to achieve the National Vision of a transformed Ugandan society from peasant to a modern and prosperous country within 30*

*years. This will be supported by the environment necessary for sustainable development which will entail making continuous improvements to the political, social and economic conditions”(UNDP).*

The Ugandan government has committed itself to sustainable development, but let's see how sustainability is defined. Sustainability is defined as: actions taken in the present to improve the human condition and the Earth system in which we live need to be lasting and benefit future generations(United Nations Association in Canada,2013). There are three foundations of sustainable development, socio-cultural, economic, and environmental systems. The idea of sustainable development was established in 1972 at the UN Stockholm Conference of Environment and Development. This was the first time environment and development were brought together and considered in the same framework. Following this conference in 1992 the Rio Earth Summit brought the global community together to discuss sustainable development, its challenges, and various environmental issues(UNAC,2013). They talked about climate change, health and environment, biodiversity conservation, and poverty prevention. While there have been great efforts to unite development efforts, topics like the economy, culture, and the environment continue to be considered independently. The basic foundation of sustainable development have been seen in separate lights rather than looked at as being intertwined and cross cutting. Following the meeting in Rio there has been increased poverty gaps, more people living in poverty, and health issues that have made economic growth nearly stagnant (UNAC, 2013).

At the center of development, especially sustainable development, are people, and people have the right to certain living conditions. Using human rights and sustainable development as a framework for approaching development in Uganda is a way to ensure that the people's needs are being met while the economic and political structures improve as well. The UN says, “By effectively linking human rights and sustainable development, the increasing state of uncertainty for the environment that surrounds and nurtures us is given a human face, directly impacting the well-being of all”( UNAC,2013). The human rights approach to development is seen as a conceptual frame work. It is a way of viewing development as well as making decisions. UNICEF defines it as a conceptual framework for the process of human development. “It seeks to analyze inequalities which lie at the heart of development problems and redress discriminatory

practices and unjust distributions of power that impede development progress” (UNICEF, 2015). In most development frameworks they recognize human rights like, economic, social, cultural, civil, and political rights. Sorting through them, one may realize that environmental rights are implied, but they are rarely explicitly expressed (UNAC,2013).

The Ugandan government has recognized the importance of the environment to development. In the National Development Plan it says, “These resources play a pivotal role in the realization of sustainable development. The environmental sector contributes to the productivity of other sectors especially agriculture, industry, and fisheries by providing natural assets from a sustainable natural resource base” (UNDP). They have put institutions and policies to protect the environment and their valuable resources.

#### Government Involvement:

The Ugandan government created the National Environmental Action Plan (NEAP) between 1991 to 1994. This program “Provided a framework for addressing gaps in environment management as well as a strategy for integrating environment into the national socio-economic development” (Akello, 2007). In 1994 they created the National Environment Management Policy (NEMP) that aimed at ensuring “sustainable social and economic development which maintains or enhances environmental quality and resource productivity on a long term-basis that meets the needs of the present generations without compromising the ability of future generations to meet their own needs” (Akello, 2007). This policy is meant to guide and inform policy makers and decision makers on how to best approach a range of factor related to development. It was created so that the environment is taken into consideration when discussing socio-economic development decisions (Akello,2007). In the Ugandan constitution of 1995 they address environmental concerns like resource management and conservation. Some of which are:

- XII. (i) The State shall adopt an integrated and coordinated planning approach
- XIII. Protection of natural resources.
  - The State shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda.

- XXI. Clean and safe water.
  - The State shall take all practical measures to promote a good water management system at all levels.
- XXVII. The environment.
  - (i) The State shall promote sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for the present and future generations. (ii) The utilization of the natural resources of Uganda shall be managed in such a way as to meet the development and environmental needs of present and future generations of Ugandans; and, in particular, the State shall take all possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution or other causes (Ugandan gov, 1995).

In 1995 the National Environmental Act was ratified and it was the basis of Ugandan environmental law. To enforce and uphold this act, the National Environment Management Authority (NEMA) was created. NEMA is in charge of organizing, overseeing, and managing environmental activities in Uganda. NEMA has sub departments that monitor and manage different environmental components. One of them being the Wetland Management Authority. These policies, institutions, and efforts are solid in writing, but the state of the wetlands show little, and even worsening results. Even with the Ugandan government singling out the importance of environment to development, there has been little support in terms of action and results. This has been attributed to various reasons. In the National Development plan they list reasons for “Constraints to the Performance of the Environmental Sector”. Despite recognizing limitations there are still gaps between what is expressed and what is being done. The state of the wetlands are examples of this. Later in the report the study presents its findings on why these issues may occur.

Wetlands, Industry, and Human Needs:

Like discussed earlier in the paper, wetlands directly affect the livelihoods of the people in Uganda, however on the perimeter of the wetlands in Jinja lies a variety of industrial factories and treatment plants. These factories process chemicals, food, fish, tanning of animal skins, textiles, paper, and various beverages (Oguttu et.al, 2008). Because of easy access to water, the industries have been built around the lake and the wetlands. These areas are also seen as cheap plots of land for industrial development (NEMA, 2012). In a *New Vision* article NEMA boss Aryamanya Mugisha reported “Nile Agro Industries discharged its waste water into Lake Victoria untreated. The factory discharges an average of 70,000 cubic meters of untreated waste water per day”(Tenywa, 2010). But this is not the only industry contaminating the wetlands. In 2010 NEMA named the top 20 polluting companies in Jinja. Among them were, “Nile Breweries, Kakira Sugar Works, BIDCO, Steel Rolling Mills, Uganda Fish Leather Tannery Factory and Nile Plywood. These industries were among the “list of agro-processing factories found violating environmental regulations” (Tenywa, 2010). Later on in the article they reveal that at least 9 of these companies were all served warnings from NEMA.

As time has gone by the makeup of Uganda’s waste has become more complicated due to new types of waste like, electrical waste, radioactive waste, plastics, polythene materials, industrial waste, and organic waste (UNDP). When agricultural waste drains into these areas excess fertilizers and waste result in eutrophication and decrease the amount of oxygen in the water. This can cause massive amounts of fish to die as well as throw off the ecological balance of the wetland. Past studies have shown that chemical pollution and nutrient loading has increased due to larger amounts of discharge from these industries furthering the negative consequences (Oguttu et.al, 2008).

In addition to being polluted, the amount of wetlands has decreased. In another *New Vision* article it is reported by NEMA that “The wetland catchment areas around Lake Victoria have shrunk by more than half their size in 20 years from 7,167.6sq.km in 1994 to 3,310 sq.km in 2008. In a different report NEMA stated that Jinja has lost over 80% of its original wetland area. This is concerning considering the amount of benefits wetlands provide. One of their major functions is water supply. They have been found to provide two million people in Kampala with water and filter out waste and various toxins from the city before it enters the lake (Wagabaza, 2014). As this resource decreases, the amount of clean water that enters the city also decrease.

This is not ideal with Uganda's rapid population growth rate of 3.4%(World Fact Book). The Global Water Partnership in East Africa reported that Uganda loses approximately 15% of its Gross Domestic Product due to the destruction of its natural resources such as wetlands”(Wagabaza, 2014). Degradation of wetlands affects development on multiple levels, even monetarily, but there are other concerning factors as well. Inadequate disposal of solid and liquid waste from industries and human waste have threatened the health and livelihoods of thousands of residents (UNDP). Other side effects include spread of disease, reduction in water quality and quantity, increased salinity, and loss of biodiversity (NEMA, 2012). It is obvious that degradation of wetlands effects the people and country on multiple levels. This has become a controversial and taxing issue for the Ugandan people and government. Over time, the continuous stress on wetlands will decrease the benefits they provide to the community. This will harm an important food source, access to raw materials, habitats for animals, and hydrological stability. The ultimate burden falls on the people of Uganda and the people who depend on the wetlands for their livelihood.

### **3.0 Statement of the Problem**

How does this effect Uganda's development?

The UN's Millennium Development Goals have included the protection and conservation of the environment. The three most applicable goals are:

*Target 7. A: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources. Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss. Target 7.C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.*

It is clear that these goals are essential aspects of development. While it can be difficult to understand why wetland conservation and concerns are important for development, these goals speak to some of the reasons. As previously, explained wetland usage is essential for the people living in these areas. Degradation due to industrial waste can directly affect the people's everyday lives. It can affect their access to clean water, food, and means of making a living. This is not in line with the development goals mentioned above or in the Ugandan National Development Plan. The situation can even be seen as a violation of human rights based on article

25 in the UN's Declaration of Human Rights, "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care..." (UNDHR, 1948). The United Nations Environmental Protection (UNEP) states that "The environment should be seen as a pre-requisite for the enjoyment of human rights (implying that human rights obligations of States should include the duty to ensure the level of environmental protection necessary to allow the full exercise of protected rights)" (UNEP, 2009). Wetland degradation and conservation is a complicated topic and no one stakeholder is responsible for the current state. Nevertheless, there are obvious dynamics that are effecting the wetlands and ultimately the community's wellbeing. If Uganda wants to attain sustainable development then there needs to be a higher sense of environmental consciousness.

#### **4.0 Objectives**

1. To establish the relationship between the people in the local communities and neighboring industries
2. To learn what impact industry has on wetlands and thus people's wellbeing and development progress.
  - a. How does it affect their access to
    - i. Water
    - ii. Food(fish)
    - iii. Farming(food, income)
    - iv. Possible health issues
    - v. Esthetic(noisy, smelly?)
3. To find out what policies and regulations are in place to protect the environment (wetlands) and people's views on how they are implemented?
  - a. Who enforces them?
  - b. To what extent
4. To see how the interests of both stakeholders, industry and community, are being represented in the decision making process towards development.
  - a. Are they being represented equally?
  - b. What does this say about rights-based sustainable development?

## **5.0 Justification**

With Uganda's rapidly increasing population, and yearning for development, now is the time to evaluate the state of this development and the impact on the people. Uganda's cities have increased so quickly that the government has not been able to sufficiently develop at a controlled pace. There is no doubt that economic development is key for any growing country, but it is wise to evaluate the costs and rate of these changes. Big booming industries have long been thought to be the key to good and prosperous development. While this may or may not be the case, this cannot be the only factor considered in development.

Environmental conservation and economic growth have always been at odds. In this time period, and in this country, this cannot afford to be the case. People depend on the environment for their livelihoods (Mafabi, 2005). The degradation of wetlands will have negative impacts on the people's health, income, happiness, and survival, and this is ultimately a violation of their human rights and environmental rights. If these essentials are compromised, then there will be a decrease in development. Therefore, this study explores the relationship between environment and industry in development. If Uganda and other countries want to develop, then these two "opposing" approaches need to balance out to ensure a net increase in development.

Understanding people's point of view on these issues is essential for the protection of the wetlands as well as rights-based development. First, it is useful to know what type of future the Ugandan people envision for their country. If citizens are concerned with their rights being violated, or the environment not being conserved, then this provides useful insight into how the development of the country should proceed. Similarly, it highlights unknown challenges and concerns that may be overlooked when not evaluating from the bottom up. If the local people are heard then chances are development can better address the needs of the people who need it most. Second, hearing all the points of view helps gain a better understanding of the issues at hand. It can give insight into how to solve some of the conflicts within the nexus and address the most pertinent issues facing the people, environment, and ultimately, development.

## **6.0 Literature Review**

The scope of this study is based on rights-based sustainable development. The study referred to *The Human Rights Approach to Sustainable Development: Environmental Rights, Public Participation and Human Security* by the United Nations Association in Canada. In this



article they define and explain rights-based development and sustainable development. Based on their explanation, rights based development is a conceptual framework meant to change the context that decisions are made. It goes on to say that it is based off of “international human rights standards and directed towards promoting, enforcing and protecting the presence of human rights”(UNAC,2013). One of the key points they emphasize is how this approach incorporates the environment. The article explains that this approach, “seeks to emphasize the need for new rights that will explicitly recognize the right to a healthy environment for all” (UNAC,2013). UNICEF also defines a human-rights based approach to development, but they add, “It seeks to analyze inequalities which lie at the heart of development problems and redress discriminatory practices and unjust distributions of power that impede development progress” (UNICEF, 2012). Both of these sources helped create a context to analyze the study. They include multiple aspects of rights-based development that will provide a more thorough basis for evaluation.

The UNAC article also provided information about the origins of rights-based development and sustainable development. In addition, the text explained the benefits of combining these approaches and how it can lead to more successful development practices. This is a valuable source that was continuously referred to throughout the project and helped the researcher analyze and make sense of the data once it was collected.

To formulate the initial background knowledge as well as justify the area and concerns of the study the researcher used *Pollution Menacing Lake Victoria: Quantification of point sources around Jinja Town, Uganda* by Oguttu et.al. This study, “summarizes the results of a one-year (1997 to 1998) environmental and ecological study of industrial wastewater point sources in the Jinja (Uganda) catchment area”( Oguttu et.al, 2008). The study provides information on the types of industries found in the Jinja area, as well as the type of waste they produce. While this study provides valuable information about the study area, the data was collected 17 years ago. Despite the gap in time, this report was still valuable. It set a basis of how to go about executing the study and it provided a basis of comparison. Being able to have a quantitative report for comparison added another dimension to the understanding of the findings. It was beneficial to compare the changes that have occurred as policy and other factors have developed over time. This study also provided valuable information about Jinja, Lake Victoria, and its inhabitants.

A similar study that was referred to was, *Nutrient Status and Retention in Pristine and Disturbed Wetlands in Uganda: Management Implications* by Kansiime et.al. This study was not focused primarily in Jinja, but covered wetlands in general. It also did not talk about industrial waste, but rather agricultural waste. This study introduced the idea of community impacts on wetlands and also helped provide comparison for various responses received in interviews.

To review policy and regulation in Uganda the researcher looked at a few sources. She referred to the Ugandan constitution which laid out the countries duties to the environment and the people. This was helpful when conducting the analysis. It was used to evaluate the country's accountability and have reference of the real rights of the people. Similarly the Ugandan National Development Plan was used. This was also supported and created by the Ugandan government as a way to conduct, measure, and organize development in Uganda. Other government endorsed sources were used for this background research.

Articles written by NEMA, as well as the Ministry of Water and Environment were also referred to. Articles like, *Environmental Regulation in Uganda: Successes and Challenges* by Christine Echokit Akello, gave insight into policy, how it is executed, why it fails, and the difficulties it faces. In addition to these Ugandan sources, the study pulled information from international bodies like the UNDHR and UNEP. These helped frame policy in terms of human rights and environmental rights, as well as justify the study. Similar to the UNICEF and UNAC articles, these sources helped link rights to development.

The other sources reviewed were newspaper articles, specifically from *New Vision*. About 7 articles were read that had to do with wetlands, Lake Victoria, The Nile, government, and the local community. These articles mainly came out of *New Vision*, and were published within the last 3-4 years. These sources are extremely helpful, because they provide a primary account about the challenges at hand. There are interviews with government officials, various community members, and other important stakeholders. These articles helped get a sense of what the real situation is like currently and who is involved. While, like all sources, there is a level of bias, it captures real challenges on the ground. The stories provided useful information for the study, but also helped with field preparation. It informed the researcher on some of the complex dynamics that are involved in this topic and gave an idea of some of the anticipated issues observed.

There is plenty of literature on this section that helped develop and backup each of the objectives. It is hard to say which apply specifically, because they all overlap. Because this topic is so crosscutting the study was able to review a range of sources. Each of these works related to the study in one way or another, but none of them cover the, same scope in terms of, location, framework, time, or environmental topic. Nonetheless the execution of this study depended on these sources.

## **7.0 Methods**

1. Research Approach; Data collection methods (sampling), Data collection tools or instruments used (these must be appended), data analysis methods, data presentation methods, limitations of the study and the ethics the study upheld in the study.

### Approach

This study used a qualitative approach. The study wanted to learn about various opinions and point of views from a range of stake holders and using a qualitative approach was the best way to go about doing so.

Research was conducted from April 1, 2015 to May 6, 2015 in Jinja Municipality and the Kampala district in Uganda. The researcher gathered data by conducting guided and group interviews, observation, and consulting existing information.

### Choosing Location

Using the Jinja Municipal Council (JMC) as a primary resource, the researcher was able to establish the villages studied and the factories visited. After conducting initial research in the JMC as well as consulting existing information, the researcher was able to decide where best to conduct the study. The criteria considered were: distance between industries and villages, proximity of industries and villages to wetland, history of relationship, and amount of already known findings on given villages and industries. The researcher wanted to study industries and villages that were in close proximity to one another to ensure that the two parties had an established relationship and interactions with one another. The researcher also wanted to choose villages that were on or near a wetlands since that is a key factor within the nexus. She wanted to find relevant factories and villages that had a history as well as know complications so that she could study this relationship as well as consult already known sources. After considering all of this criteria the researcher chose to conduct work in three villages, Masese, Loco, and

Budhumbuli. She also chose three factories that match the explained criteria, Nile Agro, Skyfat, and Steel Rolling Mills. Three villages and three factories were chosen because it provided a level comparison and was a manageable amount of places to visit. While the researcher would have liked to choose more villages and industries to create a more well-rounded perspective, the researcher was working under limited time. While she also understands that her choices are not fully encompassing of the municipality, she chose three prominent and different types of factories to look at with the aim of capturing some of the diversity. The researcher then returned to Kampala to interview environmental officers that were based in Kampala.

### Data Collection

#### Guided Interviews

Structured interviews were conducted to gain the data used in this study. They were carried out with LCs from Masese village, Loco village, and Budhumbul village to attain their opinions, as well as the community's opinions, on the relationship and interaction on the wetlands in their area. Guided interviews were also conducted with industrial personnel from Steel Rolling Mills industry, Skyfat Leather Tanning Industry, and Nile Agro. They provided information on their waste management systems, production process, and opinions of communities and wetlands. Interviewing three factories prevented companies from feeling targeted. It also allowed the researcher to cross compare findings and get a solid idea of the regulation enforcement and the consistencies, and lack of, that occur. Factories were chosen that produce a different type of goods to learn about multiple types of waste and see how these may affect the area.

Guided interviews were also used when discussing similar topics with two environmental officers and an ecologist. Hearing from all of these groups provided a full range of backgrounds, perspectives and ideas on the issue at hand. These people are directly involved and invested in the topics covered. These one-on-one interviews provided an in-depth look at what the community and various stakeholders think and feel about various topics within the nexus. This data collection method was most effective at providing the researcher with a better understanding of the various dynamics. This also created a more personal setting that allowed the participants to open up and be more willing to share information.

### Informal Interviews

Informal interviews were conducted with a health care worker in one of the villages to gain information on the possible effects of the community living so close to industries, and with a development studies student. This allowed the researcher to ask only a few questions without delving into too much unnecessary information.

### Focus Group Interviews

A focus group discussion was held in the Loco village as a key way of conducting research. This benefited the study because it allowed the researcher to hear a range of opinions and stories and collect a lot of data in a small amount of time. There were 5 participants in the focus group. This many people were chosen to maximize the quality of the interview. This was enough people for the researcher to collect wide range and diverse point of views, but was small enough that the interview was able to go in-depth and not be over whelmed with too many people.

### Observation

Because the researcher was an outsider coming in and asking questions, it is possible that people's responses may have been skewed. Conducting observations was simple and required little time to prepare. It allowed the researcher to assess the area for herself and develop a lasting impression of the area. The researcher did brief observations of the wetlands and the people doing their everyday activities in Loco village and Masese wetlands close to Skyfat and Nile Agro. This provided a good sense of wetland usage and the state of the wetlands in the area.

### Tools:

To collect data the researcher used interview guides with a list of questions she asked participants (See Appendix I-IV). This helped keep the conversation focused and allowed the researcher to get answers to specific questions, particularly focused on the objectives. Interview guides made taking notes easier as well as help the researcher remember and organize the data. This made the data analysis much easier. Most importantly, these guides helped to standardize the interviews conducted. It ensured that similar questions were posed to similar participants, and in a standardized way. During these interviews a recorder was used as well as hand written notes to help record the data and responses.

### Data analysis/presentation:

After conducting the interviews, focus groups, and observations the researcher thoroughly read and reviewed the notes and recordings. She transcribed the sessions on a word document, writing word for word the response to various questions. This allowed the researcher to process the responses, and keep them organized. The interview guide was used to structure the notes. After going over the responses the researcher pulled out themes and commonalities between the data by coding the responses to help me make sense of the findings. Tallying and dividing up similar and different responses also helped find trends in the data. This allowed the researcher to make connections and draw conclusions on the findings. This data was presented based on the findings helping to explain each objective.

#### Limitations:

The time constraint experienced was a limitation for this study. The researcher was able to gain valuable information in the six weeks, but the study could have benefited from more time. Due to a lack of time, the researcher was only able to hold one focus group. Ideally she would have wanted to hold a focus group within each of the three villages. This would provide an even larger amount of data and views for the researcher to compare and contrast responses. The minimal amount of time also made it difficult to visit more industries, while three was a manageable amount, it would have been nice to have more to obtain a well-rounded view of Jinja.

Another limitation was the lack of women interviewed for the study. The only women interviewed was the development studies student who contributed little information to the study. This does allow for a full representation on the people's views. Women may have a different perspective, and can provided another point of view to the situation at hand. No women were interviewed because all the LCs were men, and the LC of the Loco village organized the focus group. He asked women to join but they were all too busy. Having the LC find the people for the focus group may also be considered a limitation for the study, because they might not have been completely biased. The LC said that he chose people from a range of age groups and people with different background in the village. Ideally the researcher would like to have picked people randomly, but because of time and the generosity of the LC this was the result. The focus group still proved to be extremely valuable.

## Ethics

To ensure that the study followed a strict code of ethics, the researcher interacted with all participants with the utmost respect. She entered each situation with an open mind and remember that everyone has their own interests, opinions, and background. She used written consent forms(See Appendix V), as well as verbal consent to ensure that all participants were willing to have their opinions and comments displayed in the project. The researcher made sure she was culturally conscious so that she could adjust to the people she interacted with, especially in the communities. When interacting with people the researcher was clear and truthful about what she was studying and her intentions as a student.

## **8.0 Findings/Results**

The present study resulted in a range of views and opinions on the nexus of industries, communities, and wetlands. Each participant reported on questions concerning the study's objectives. Their experiences gave insight into the relationship between the people and industries and their perspectives on wetland usage and the importance of wetlands. The study brought out contrasting views on wetland degradation, opinions concerning policy and implementation, and human rights involved in this complicated relationship. The results present an assortment of harmonizing and contradicting opinions form a range of stakeholders including, community members, community leaders, factory personnel, environmental officers, and ecologists. The results are organized by each objective and the sections are broken down accordingly.

### Objective 1. To establish the relationship between the people and industries

The three factories visited were all located either on top of a previous wetland, or right on the boundary of a wetland that bordered the lake. In addition most of the neighboring communities were as close as 50 meters and as far as 100. Being in such close quarters, the two parties interacted quite frequently. Form various interviews, it was clear that the relationship between industries and the communities was a complicated one. While the industrial personnel perceived the local communities as beneficiaries of their presence, the communities had a more destructive view of the industrial presence. However both parties recognize mutual benefits.

### Community's Point of View

The community member's that were interviewed mentioned the benefits of industry in their area. When the factories first came the people were excited by the idea of employment

opportunities. One participant stated, “Especially as they are looking for employment, they benefit and in a place where they displace one family they have a factory that employs something like 200 people. So the beneficiaries are more than the losers”(village informant,2015). All of the community members that were interviewed had similar responses about the benefits of having employment in a local area. They reported that “many” or “a lot” of the community works for the neighboring industries. In addition to these benefits, the community members also spoke about the complications between them and the industries.

They talked a lot about employees getting over worked and receiving low wages. When asked how many members from their community work in the factories, one member replied, “A lot, there are many. Although they are paid no good. They over work and they are paid less”(village informant,2015). Similarly, another interviewee responded,

*“People have become poorer generally. Even the factories are employing but not all from this community. The pay is low. When you look at the salary, basic wages, its minimum, 3,000 shillings is just a breakfast. It’s not enough to support even one day. A dollar a day. I complained as a leader in the area, but they disregarded. They said it is a small person. So that is the reality”*(village informant,2015).

And when another informant was asked what benefits they feel the industry has they stated, “The benefits. So we have got some few people who are employed there with minimum wages. They are paid minimum. 3,000. That is less than a dollar a day, can someone from the US survive on a dollar a day? Can they?” (village informant,2015). The people interviewed explained that over the years this has become a tension between the communities and the factories. The other tension between the two groups arose due to frustration over land.

One member explains what it was like when a factory was built on a wetland in their village, *“There was both negative and positive reactions. The industries normally come with employment, but at the same time they become a health hazard to the community. Some people have lost land due to the coming of industries and were poorly compensated. Those who normally occupy the land next to the wetlands they lose economic activities due to the large ponds of the factories and industries. Yeah, like those who use to cultivate along Bidco and around that area, those who use to do any other economical activities like, animal husbandry, are no longer doing it there, so it is a two way traffic. They lose and they gain, the bigger part is the loss”*(village informant,2015).



This quote brings up a range of complaints raised by the community about the industries. The people often struggled with the sharing, or loss of land that they used to use. There were accounts of people destroying factory property in the building process, and threats of riots and protests (anonymous source,2015). In July 2009 a complaint was reported about lack of compensation given to people in the Masese village. Complaints of Bidco building Eucalyptus trees in their wetland area and causing “a loss to their livelihood”(anonymous source,2015). Throughout the years the Municipal Council continued to receive complaints from the communities about the factories. In March 2012 a youth development group wrote a lengthy letter explaining their concerns with a factory in the Masese area. They reported of factory encroachment on the wetland, pollution from effluent, changing/expanding boundaries, and solid waste disposal in local wetland (anonymous source, 2015).

In addition to disagreements over land, the people in the communities often brought up their frustration over the factories foul smell, air pollution, and treatment of employees. In all four of the community interviews, the informants talked about abuse of factory employees. LC’s mentioned that the workers complain of getting beaten at work when they mess up or get in trouble. Some of them have reported it to the police, but fear getting fired from their jobs. There was also talk of sexual harassment and employment of underage children. One of the members shared, “One factor which I must tell you that the workers have told me. That the Chinese workers torture the workers, they are not observing the human rights. I took them to the police when they told me. Instead of teaching the workers they would beat them” (village informant,2015). In a separate interview a member said, “Some industries go the extent of beating them. Which is not good. Simply because someone is earning a living, maybe they get 5,000 in a day. Instead of counseling him, he is just beaten. Then those people are very much under paid. When you compare the volume of the work done and the amount of money paid for it. The two do not concur”(village informant,2015). The negative attitudes felt towards the industries was very apparent throughout all of the community interviews. This theme was also supported by the countless complaints learned about through working with the JMC. While a sense of animosity is still present, one community leader assured the researcher that tensions have gotten better over the years. He explained, “The tension has dwindled. At first they had collisions with the community, but now they are friendly. Friendly relations with the village”(village informant, 2015). While the relationship between the groups is generally cordial,

there is strong sense of animosity towards the industries in the area. The community perceives them to an over nuisance by being loud, smelly, and intrusive. A better understanding of this relationship will be gained throughout the results section of the paper.

### Factories Point of View

The factories had less to say about their relationship an attitude towards the local communities. Some participants mentioned little of the communities and said that not many people occupied the land before they had come. Some of them explained the welcoming and excited nature of the local people. An informant from Nile Agro informed of some of the ways the industry gives back to the community to maintain a healthy relationship. When asked what benefits they believe they provide to the community the interviewee responded, *“Ohhh, it is immense, immense. Because we have been able to create over 5,000 direct jobs to our people. And over 10,000 indirect jobs. We have also been able to address issues of micro deficiency, we are fortifying our food with vitamins and minerals, before we had a problem but now our people are eating only fortifying wheat and oil. And so, we have been able to address micro deficiency. And then we have also cooperate social responsibilities that we have extended to people such as the ETP. We are also taking care of an orphanage, we are supporting some orphanage homes. We are also supporting some schools around with fruit trees and they have planted fruits for the schools. We have also been able to extend the provision of mosquito nets to the families of our workers. The issues of special health and safety we have provide workers with uniforms”*(factory informant, 2015).

Other responses described the factory and community relationship as a one-sided sense of dependency. When asked if there were any challenges building in the area, a respondent from Steel Rolling Mills replied, “No resistance. Only support, because we created a lot of support, a lot of economic activity, a lot of employment, a lot of livelihood. When we get issues here with regard to our performance, the people are effected, when we perform badly, so we have been a big blessing to the community around”(factory informant, 2015). Other common responses talked about the factories providing the people with a sense of security at night, using the people as collectors for raw scrap material, and selling food to people in and out of the company. In every interview the factory personnel mentioned that they employ the local people from the communities as a way to establish a good relationship.

It is clear that this study has found a large disconnect between how the two parties view each other's relationship. While the industries' opinions range from indifferent to a mainly positive, the communities have strong and bold views of how they are treated and their experience with the industries. This realization became more apparent as the researcher learned the various reasons why stakeholders value industrial capacity as well as why they value the wetlands. A key part of understanding this relationship within the nexus was to learn the stakeholders' points view on the value of industry and value of wetlands. Understanding the level of importance these two resources have to the various stakeholders helps shape a better understating of how their relationship functions.

#### *Perspectives on the Importance of Wetlands and Industry*

This section of the findings is essential to understanding the relationship and dynamic that is created in the nexus. The study found that in general most stakeholders agreed on the types of benefits and importance of industry in Uganda, but their responses varied when it came to talking about the importance of wetlands. In general people understood the benefits of their ecological functions, but their views on the extent of their purposes ranged. For that reason this section is broken up into multiple sections. The first section on industrial importance combines the views of various stakeholders. The later sections on wetlands is broken down by stakeholder perspective to ensure a more in-depth description of what people had to say.

#### *Importance of Industries in Uganda*

Like mentioned above, one of the major benefits of industries in Uganda is that they provide employment for the people of Uganda. Most have employed hundreds and some even thousands of Ugandan citizen. Two of the visited factories employ 300 people each and another reported having 5,000 direct employees and 10,000 indirect employees(multiple factory informants,2015). Most of the factory employees are uneducated and even illiterate or primary school dropouts. Ono respondent from Skyfat said that out of all 300 Ugandan employees they only have about 4 that have some sort of degree. The factories provide an opportunity for these people to earn money as well a chance to be trained in a new skill (factory informant,2015). This is valuable in that it provides an income for a portion of the population that may otherwise not be employed. Another benefit of having industrial capacity is that it adds more variety to the country's economy. 80% of Uganda's population is involved in agriculture. Industries diversify the market and provide more economic opportunities, and in some cases higher value products.

One interviewee mentioned a similar point, “We really need the industries, because that is how employment is created. The big population here which is agricultural, can only reduce their dependence on natural resources if we have factories. When you look at our population and the way it is increasing you find that our natural resources, wetlands in particular, will go. So we need them, we need the factories, we need them”(environmental officer,2015). They are saying that with an increase in factories comes a decrease in the number of people working natural resources based lands. While this would relieve the pressure on Ugandan land, it is important to keep in mind that with increased factories comes an increase in other environmental costs as well, including more pressure on Uganda natural resources.

One of the other important contributions industry provides is less dependency on foreign imports. This allows the country to be self-sufficient as well as profit from exports. A representative from the Steel Rolling Mills said,” Before we came Uganda used to import steel too much. At that time we saved the country about 12 million USD a year when we started. Some people have joined since then. Saved the country from unnecessary importation of steel” (factory informant,2015). These companies provide billions of dollars for Uganda by selling products within as well as outside the country. Foreign companies also provide income via taxes (factory informant,2015). It is clear that industries in Uganda provide a number of benefits that contribute to the population, and ultimately development. This was one topic that all stake holders had similar opinions on. There was an overwhelming conclusion that industry is necessary for development in Uganda. This fact is undoubtedly true, but in the next section on wetlands it becomes clear as to why industry is not the only important factor in this nexus and for development.

### Importance of Wetlands in Uganda

Most stakeholders agreed on the general important functions of wetlands. They discussed wetlands role in water filtration and purification. Some mentioned the importance of wetlands creating a buffer zone for the Lake, and there were also comments about the extensive habitats wetlands provide the wildlife like fish, frogs, snakes, and other aquatic life. People also spoke about the benefits of wetlands for human use, like water collection and farming. Everyone agreed that wetlands have an important role in the environment and human life, but none of the stakeholders discussed their value as much as the people in the communities.

### Community Perspective

The people in the communities that use the wetlands are a generally poorer population. They live in modest homes and get by on very little (observation, interview informants, 2015). For many of the community members the wetlands are a source of livelihood, and for some they are their primary source of survival. The importance of wetlands is arguably greatest among this group of people. They rely on the wetlands for food, income, and water. The following section will talk about some of the uses and activities the people do in the wetlands.

### Wetland Usage

There are a number of activities that are done in the wetlands by the local people. Some of the ones the study found were, farming and various cultivation activities. There are a number of people that grow rice, yams, cabbage and a range of other wetland vegetation. Some of these crops are grown year round and others are grown in the dry season (village informant, 2015). The farmers sell the produce as well as grow for their own consumption. Papyrus growing is also a common activity done in the wetlands. People often make mats and other crafts that are sold in town and especially to tourists. While these activities are done as an economic means, there are other more personal uses of the wetlands. Some community members collect water for drinking, washing, and bathing. The participants explained that this is particularly true for those who cannot afford tap water. Other activities mentioned were fishing, small scale fish farms, animal grazing, brick making, piggery, and collection of materials for homes, (village informants, ecologist, factory informants, 2015). With all the activities local communities perform in the wetlands, it is easy to see why they find them important. In this study the researcher learned to what extent the communities valued and depended on the wetlands.

### Community Dependence on Wetlands

The people in the communities talked about the wetlands with more dependency than any of the other stakeholders. The value they have for this resource was described as a means of survival. In an interview with an ecologist some insight was gained on the extent the local community depends on the wetlands.

*“In this country, people who have activities associated with the wetlands are generally the poor people, people whose economic standing is not good. People who are striving to make a living out of anything. So they go to those wetlands. Not because they want to, not because they are ignorant of the law, but because they don’t have a choice. They have to go there and try to see what they can do. See if they can earn a living there.... For them, they are looking at them*

*own selves, they are looking at their own lives, they are looking at how they can make a living from anything around them” (ecologist respondent,2015).*

The study found that in fact this was the case, some community members depended quite heavily on the wetlands as a means of survival. When one of the community leaders was asked what types of activities are done in the wetlands, he responded, “They look for a better life”(village informant,2015).

There was still a range of responses found in the results. While some people were described as very dependent on wetlands, other respondents said that only 20% of their village depends on wetlands, and others just highlighted their environmental contribution. A development student said she believe wetlands were important because they help prevent droughts and desertification, which will be important with the increase of climate change. Another member in her community elaborated on the environmental benefits of wetlands.

*“There is a number of benefits they have. The wetland has a role of rain attraction, giving rain for agriculturists. They are so important, it filters our water, it filters water from the sewage to the lake, which is the water we use in town. The wetland itself is a source of water and plants, it effects and regulates the water cycle, the plants which grow and the water which is nearby, since we are in the tropical it rises up and turns into rain. If it is not contaminated, it comes back as rain and helps nearby communities and helps them grow their crops, the health of the plant life it stable and animals. We need plants as well as insects, as well as animals for human beings to survive. It is a inter relationship and it’s very important” (village informant,2015).*

Overall, the data showed that people in the communities have many uses for the wetlands and value them on a range of levels and for a range of reasons. This is a huge factor that plays into the relationship between the industries and the communities. It is clear that the factories provide benefits to the community and Uganda as a whole, but it is also clear that because the industries are physically on a resource that is so important to the people, there are bound to be complications. These will be further explored later in results section. Also, it is important to note that while industries do impact the people and the wetlands, it is important to remember that based on the findings above, the people too have an impact on the wetlands. After hearing about the multiple uses and dependency the local people have on the wetlands the researcher had to expand the view of the study to look at all the impacts on wetlands.

The communities' point of view on wetlands is a key component of the study, however an ecologist was consulted to gain a better understanding on the reality and science behind the importance of wetlands. While this study is looking at people's point of views, beliefs, and emotions behind these concepts, it is important to include a scientific perspective so that all of these findings and views come together to represent all the dimensions of this nexus in the larger scheme of reality.

#### Ecological perspective

The ecologist had a few perspectives on why wetlands are important. While the participant's background was in invertebrates, specifically fish in Lake Victoria, they were able to share some of their opinions. They described how wetlands are crucial because they are adjacent to the lake and that one of their key functions is filtering out pollutants before they go into the lake. He reminded the researcher that his main focus was the main water body (Lake Victoria), but that the institution is aware that what happens in the wetlands "effects the fish communities that are in the waterbody" (ecologist informant,2015). One of the important functions of wetlands that he mentioned was the maintenance of biodiversity. He explained that, "There are certain species of fish that live in the swamps, others go to the swamps for feeding, others for reproduction, and shelter form predators in the water body"(ecologist informant, 2015). The ecologist perspective on the importance of wetlands varies from the ones described so far, but adds another dimension to why wetlands are seen as valuable. The ecologist was a grounding presence within the study. The information the ecologist provided reminds the researcher that wetlands do not just have importance to humans, but have importance to other living creatures and that their functions reach beyond immediate human needs. This idea will continue to come up throughout the findings and is important to keep in mind when discussing sustainable development.

#### Industrial perspective

Most of the responses from the industry personnel were general comments about the ecological benefits of wetlands. They briefly mentioned the community usage, but none of the participants elaborated on the importance of wetlands. All the factories visited had some sort of effluent treatment process and two out of the three used wetlands as part of their treatment system. One of the important functions of wetlands that industries benefit from are their filtering abilities. Many factories use wetlands to filter their waste water(factory informant,

environmental officer, 2015). Some of the industries in Jinja use man made wetlands to catch their waste, and others use natural wetlands(factory informant,2015). The factory personnel did not express their views on wetlands very thoroughly and that is because, based on what the study has found, wetlands do not have much importance to them or their production. The one aspect that none of the informants mentioned was that most of their factories are built on wetlands. Wetlands provide the factories with cheap land. While wetlands may not provide direct benefit to the industries, they have some substantial impacts on them that will be discussed in the next section. One of the reasons the communities have a sense of frustration with the industries is that the industries are so close to the wetlands that the people survive on yet the factories do not necessarily rely on the wetlands.

The people do not feel as though their relationship is as mutually beneficial as the industries describe it to be, and after analyzing the results the researcher feels this is true. While some of the industries claim to provide services to the locals by allowing access to their tap, paying school fees, and providing health care for their employees, the local people did not speak of any of these benefits. They explained that the factories never actually contributed to the schools, and did not mention any of the other alleged perks. There is an understood tension between both parties. The people feel pushed out and conquered while the industries access cheap labor and cheap land. Learning that the people are so dependent on the wetlands provides a better understanding of the relationship between the industries and factories. Factories provide benefits to the people through employment and other means, but it is arguable that wetlands are more valuable to them. Due to the industries low wages and large presence in the communities, I would say that wetlands are a more crucial source for the local people. The next objective explores what happens when the factories start to have an impact on the wetlands.

#### Objective 2. To learn what impact industry has on the wetlands and thus people's wellbeing and development progress

This objective provided the largest and most contradicting results. Like mentioned in the introduction, the researcher quickly learned that it was better to understand this topic as a nexus rather than a one sided approach. This is because the second objective achieved more than just learning about industrial impact on people's wellbeing. The researcher learned that when looking at industrial impact on the villages' wellbeing through wetland degradation, it is essential that



the study consider community impacts on wetlands as well. This objective found that it is impossible to look at this nexus with a one sided point of view.

The majority of the interviews were spent talking about topics under this objective. The results presented five main themes. The respondents discussed the industrial impacts on wetlands, the community impacts on wetlands, which they perceived to have a bigger impact, what they felt the solution should be, and why these problems occur. These findings, like the others, are best presented based on the different stakeholders' point of views. The ideas will reconvene when their opinions on solutions are discussed.

### Community's Perspective

The community members that were interviewed shared an extensive amount of information on their opinions of wetland degradation. All of the community participants unanimously held the industries responsible for the wetlands degradation. Their biggest concern by far is the industrial effluent leaking into the wetlands and contaminating the water. One participant stated, "Now the problem with these factories, especially the brewery and the tannery, is they dispose their wastes in to the water. At times those waste products contain chemicals which are poisonous to fish which are poisonous to human beings, especially those users of the water bodies"(village informant,2015). Every community member stated this as their first and foremost concern with wetland degradation. There were several other dominant themes that emerged from the various discussions. One of the reoccurring themes was the idea of the industries polluting the wetland environment and ultimately causing destruction to everything in the area. One of the community leaders began an interview by saying, "The factories have affected the lake. The waste water that has flown into the lake has been causing a lot of injury to the fauna, animals, insects, and fish in the lake"(village informant, 2015). There was a lot of discussion from all the community respondents concerning reduction of fish stocks as a result of industrial chemicals being leaked into the wetlands. Another community member explained, "The acidic waste material which flows directly into the lake has caused the fish to decreased in numbers so that the fish can no longer produced the way they do and the number of fish has become less and less and few and few. And in fact, sometime you can see the fish dying and floating on the lake"(village informant, 2015). Others also spoke of decreasing numbers of fish as well as decreases in their size and maturity. All of the community participants were eager to explain that the industries were not just impacting the people, but the animals themselves. One

leader said, “When this waste is dumped it endangers the life of our people. Not only people but other creatures in the wetlands”(village informant, 2015).

Some of the other issues brought up about wetland degradation from industries were things such as concerns about over use and drying out of wetland vegetation. Multiple participants talked about increased floods due to a decrease in the wetlands absorption abilities as a result of destroyed vegetation. There were also shared concerns about prolonged drought as well as future desertification of the Lake Victoria area. One student from the community said, “The overuse of wetlands leads to prolonged drought, much sunshine, and less rainfall” (village informant, 2015). Another community member frequently brought up their fear of Uganda turning into a desert. Similar warnings were repeated in various interviews along with the detrimental chemical effects on soil and crops, as well as health concerns. All of the community participants worried about consumption of industrial effluent that ended up in the wetlands. They would say things like “Sometimes they [community members] suffer skin diseases, and others end up getting some other complications from drinking the water”(village informant,2015). Often, it is the people who cannot afford tap water who access the wetlands for drinking water and the communities insist it is not good for their health. While many of these health concerns have not been proven, all of my stakeholders speculate that there is some negative impact on the health of the people exposed to this pollution. The ecologist mentioned his concerns about bio-accumulation of industrial chemicals in the communities’ crops. He said, “We know that this is quite possible, bio-accumulated toxins and pollutants into the food chain are things that we know. And when you look at some of these things like yams, tomatoes, and rice, they have quite an accumulation of pollutants in them. And sometimes they are beyond there acceptable level”( ecologist,2015). This presents many problems, because it is not only the crop growers that are effected, but the rest of the people in Jinja they are selling their produce to. None of the stake holders could directly prove that this chemical exposure was having an effect on the people, but they thought that it was highly likely and suggested that further research be conducted to find out how this consistent and increasing exposure will affect the people’s health in the long term.

When the researcher asked a community member if there have been any health issue in the community as a result of living in close proximity to the factory, and they responded, “No we haven’t gotten such cases yet but we may expect it in the future because when you are using such

contaminated water, signs don't come immediately but it comes slowly and in the near future we may hear that someone is suffering as a result of waste products dumped in the water" (village informant,2015). The ecologist as well as the environmental officers predicted that the effects may take some time to surface but had no doubt that this would happen in a few years down the road. One of the village leaders even said, "I have got some people who died because of chemical materials and handling them at Skyfat. They left the village and died from handling these chemicals. They have no direct report so there is no action on consequence for Skyfat"(village informant, 2015). Even the Skyfat informant shared concerns about people's exposure to various wastes. These health impacts are a serious factor to consider because the potential harm could devastating effects on the people's lives and future generations to come. With an increasing number of factories being developed this issue may continue to grow to an extensive level. When looking at this problem from a traditional development stand point, it might be economically counterproductive to have this issue increase with no awareness or confirmation. Factories are meant to increase revenue and boost economic development, but if they are causing a portion of the population to suffer medically, this could cost the industries and the country human capital as well as an increase in the amount of money allocated to health. If you are looking at this situation from a rights based and sustainability prospective, one could say this violates a few human rights. People have the right to be healthy and if the very food they grow, water they drink, and air they breathe is causing them and their children to get sick then this is not upholding the right to a healthy life or healthy environment. One of the results of contaminated water is that it cost more money to treat the water therefore increasing the cost of water for citizens. One of the environmental officers explained that people have resorted to stealing water because they cannot afford the rising cost of water. The human right to safe drinking water is in danger of being violated along with failure to meet the Millennium Development goal of providing everyone with clean water. If industries continue to pollute at a high level and the wetlands continue to decrease their ability to filter water, than these goals will become even more difficult to meet and decrease the level of development Uganda achieves. Uganda cannot be considered a developed country if a significant portion of their population lack access to clean drinking water, so this is an issue that needs to be considered when talking about development.

Another theme that continuously appeared in the findings was the frequent frustration expressed by the community members due to a decrease in previous benefits received by the wetlands due to industrial presence. They often described these accounts as ways they have been short sided by the factories. For example, one member explains the changes in water filtration, “Originally the wetland that is composed of variety of grass and trees, the grass has dried up due to the chemicals waste. In that effect the filtering of the runoff water from the rain that enters the lake is no longer filtered the way it should”(village informant, 2015). Similarly a different participant explains similar frustration, “Even grass used for domestic animals are no longer used. This is a lake side, we should be having fresh grass. So the community does not benefit the way it should have benefited without the factories. The community is now missing the peace, water, grass, and the insects”(village informant, 2015). It was previously mentioned that some people lost their land and accompanied activities due to the factories being built where people had already established themselves. Because of these changes and described “short comings”, the results showed that there was an additional sense, within the communities, that because of industrial presence and degradation, the communities are becoming poorer leading to underdevelopment. Like mentioned above, one of the reasons the communities believe they are becoming poorer is due to their perceived lack of benefits from the wetlands. When asked how the communities believed they were being effected by the industrial impacts, one member explained,

*“Yes, they have been effected, they have become much poorer. They were depending mainly on fish for their income. They have become very poor. Very many fisherman have moved from their families. Not good for the community. At the same time, the income that was so dependent on fish has become nonexistent. At the same time, fish consumption has gone down because there are less and less fish. Development, when it comes to development, it is under developing the area. That the human beings are not benefitting from the water like they should be”* (village informant, 2015).

In a separate community someone described a similar sense of regression. They stated,

*“Animals use the grass. People have to move farther to find better grass. People have to cut the grass to bring to animals but the grass has become less and less. It has been a big effect on the development of human beings when it comes to growing crops and using the land. Using*

*less land for animals and those animals produce milk. That has an effect on human beings and development of the people. Some grass does not meet the lake and that is what we use”(village informant, 2015).*

There are numerous explanations similar to the two given above. While it was described earlier that these same participants spoke of the positives generated from industries, this study has found that the more dominant attitude towards these industries is negative. The people interviewed mainly had intrusive and destructive, opinions, anecdotes, and feelings toward the industries in their area. The study found that all of the community members interviewed believed that the factories were the number one threat to the wetlands, and that their impacts have and will continue to have degrading consequences for the people in the local communities, the wetlands, the lake and the future of development in Uganda. Whether or not these accounts reflect the absolute scientific truth or not, the people do not feel they are benefitting from the industries. These findings bring up an important question about what development is, and what it means to different people. For some it is defined by raising GDPs, new infrastructure, and creating more jobs. For others development might mean being able to have clean water, fresh food, and access to schools and health care. The people in these villages want their basic need to be met, and this is essential for rights based development. In addition, ensuring sustainable development is a good way to be sure that these basic needs are continued throughout the future. These are all things that the researcher would encourage the Ugandan decision makers to consider when looking toward Uganda’s future.

### *Industrial Perspective*

Not surprisingly, all of the industrial personnel believe that it is the communities who are responsible for the majority of wetland degradation in Jinja. When I asked a participant that worked at Steel Rolling Mills whom they believed to have a larger impact on wetlands, he replied, “The one which has a bigger impact on the wetlands are the local communities. They tend to pour big heaps of soil on the wetlands to get places to build their homes. And they dig in the wetlands, they collect it. They have to clear it, which is not good”( factory informant, 2015). However, when asked whom will have the longest impact on the wetlands, they said that industries would have the longest impact. One respondent said that small stake farmers, like rice growers, exploit the wetlands, but that industries “don’t have any kind of negative impact” on the

wetlands. He said the difference is that industries are regulated while the local people are not. In a separate interview at Skyfat the respondent said a similar thing. He explained that industries can be regulated and controlled, but that for the local people you have to use guns and tear gas. His explanation was that the people in the communities were ignorant and are only concerned with their own survival. After this interview the participant took the researcher to the roof of one of the buildings to show her a better view of the neighboring wetlands. While up there he explained that the people had cut down most of the vegetation and used this land for farming. He said, “A lake is disappearing in the north but there are no industries. Sand mining is also an activity that people do. Yes, there are more industries but there are also more people putting up structures. The local people are putting more pressure than industry” (industrial informant, 2015).

From these interviews, it is clear that the industrial personnel feel less responsible for wetland degradation in comparison to the way they feel communities impact the wetlands. Part of this may be due to their hyper aware sense of importance to the country, observed in the earlier section of the results. An industrial respondent also offered some insight into why they might be feeling this way. He had an interesting point about how development on wetlands is justified because without it there would be no infrastructure. In reference to roads, railways, and industries he stated, “like it or not, they have to pass through these wetlands”(industrial informant, 2015). They added, “I think the idea here is, if you have to invest near a wetland, how do you utilize it? To me that is what is important, otherwise we will not be having these roads and rail networks”( industrial informant, 2015). It is an important idea to consider and a point that I’m sure many people have. It is true, infrastructure like railways and roads are definitely needed and sometimes they may need to pass through wetlands, but to what extent is this no longer feasible? At what point do the pros out way the cons? It can be difficult to judge at what point industrial development is more harmful than helpful and that is something this paper urges readers to consider.

### *Ecologist/Environmental Officers Perspective*

Hearing the perspective of the ecologist and environmental officers provides very important information for this study. These participants added a bit of science and, arguably, a more leveled perspective on these topics. Because these people were experts on the topics at

hand, their point of view contributed to the middle of the spectrum. Before their interviews, the responses received were one sided views. These informants look at various parts of the nexus and are able to see all sides of the complex challenges. Their views on wetland degradation demonstrates this quite well.

One informant argued that is largely the industries who hold the most responsibility when it comes to wetland degradation. He said, “In the case of Jinja, the factories are the biggest threat”(environmental officer, 2015). He went on to explain that yes, local communities do indeed causes degradation, but clarified that it was not to the same extent as industries. He explained that people in Jinja are mainly in the wetlands during the dry season, but that when they leave their impacts are reversible. The participant added that outside of Jinja there is an increased threat from communities due to more large scale farming but that they still have short-term effects and don’t amount to the damage done by factories. He stated, “Even small scale farmers can have an impact because of accumulating, having many people doing the same activity in the same area, it is as bad as if a large scale farmer does it. But these agriculture impacts are reversible. But the biggest problem are those impacting from factories because if you put mercury in the wetland how do you get it out?”(environmental officer, 2015). This respondent was clear that industries were a larger threat, but they touched on a theme that was more prevalent in the other two interviews. The other two informants talked a lot about short-term vs. long-term effects as well as intensive vs. extensive.

When asked which he perceived to have a larger impact on wetlands, a respondent said, *“When you look at impact, you should look at what impacts, because if could be a small industry, like a tannery for instance, coming out with very poisonous chemical and that’s just one industry, but does a lot of havoc. If you’ve got three such industries that can cause a lot of problems to the surrounding areas, but on the other hand if you are looking at the expanse of encroachment then the communities play a big role, because they are basically over harvesting the wetland and has impacts on its services on water purification”*(environmental officer,2015). This highlights exactly the idea of intensification vs. extensification mentioned above. He sums up his explanation by saying, “So really you have to look at and take measurements of which of these is it. Is it the community encroaching on several hectares of the wetlands that has got the greatest impact, or is it the industry one of two or three of them that leaves dangerous poisonous effluents in the wetlands? I don’t have the information” (environmental officer,2015). While this

respondent is not sure on which is worse, the previous respondent was confident that industries had a bigger impact and that their level of intense work on the wetlands was greater in comparison to the activities of those in the communities.

The third participant was an ecologist and he juggled back and forth about the impacts of each stake holder. When speaking about the communities he said,

*“People are growing rice, cabbage, yams, and so forth. And for us, as an institute here, we think that their encroachment is not good. Because the wetlands have got ecological functions and any human interference, if it becomes too much it will lose those ecological attributes, and then the adjacent water body, which is our lake, has to suffer because that means that there can be no natural filtering of whatever is coming in from the catchment”*(environmental officer,2015). The ecologist mentions that any excessive human interference can be damaging, and this is important when learning about the different stakeholders and their activities. The ecologist was concerned about how human encroachment effects the filtering and protection abilities of the wetlands and the detrimental effects this can have on lake and the biodiversity of the area. He didn’t seem so concerned with exactly where or what type of encroachment it was, but concerned that it was occurring at all. When asked about the factories he said, “When you go to the point where that effluent reaches the lake you find some evidence that the efficiency of the wetland has been greatly reduced, because you see, some things you expect to be retained but they do get into the water body so that means we have lost some of the ecological attributes of that wetland”(environmental officer, 2015). He didn’t give an opinion on which was worse, but the rest of the interview was spent talking about poor water quality and how industries’ pollutants have effected fish stocks, biodiversity, and bio-accumulation in the food of the people growing in the wetlands. Because these people were experts on the topics at hand, their point of view contributed to the middle of the spectrum. Before their interviews the responses received were extreme and very one sided views. These informants looked at various parts of the nexus and were able to see all sides of the complex challenges. This was helpful in getting a more well-rounded view of the issues facing wetland degradation.

While it is difficult to determine who has a bigger impact, it is important to consider the impacts of both the communities and the industries. Some the stakeholders tried to look at both sides of the fence, however the results showed that most people felt as though industries had a



larger impact. In the interview responses there were more anecdotes and examples of industries having more long-term and permanent effects. However, the study did find that this might not be all that important. The biggest challenge is not figuring out who the primary threat is, but how to control all the threats. Understanding industrial impact is important because so many people rely on increased industrial capacity for the future, but understanding human impacts is also an essential part of the equation. The future of the wetlands depends on how the decision maker addresses these problems. The respondents believed that the key was to find a balance between industrial development and environmental conservation. This is the only way to ensure a sustainable future. Achieving this balance is easier said than done. The respondent had a few ideas as to how to go about this.

### *Proposed Solutions*

Considering the various opinions and thoughts brought up in the previous sections, the stakeholders came up with similar responses when asked about what they believed the solutions should be. One of the most common responses was the idea that industries should be built outside of Jinja and in areas further away from wetland, lake, and communities. In the interviews it was learned that the factories were established in Jinja due to it being a viable industrial town. It is a hub of hydropower, has well paved roads, it is near a large source of water, and has roads that lead to Kenya, a main export hub. This is why all of the industrial personnel justified being located in the areas that they were. However, community participants as well as an environmental officer suggested that it would be better if these industries moved elsewhere. One community member said, “If they could put them farther away it would have less effect on the wetlands and leave them the way god created them”(village informant, 2015). They also believed that this move would be better for the communities as well, “Another factor is that we have got plenty of land in many parts which are farther away from other communities where people are not living. In the future they should be given advice to not build where people are living, so they not affect their lives”(village informant,2015). One of the respondents did not think that the reasons above were an excuse for not relocating industries, “You see factories don’t have to be in wetlands, they can be elsewhere. So we cannot say that because we have factories we cannot have wetlands, or because we have wetlands we cannot have factories. Factories can be put, even in Kiramoja, an arid place properly established with proper treatment for effluent, water can be pumped”(environmental officer,2015). This idea was expressed by

people who felt more strongly about the effect industries have on wetlands and their overall negative effect on the area. There are many possible challenges to relocating and developing a new industrial area. Kampala has been increasing in industries as well and facing similar problems. Anywhere industries are established they are likely to have an impact on the environment. However, if they were relocated in areas with less people this could solve some of the challenges. This could improve the lives of the people in the communities as well as relieve some of the pressure on the wetlands.

Some of the other suggestions were increased sensitization in the communities and industries about their impacts on the wetlands and one another. Someone mentioned increased environmental education, and the community members said that more communication between them and government officials would help some of the challenges they faced. One of the officers talked about the penalties for wetland encroachment, and explained how an increase in the fine could solve some of the problems. He explained that a nice piece of land in Kampala can cost about 500million shillings, but that the fine for filling and building on a wetland is 80 million, however he has only seen the fine reach 18 million. This is not an expensive enough fine to stop any big developers from building on a wetland. He shared that the ministry is currently working on a bill to raise the price of the penalty to allow this fine to be a tool to prevent encroachment.

The suggestions made above were some of the frequent ones that came up in the interviews. One of the first things most participants said, was that the solution to the problem is creating a balance. They talked about checks and balances and how everything would be ok if it was controlled, monitored, and conducted in a non-exploitative manner. One of the environmental officers said, *“You must have read about what has been happening in countries like China and there is a lot of pollution and people are realizing that probably they should have not have been done in the first place. But what does this mean? Do you want a population that is healthy, or do you want to have industries? So those are things that people have to weigh and say, look how do we balance?”*(environmental officer,2015). Creating a balance may be easier said than done, especially when the main goal is increasing the economy and creating jobs. The environmental officer brings up an important point about how Uganda can choose to approach development. They can choose to acknowledge the environmental issue at hand and find solutions or continue on the path they are on. When the researcher asked how this should be

done, it brought out the most consistent point in the study. The most prominent suggestion on how to confront the challenges, were aimed at critiquing NEMA and other regulatory bodies. This leads to the findings of the third objective.

Objective 3. To find out people's views on wetlands policies and regulations and how they are implemented

A lot interesting results were found for this objective. These findings also had the most consistent responses from the participants. Very similar responses were provided to the same questions and people shared many of the same views. The most prominent was that across the board the interviewees believed that Uganda had very strong and well written environmental policy, and especially policy on the wetlands. Multiple community members stated this along with factory personnel, the ecologist, and the environmental officers. One officer even said, "Wetlands policy in Uganda is being copied by the countries around us "(environmental officer, 2015). While this is true, the respondents explained that simply having good policy on paper is not enough, "you need sustainable strong institutions that can put in place or implement the policies" (environmental officer, 2015). There was a range of explanations as to why the institutions were not functioning properly, or able to execute full implementation. One respondent stated his opinion quite simply. He said, "The best way to do it, is to really allow institutions to do their work properly, and hold them accountable" (environmental officer, 2015). Another member of the community commented on their efforts controlling industrial impacts, "They did try and put up the structures. It's not 100% perfect but they did try. We reported the exact thing that was happening and they came back to try and put in more structures. To improve on the waste materials" (village informant, 2015). On the other hand, the ecologist didn't believe the institutions were doing enough work at all.

*"The bottom line is regulation. And we are saying that regulation is inadequate, as of now. For me it think all these urban centers, all these districts around the lake, and the wetlands around the lake, they all have environmental officers, NEMA people do not have to come from Kampala, for example, in Jinja, there is a municipal council and there is an environmental officer. All these districts have environmental officers, but what are they doing, they don't seem to be doing any work. Either they are ignorant or too busy with other*

*things, or they are just negligent. So someone needs to wake them up and say 'hey! Can you please do your work?' ” (ecologist, 2015t).*

During the study the researcher worked with the environmental office in the JMC and was able to gain valuable information. In addition to shadowing and observing the activities in the office, it is clear that the inspectors and regulators in the office are working hard. The members in the office were constantly busy and had endless activities they were trying to balance. While it still might not be enough, the district officers were up and trying to get things done. It was apparent that there were not enough people to fulfill all of the various tasks. While this was the experience observed in JMC the researcher cannot speak to the work ethic of the other district offices. Despite the researcher's experience, participants still found fault with the local institutions. However the majority of the complaints were directed at NEMA.

NEMA is the primary monitoring institution for sustainable development as well as wetland conservation, this probably explains why they received the most amount of blame. One person stated, “NEMA, they are not really doing their work completely, they do not make regular inspections to these industries. Maybe they don't make test of effluents. They don't make sure that effluent cleaning facilities are in place, the capacity for cleaner production is not very good here. For me, I give most of the primary blame to NEMA, because that is there primary function, and they don't do it so well”(village informant, 2015). In reference to encroachment on the wetlands, one participant said, “But the good thing for them is that NEMA is so weak that they are not doing this and the laws exist, but never enforced, and so the people can really do whatever they want”(environmental officer, 2015). On a similar topic someone else shared their opinions on regulation, “If it is properly regulated, and the NEMA people are up and active and inspecting, and checking, and regulating, if they were active and doing their national mandate, I think that most of the bad things that go into the water could be mitigated, but they don't, and I don't know the reasons why. If they do, they don't do it to a good extent”(ecologist, 2015).

These participants might not have had expert insight as to why NEMA allegedly does not function to its full capacity, but some of the environmental officers shared some reasons why. Some of the difficulties these institutions have are internal. The expert participants talked about what was needed for the institutions to function a max capacity. One of these things is a sufficient budget and they are usually underfunded (environmental officer, 2015). They also talked about the disconnection between various institutions and branches. There is the Ministry

of Water and Environment, along with NEMA, and within NEMA there is a wetlands management department. These departments have difficulty coordinating projects, follow-ups, and responsibilities, and it makes it difficult for them to function to their full capacity. They might be better separating and establishing their own agendas, but an informant explained that this would just divide the already insufficient amount of money, so no one wants to relinquish power of various branches. In addition to budgetary difficulties, the challenge of education can be an obstacle. There needs to be enough educated specialized people in the institution to conduct, inspections, evaluations, and monitoring (environmental officer, 2015). The respondent from Skyfat shared that he believes there are not enough of these types of people working in NEMA, and that they are overwhelmed by thousands of applications. When this was shared with an environmental officer, they did not believe this to be the case. “They [NEMA] can access help from leading diligences. Like for wetlands they have got a leading department, a leading management department. For water they have that. If they cannot use the lead agencies they can go to universities, there are many of them I don’t think that is the right answer for that. It may be simply an excuse that they have not followed what they are told” (environmental officer, 2015).

In fact this study did find that many of the factories do not follow what they are told, another participant shared insight as to why this may be the case (anonymous). One of the common complaints about the regulatory bodies was that they are corrupt. A leader from one of the communities explained how they felt about policy regulation and implementation,

*“The regulations and policies on the wetlands are there. They have been acts and passed in parliament. They have been in place since the British left. But those who affect them, the leaders are not doing it to perfection, they are the problem, they are just after money. Instead of someone advising them to shift the factory to areas where there are no factories or wetlands, they let the factory destroy the wetland because they are after the money”* (village informant, 2015). Similar opinions were especially voiced by the community respondents, but one of the officers shared a lot about the corruption that goes on. He described that one of the key reasons the regulatory bodies cannot function properly is because of political influence. He began by stating, “We have democracy but it is not very well developed. And therefore institutions that we have do not operate to their full capacity because there is always influence from somewhere” (environmental officer, 2015). The respondent went on to describe how the Environmental Impact Assessments, EIAs, that are conducted when an interested investor comes to Uganda to establish a factory are

often skewed because the inspectors are politically corrupt. He described, “If for instance say, an investor wanted land within Jinja and he came with his money the chances are high that he will get where he wants to locate his industry”(environmental officer,2015). Because almost all of the land in Uganda is owned, the inspector will a lot protected lands like wetlands, forest reserves, and land in national parks to the industrial investors (environmental officer,2015). He explained that, “In fact, they will tell you do an EIA there, and in fact it won’t affect the factory established. So the purpose of having an EIA is defeated. The purpose of an EIA is to find out the likely impacts of such a project on the environment before a project is done, but it is hard to carry out an EIA with the objective of having a factory in that area”(environmental officer,2015). When the researcher asked how this is possible and who had such influence over the inspectors, he said,

*“If an investor comes with the influence of the president and wants land in a particular area which does not belong to individuals, the chances are high that he will get it. As NEMA of course, they know what they can do, but they have limits. If the president says, ok there is an investor who has come and he wants land in that area, you can’t stop it. So there is a difference between democracy, openly established, because if there is a problem the population will say, hey look you are going out of your constitutional boundaries and you can’t do it, and they will stop you. But here the president has a lot of power. If he says something you will not stop him”*(environmental officer,2015).

The findings for this objective were not only very telling about the views people had of the regulation and implementation, but the results bring out some of the challenges and error within this important system. The community members and industrial personnel were quick to blame NEMA for the majority of the issues, however neither group took responsibility or owned the fact that they were causing damage to the wetlands. There is a lack of accountability from industries and wetland users and so I do not think NEMA should hold all the blame. However they still hold great responsibility for other actions. It is also possible that they are used as a scapegoat for the political interference that occurs.

The government allowing factories to encroach and turning a blind eye to their degrading behavior is undemocratic, unlawful, and not supporting the political rights of the people. It is putting their lives in danger and certainly obstructing sustainable development. In summary, “The problem we have is that our institutions are not functioning properly because there is a lot

of interference and underfunding and that lack of coordination. But we need both if we have to have sustainable development” (environmental officer,2015). Based on the actions described, it seems as though the Ugandan government and decisions makers know what type of development they want. There are truly good policies and institutions put in place to ensure a balance between environment and development, but the undermining and double crossing of inspections and permits says otherwise. Uganda will not be able to achieve a sustainable future for its environment or rights based development for its people if these issues are not addressed.

Objective 4. To see how the interests of both stakeholders, industry and community, are being represented in the decision making process towards development.

a. To understand how the people view their rights within the nexus

The results presented in the previous section showed some of the different ways the community and the industries are represented in the process towards development. While the environmental and human rights needs of the people are represented in policy, the researcher does not believe the government has addressed these needs adequately. There was an overwhelming sense that the communities felt underrepresented and neglected. The people in the communities said they felt ignored and even felt that the government has violated their human rights. This was especially apparent when they discussed their views on industrial development in their communities. A village member said, “We feel we are being suppressed, oppressed and not given our human rights to express our views. We should always be told what is going on. They should have said these people should shift from these areas. Now all our lives are going to be shorter and our children’s lives. For us we just take it in and our lives are in danger”(village informant,2015). When it comes to consulting villages on development activities, they feel as though their opinion does not matter. When asked about their rights within the nexus this is what a participant shared,

*“We should have the right to life. For life to continue. They are preventing us from having that right of our lives to continue because of what is happening to the lake and wetlands. We should have the right to speak up when we oppose the wrong things and the right to tell government when things are right and wrong as a community. The right to tell them what is right and what is wrong. They should respect the leaders of the communities. They should always*

*come and consult the leaders of the community before setting up a factory. The community should advise government, and right for the people to be consulted. The right to advise government. That right has been neglected. They don't consult us, they don't take our advice. They don't even think about it. They don't think we have brains. The right to safe guard our environment. They should give us the opportunity to access our right to safe guard our community, our surroundings out environment. They have not given us that right. They just come and take. They don't give us a chance to exercise our rights. We just see them building. They are encroaching on our rights. Freedom of expression is there but, they disregard. Whatever we express they disregard. They say that is a small chairman, and a small community”(village informant, 2015).*

This quote brings out other themes that were found within the data. Multiple members had comments that made them sound as though they were belittled or lesser in the eyes of a factory worker or regulator. This quote is also informative as to how the people believe their government feels about them. In addition to being ignored, the community people seem to be seen as a nuisance to the government and are not seen as important factors when it comes to development. For example, a community member said,

*“The bad thing about our government, they don't consider the common man. What they are after are for someone who comes in with good money they think they will get enough revenue. They don't always think that these factories are a big problem. Just as an example, they sometimes tell us not to use the wetlands either by digging or farming in the wetlands. But when someone comes and says they want to build a factory they just let him come and build in the wetlands. And when someone is just using is small hole, planting or farming, they stop him and tell him he destroying the wetland and isn't that ignoring the common man and lifting the big one” (village informant,2015).* The communities feel it is as if they are not even being considered in the decision making process when it comes to development. When discussing the government decision to place industries in the wetlands a member of the community said, “It is very unfair to allow themselves [government] to be overcome by industries and allow them to push out communities, because wetlands are essential to life. That is how god has created it. They allow industry to encroach on wetlands, to build dangerous factories in the wetland. They have destroyed the wetland and in fact they have destroyed life”(village informant,2015). The



village members often explained that government would tell them they are developing and that the industries are developing the people, but the members do not believe them.

When the officers were asked their take on the people's rights and consideration in development, they too were skeptical of government's consideration. One respondent said that the EIAs are in place as a means of protecting the people's rights and ensuring sustainable development, and the corruption behind the EIAs was described in the previous section. Another expert explained that it is concerning that industrial inspections come back approved when there is visible damage done to the communities and the wetlands in the vicinity. They explained that this is a blatant disregard for the needs of the environment and people's wellbeing. These anecdotes and descriptions of the way people are feeling support the possibility that community wellbeing is not considered enough when it comes to development. It is difficult for the government to make sure everyone's personal needs are understood, and addressed, but based on what has been found, it appears as though the industrial success is considered more than the environmental issues as well as the lives and rights of the people.

## **9.0 Conclusion**

In summary, the nexus between industries, wetlands and communities is extremely complex. It becomes even trickier when considering it in terms of development. The relationship between industries and communities is faulty due to a multitude of issues, and obvious lack of mediation from the government. The wetlands are clearly in danger from increased pressure from not only industries, but communities as well. This in turn affects the lives of the people in the communities threatening their livelihood. While the Ugandan government has policies in place to protect the wetlands and people from industry, and protect the wetlands from both communities and industries, the unstable enforcement makes it virtually useless. This in turn calls into question Uganda's ability to achieve right-based sustainable development. If Uganda continues on the path it is on, it will not be able to achieve rights-based sustainable development. Ugandan decision makers will need to think about the type of development they want to for their people. As one of the environmental officers said, "When you look at the way we are moving, where everyone is clamoring for industrial growth, but we are doing it at the cost of the environment and in the long run I think we will have to pay"(environmental officer,2015). If Uganda does not want to "pay" then some serious changes need to be made. Based on what the people in the village said and the concerns that the other stakeholders have, it is clear that right-based

sustainable development would be the most ideal form of development. It focuses on achieving a balance, ensuring a more stable future, and put the people's primary needs before all else.

This study wanted to shed light on a key questions within development. How do you balance development and environmental protection? What it has found is that if development is going to be done in a way that respects citizens' human rights, then the environmental conservation must be taken into consideration. To do so, the government must realize this fact, and then work together to uphold the policies it has developed. The researcher does not believe that the environmental concerns are as pertinent to the government as they have made it out to be. Until this becomes an important agenda for the central government, then these issues will continue to occur. One of the environmental officers shared that President Museveni has recently gone to New York to discuss environmental concerns and how to address issue on wetland degradation(environmental officer,2015). He felt hopeful that this was a step in the right direction, and the researcher is confident that Uganda will be able to solve these issues and achieve right-based sustainable development.

### **10.0 Recommendations:**

To be able to achieve rights-based sustainable development, and gain more harmony within the nexus, the researcher has come up with a few recommendations that decision makers could follow.

1. Local government, environmental institutions, and the central government should listen and interact more with the local community.

The people in the villages felt neglected, ignored, and unimportant. This caused them to feel as though no development was happening, and as though their country did not care how they were being effected. Having more focus groups, outreach, sensitization, and support for these communities will help the people feel as though they are being respected. This will also provide the decision makers with valuable information on how some of the poorest people in the country envision development, and what their needs are. This could help the government address some of the pressing issues and directly fix what the problems may be. This also creates a better understanding for the people on how the government envisions the development of their country and the policies they put in place. This will help with compliance and usage when it comes to environmental activities.

2. Environmental institutions need to be re-evaluated and find a way to counteract political interference.

This recommendation is easier said than done. The environmental institutions can continue to work as hard as possible and even double their budget, but if the central government, specifically Museveni, overrides their authority and encourages industrial expansion in vulnerable areas, no changes will come. These institutions should become de centralized and independent. One of the possible ways is to connect with more NGOs and rely on them to pursued change and keep industrial compliance and regulation accountable. This outside force could increase enforcement capacity as well as put pressure and expose political corruption.

3. Consider relocation of industries to areas in a less vulnerable environment and fewer communities.

Many of the respondents including the environmental officers said this is a possible solution to consider. Industries can be relocated to areas where there are no wetlands or large bodies of water. Water can be pumped and recycled to maintain their water intensive practices. This has the possibility to conserve the wetlands/lake, please the local people, decrease potential health costs and possibly increase tourism. The large smelly factories being relocated would give Jinja an even more pristine environment and attract more tourists.

4. More research should be done on this topic

Further research should be conducted to determine in more detail the steps needed to solve various issues. More research needs to be done on how these factories effect the health of the people that work in the industries, as well as the communities that live nearby. This was highly recommended by most of the respondents. There needs to be some base studies to determine what types of effects their maybe. Issues like, caner, and asthma are the highest concerns. More scientific research should be done on the impacts of industry and communities on the wetlands. This can give a basis of what the impacts are, how they will look in the future, and how to solve the problems. To help with this, a study on the cost benefit analysis of relocating factories could be helpful in determining if this is a viable option. Another recommended study is to look at international wetland policy and see how neighboring east African countries handle their

wetlands. Wetlands, as well as the Nile River are a transboundary resource and learning how multiple countries can approach conservation could be interesting.

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# APPENDIX I

## Interview Guide for Factory Personnel

Is this a Ugandan owned company?

Why was this specific area chosen?

What was the land like before you built here?

Were there people living here before the company?

Before the company was built, were there people that used/ depended on the wetlands?

What challenges did you face building in this area?

-resistance, lawsuits, inspection?

What is your relationship with the people now?

How many people from Uganda do you employ?

What types of chemicals are produced from your waste?

Have you had any issues with any waste leaking into the wetlands or waste issues?

What potential harm do they pose to the people and environment?

Do you ever worry that there are affects of these chemicals on the people that are unknown or not yet detected?

How do you manage waste? ← in-depth description of the process

What regulations and policies are used to monitor your impact? Waste management?

Who enforces these policies and regulations? To what extent? How?

What difficulties has the company faced when it comes to waste management?

-Difficulties with the community or enforcement? Other industries?

What benefits do you believe this company provides to the community? Uganda as a whole?  
Development?

What benefits do you think wetlands provide to the community and Uganda as a whole?  
Development?

Do you feel that people here have a larger responsibility to manage waste in this area?

Who do you think has a bigger impact on wetlands, the industries or communities?

How do you think industry and the environment can coexist? What do you think the balance is?

## **APPENDIX II**

### Interview guide for LCs and Focus group

What wetland areas do the people in the village typically use?

What types of activities are most commonly done in the wetlands? (fishing, water, farming, others?)

How many people would you guess directly access or use these wetlands?

Have you witnessed depletion of the wetlands over time? Changes?

-If so, how has this affected the people?

-what do you think caused these changes?

-What has been done to prevent or encourage these changes?

Was the industry here before the village?

-if no, Can you describe what it was like before and when the factories came in and started building in the wetlands?

- Before the factory was put in place, did the government or anybody come and talk to you guys about what was going to happen?

What has your relationship with the industry been?

Are people from your village employed there?

What benefits do you think the industry provides the community? Uganda?

What policies or regulations do you refer to when dealing with the wetlands?

Do you think they are useful?

How are they enforced?

What is your perception of these policies and regulations?

Who hold the responsibility of enforcing them? In your village? In general?

How do you feel wetlands can affect development?

How do you think negative impacts on the wetlands will effect Uganda?

Who do you feel has a bigger impact on the wetlands? Do you think it is the local people, or the industry?

Which do you perceive to be a bigger necessity, wetlands or industries in Jinja? (provides more benefits?)

What impacts do you feel these factories have on the development of Uganda?



What changes do you want to see with the development of Uganda? Do you have any worries about the environment?

How do you feel the industries and wetlands degradation affect the rights of the people in the village as well as Uganda as a whole?

With Uganda developing, what rights (2 or 3) do you think you should have as your country develops?

How do you think industry and the environment can coexist? What do you think the balance is?

## **APPENDIX III**

### Interview Guide for Ecologist

Have the factories had impacts on the wetlands that ultimately effect the fisheries?

Some of the people in the community say that since the factories have come the fish populations have decreased, is this true?

How will wetland degradation effect development in Uganda?

How do you feel the industries and wetland degradation effect the rights of the people in the villages as well as Uganda as a whole?

What is your perception of environmental regulation and policy and its implementation

Has this institute or others seen fish populations decreasing, and do you think it's from the factories?

What are your thoughts on so many industries being built on such an important body of water, on Lake Victoria and the source of the Nile?

Who do you think has a bigger impact in short-term and long-term on the wetlands and environments? Do you think it is the people in the communities that are farming and fishing, or the factories?

How do you think the industries impact on the lake and wetlands impacts people's rights and development in Uganda?

Have you seen any effect of bio-accumulation of chemicals in the fish affecting human health? Do you think that is even a possibility?

## **APPENDIX IV**

### Interview Guide for Environmental Officers

What are some of the challenges regulatory bodies have faced when it comes to policy implementation and enforcement?

What factors and criteria do NEMA (and others) consider doing impact assessments on the wetlands and factories?

How do you feel the industries and wetlands degradation affect the rights of the people in the neighboring villages as well as Uganda as a whole?

How do you think environment (wetlands) and industry can co-exist?

Whom do you believe has the largest impact on wetland degradation? Industries or the local people?

If things continue to go on as they are, with regards to the wetlands and environmental pressure, how do you think this will effect development in Uganda?

What do you think can be more beneficial for development in Uganda, increasing industrial capacity or conserving the wetlands?

What changes with the wetlands and Lake Victoria have you observed over the years, if any?

What concerns do have when it comes to the environmental pressures from development for the future?

**APPENDIX V**  
**SIT Study Abroad**  
a program of World Learning



**CONSENT FORM**

**1. Brief description of the purpose of this study**

The purpose of this study is to look at the regulations, impacts, and dynamics between the factories/industries and the people in Jinja, and learn how this effects the people’s everyday usage of the wetlands. It will examine how industries’ waste practices are controlled, by whom, and to what extent. Further, it will see how waste effects the quality of the wetlands and how this can affect the wellbeing, an ultimately the rights of the community that accesses them. In a broader scope, this project will study these dynamics in relation to the overall development of Uganda and how it successfully and unsuccessfully follows a rights-based approach to sustainable development.

**2. Rights Notice**

In an endeavor to uphold the ethical standards of all SIT ISP proposals, this study has been reviewed and approved by a Local Review Board or SIT Institutional Review Board. If at any time, you feel that you are at risk or exposed to unreasonable harm, you may terminate and stop the interview. Please take some time to carefully read the statements provided below.

- a. **Privacy** - all information you present in this interview may be recorded and safeguarded. If you do not want the information recorded, you need to let the interviewer know.
- b. **Anonymity** - all names in this study will be kept anonymous unless the participant chooses otherwise.
- c. **Confidentiality** - all names will remain completely confidential and fully protected by the interviewer. By signing below, you give the interviewer full responsibility to uphold this contract and its contents. The interviewer will also sign a copy of this contract and give it to the participant.

\_\_\_\_\_  
Participant’s name printed

\_\_\_\_\_  
Participant’s signature and date

\_\_\_\_\_  
Interviewer’s name printed

\_\_\_\_\_  
Interviewer’s signature and date

## **APPENDIX VI**

### Acronyms

LC- Local Leader

NEMA- National Environmental Management Authority

UNDP- Ugandan National Development Plan

UNAC- United Nations Association in Canada

NEMP- National Environment Management Policy

NEAP- National Environmental Action Plan

NEMA- National Environment Management Authority

WMA- Wetland Management Authority

UNDHR- United Nations Declaration of Human Rights

UNEP- United Nations Environmental Protection

JMC- Jinja Municipal Council

NaFIRRI- National Fisheries Research Institute 9