

Spring 2014

# The Conceptualization of “Environmentalism” in Sagara

Emma Chapman  
*SIT Study Abroad*

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# **The Conceptualization of “Environmentalism” in Sagara**



**Emma Chapman**

**SIT Tanzania: Wildlife Conservation and Political Ecology**

**Spring 2014**

## ACKNOWLEDGEMENTS

Firstly, I would like to thank all those who participated in my study for taking time out of their day in order to answer the many, often awkwardly translated, questions I posed to them. I would also like to thank my translator, Christina, for her help in working our way through the difficulties of doing an environmentalism study without a direct translation for “environmentalism” in Kiswahili.

As for lodging, thank you so much to Mr. Kiparu for always checking in on us, making sure we were comfortable and providing vital background information for my study. To Francis, thank you for always being so welcoming, and always willing to take us on hikes through the forest. Richard and David, I don’t know what all of us at Mazumbai would have done without you. The food was consistently *tamu sana*, and your company and cooking advice always appreciated.

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## ABSTRACT

My study focused on the perceptions of “environmentalism” in Sagara, Tanzania and attempted to compare Sagaran concepts to those of a more Western model. My study also identified the “actors” that taught Sagarans about the environment. After finding that Sagarans held a strong resource conservation focus in their responses, I then focused on the details of their resource use to see whether what they have been taught about conservation has been actualized in their daily life. I predicted to find that Sagarans have a much more generalized and resource conservation focused definition of “environmentalism” and that their patterns of resource use would not necessarily fit into what they had been taught about conservation. I conducted the study in Sagara, a small village in the West Usambara Mountains from April 7<sup>th</sup> – 25<sup>th</sup>, 2014. My sample frame was limited to adult residents of Sagara Village and members of organizations that have interacted with Sagara Village over the past 25 years. My sample population was “mothers” and three key-informant interviews with Sagara’s village chairman, a representative from Tanzania Forest Conservation Group (TFCG), and a primary school teacher. I gathered my data through two sets of semi-structured interviews, three focal groups, and three key informant interviews. Each set of semi-structured interviews had 50 respondents ( $n_1 = 50$ ) ( $n_2 = 50$ ) while each of the three focal groups had 5 respondents for a total of 15 respondents ( $n_3 = 15$ ). I found that my predictions were accurate in that there was a definitive focus on resource conservation in the respondents’ perception of “environmentalism”. I also found that formal teachers of the environment, such as the government, school, and TFCG more successfully transferred knowledge about the environment than families, an informal educator. However, I found that the government and the local school were both heavily influenced by TFCG teachings themselves, and therefore all taught similar aspects of “environmentalism” such as wood and water conservation. This was in contrast to family teachings which focused more around cultivation and agriculture. Lastly, it was shown that even though many respondents were aware of the teachings of TFCG, the government, and school (proving successful knowledge transfer), the actualization of these teachings proved to be lacking. The resource use habits of many Sagarans proved to, oftentimes, contradict their own definitions of “environmentalism”, taught to them by the actors previously mentioned. Overall, I found that perceptions of “environmentalism” in Sagara village greatly differ from those in the Western world, and that although TFCG has been successful in teaching Sagarans about the topic, residents of Sagara village have not necessarily put into action what they have learned.

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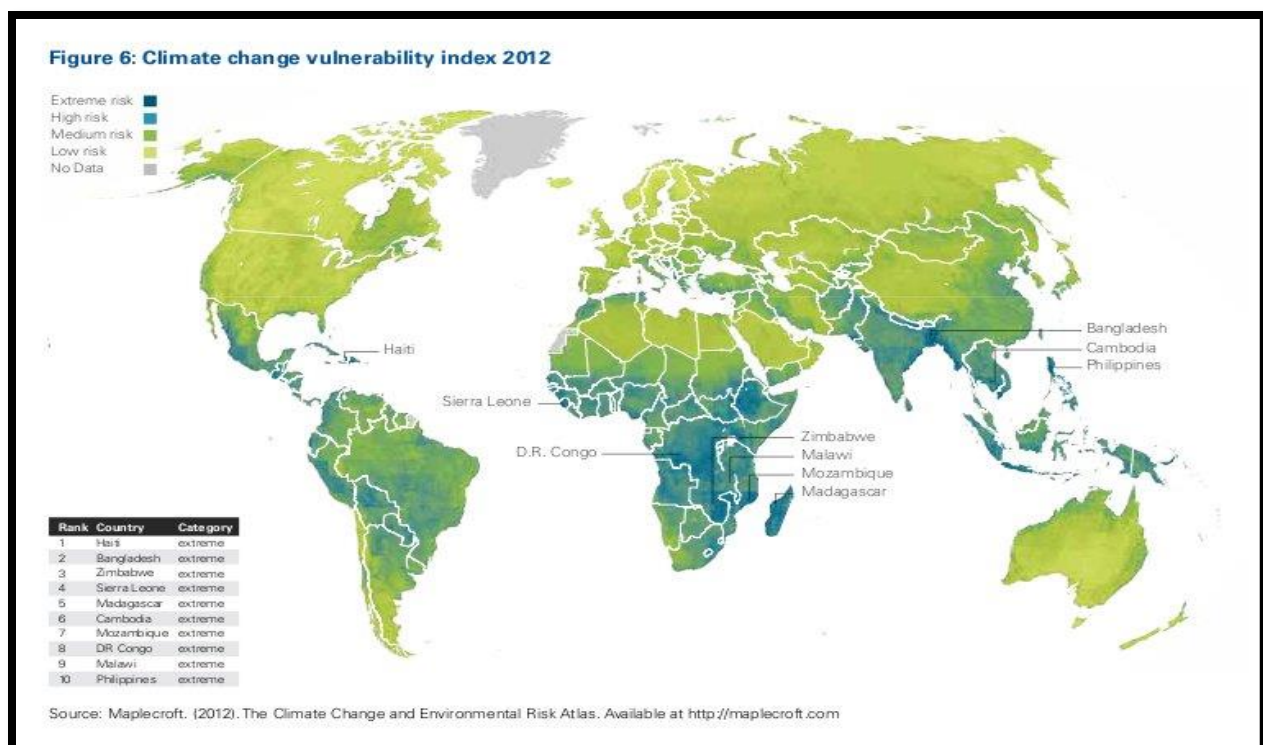
## INTRODUCTION

The environmental movement in the United States began in the early 1960s and continued with great fervor until the mid 1970s. Major events that defined the environmentalism movement include Rachel Carson's *Silent Springs*, written in 1962, which uncovered the harmful effects of the overuse of DDT and the Cuyahoga River Fire of 1969 in which a river in Cleveland caught fire after a multitude of harmful chemicals had polluted it. The year 1970 saw the first official Earth Day as well as the founding of the Natural Resources Defense Council, with Greenpeace being founded only a year later in 1971. During Nixon's presidency, there was a major legal push towards environmental protection with the creation of the Environmental Protection Agency, the Clean Air Act, the Clean Water Act, and the Endangered Species Act. All of these events culminated in what is known as the "environmental movement" which is, most definitely, a *social* movement. This is an important distinction to make as many in the Western world still understand "environmentalism" in more of a social sense, trumpeting a love and care for all things natural. This provides a basis for which to compare other perceptions of the word "environmentalism" that may exist across the globe.

In contrast to the environmentalism movement in the United States, which has been qualified as "post materialism" (Guha, 2002), the "environmentalism of the poor" is often criticized. According to Ramachandra Guha, in his article *Anil Agarwal and environmentalism of the poor*, it is often expressed that those residing in developing countries are frankly "too poor to be green". Guha quotes well-renowned MIT economist Lester Thurow who said, in the late 1980s that "if you look at the countries that are interested in environmentalism, or at the individuals who support environmentalism within each country, one is struck by the extent to which environmentalism is an interest of the upper middle class" going on to say that "poor countries and poor individuals simply aren't interested [in the environment]". However, whether it can be said that those in developing nations are truly unaware of, and do not care about, the environment, remains to be seen.

This contrast between Western and non-Western perceptions of environmentalism leads to their conjunction on the topic of "environmental justice", a phrase defined by the

Environmental Protection Agency as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies”. This definition, although a bit convoluted, is applicable to the state of the environment in our modern world. It is apparent that developed countries, such as the United States, contribute much more to environmental degradation than do developing countries like Tanzania. These two different types of nations’ environmental impacts are often compared with their carbon footprint. As demonstrated with data from 2010, the United States’ estimated carbon emissions of 4.71 metric tons of carbon per capita is exponentially larger than that of Tanzania’s 0.04 metric tons of carbon per capita (CDIAC, 2013). Out of all 216 countries listed, they are ranked 12<sup>th</sup> and 197<sup>th</sup>, respectively. Even when controlled for population, it can be seen what a difference there is in the “luxury emissions” of America’s many cars in comparison to the “survival emissions” of Tanzania (Guha, 2002). The environmental injustice intrinsic within this dichotomy is that, firstly, the future effects of global warming will be felt most harshly by developing countries, the nations that have contributed to the problem the least (Figure 1). Secondly, many institutions, such as the World Resources Institute have attempted to place responsibility for remedying climate



**Figure 1:** Climate change vulnerability by region. Google Images. Accessed May, 2014.



change equally on all nations. However, those that have contributed the least to the carbon sinks of the world often have the least amount of funds to spend attempting to clean them up. Possibly, a more just solution would be to distribute the responsibility by population, or more accurately, by carbon footprint.

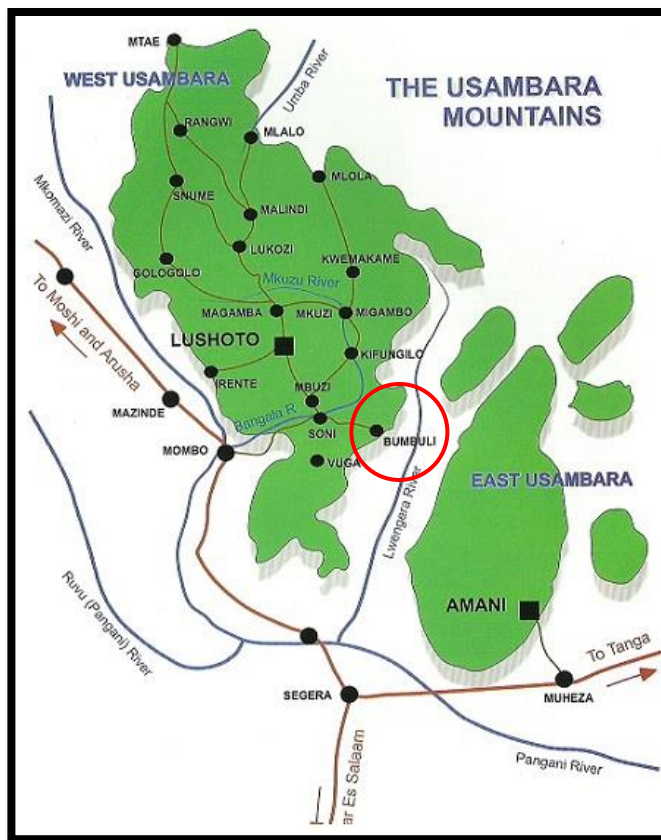
Environmental policy within Tanzania can most easily be found in a piece published in December of 1997 entitled *National Environmental Policy*. Within this document, there are seen many different initiatives to be taken on by the government concerning the domestic environment. Throughout the text, there is consistently a focus on the relationship between a healthy environment and a strong economy. Oftentimes, the report seemed to monetize certain initiatives they intended to take on. This theme found throughout the document provides an initial perspective on the type of “environmentalism” conceptualization that can be seen within Tanzania.

This study therefore examined the following two-fold question: What are Sagarans’ perceptions of “environmentalism” in comparison to a Western definition? And: How do certain patterns of resource use in Sagara fit into the Sagarans’ and Western definitions of “environmentalism”?

These questions led me to examine how outside factors, such as an outside NGO, the local education system, and the municipal government, have influenced the concept of “environmentalism” in Sagara. This perception directed me to a resource conservation focus, which was then further investigated to deduce the way in which it fit into the daily lives of Sagarans.

## STUDY SITE

My study site, Sagara, is located in the West Usambara Mountain chain, a part of the greater Eastern Arc Mountains. Sagara is a part of the Lushoto District, with the closest major village being Bumbuli (shown in Figure 2). Previously, Sagara was known only as a colony of Mazumbai. Mazumbai was originally part of a large tea plantation owned by John Tanner, a member of Amboni Ltd. (Sagara Village Chairman, pers. comm., 2014). When this man owned the Mazumbai Forest Reserve, those that lived in the then-unfounded village of Sagara lacked any sort of official infrastructure and were therefore known as squatters. When Tanner decided to divided and distribute his land to the people of Sagara, he also sold off the Mazumbai Forest to the



**Figure 2:** Map of the Usambara Mountain Range. Google Images. Accessed May 2014.

University of Dar es Salaam, now the Sokoine University of Agriculture (Reese Matthews, pers. comm., 2014). After this, Sagarans began to build proper houses, *dukas*, and other forms of formal infrastructure. Eventually, in 2000, Sagara was officially founded as a village within the Lushoto District (Sagara Village Chairman, pers. comm., 2014). There are currently five different hamlets within the village including Handei, Kwemashai, Mazumbai, Kweshashi, and Kwemtonto (Sagara Village Chairman, pers. comm., 2014).

Sagara currently has a population of 2,480 people, distributed throughout its five hamlets (Sagara Village Chairman, pers. comm., 2014). However, in recent years, Sagara has experienced extremely rapid population growth, a theme I heard weaved throughout many of my responses to resource conservation questions, and later confirmed with the Village Chairman.

Sagara's education system currently consists of only one primary school, which was built in 2004. In order to attend secondary school, Sagarans must pay tuition of 20,000 TSH annually, a month's worth of the average Sagaran income, and commute to the neighboring village of Mgwashi (Sagara Village Chairman, pers. comm., 2014). Before the primary school was built in Sagara, children would also go to Mgwashi for their primary education.

An NGO, based out of Dar es Salaam, Tanzania Forest Conservation Group (TFCG), began work in Sagara in 2004 (Sagara Village Chairman, pers. comm., 2014). TFCG's original interest in Sagara was to protect the forest surrounding the village. The organization did so shortly after their arrival with the establishment of the Sagara Forest Reserve. The founding of the reserve was originally done in order to protect the amazingly rare biodiversity within the forest. However, the influence in Sagara has had a major effect not only on the environmental proceedings of the village, but on the local economy, culture, and way of life.

## METHODS

This study was conducted in the West Usambara Mountains in northeastern Tanzania in Sagara village from April 7<sup>th</sup> through April 24<sup>th</sup>, 2014. I was able to collect 13 full days worth of data. The sample frame used was limited to Sagarans (adults in Sagara Village and members of organizations that have interacted with Sagara Village over the past 25 years). The sample population interviewed was “mothers” (defined as women with children) and three key-informant interviews with Sagara’s Village Chairman, a representative from Tanzania Forest Conservation Group (TFCG), and a primary school teacher. I chose to ask Sagarans mothers, specifically, because I observed them to have the most direct interaction with resources both within the home (e.g. wood and water) and on the farm.

Besides my key informant interviews, the rest of my sample frame was selected randomly through opportunistic selection. My translator took me to different mothers’ houses in order to interview them. I then sat down with them, informing them of my name and what I study. I also explained to each interviewee that their name will not be used in the final version of my study, that a voice recorder may be used, that they could stop answering the questions at any time, and that they would be compensated with 1,000 TSH for their time. After this, I conducted either semi-structured interviews or focal groups with mothers, or the key-informant interviews mentioned previously.

The data gathered from the responses to the two sets of questions I asked mothers in semi-structured interviews will be representative. The data can be indicated as such because, firstly, there is an extremely high degree of homogeneity in my interviewees. This was found by asking six preliminary questions (APPENDIX I – IV). Within this data, it was found that 97% of mothers interviewed had not received higher than a primary school education (16% received no schooling at all) with the average years of schooling being 5.41 years, ranging from 0 to 11 years of overall. Additionally, 98% of mothers interviewed indicated that they were employed as a farmer, with one respondent claiming she was a business woman and the other explaining she was retired. To add to the homogeneity, 59% of women interviewed were born and raised in Sagara with an additional 28% being born and raised in two other villages a short distance from Sagara.

This homogeneity, combined with the fact that fifty mothers were interviewed for each set of questions ( $n_{\text{total}}=100$ ) and a relatively small population of Sagara (2,480 people, ~50% female), yields representative data.

My first round of interviews consisted of fifty mothers ( $n_1=50$ ). The focus of these questions was decided by thirteen interviewees' responses to unofficial interviews conducted during a preparatory week spent in Sagara. These thirteen responses will, therefore, not be included in any data analysis. However, the baseline data that was gathered from them allowed me to fine-tune this first set of questions.

These questions referred to general concepts surrounding "environmentalism" in order to get an overall theme of the adult female Sagarans' definition. These questions also asked about any sort "teachers" that have exposed them to issues about the environment (APPENDIX I & II). Based on this question, it was found that (outside their own family) Sagarans most often identified the local government, TFCG, and school as the actors that most influenced their perception about the environment. These three actors were later used as key informants, in order to follow and analyze the transfer of knowledge from "teacher" to "student" concerning the environment.

Based on the answers to these preliminary questions, I then moved on to another round of questions during my second week of interviews. These questions were asked to a different set of fifty mothers ( $n_2=50$ ). Unlike the first round, these questions focused more on the specifics of resource conservation in Sagara (APPENDIX III & APPENDIX IV). The focus of these questions was decided by the fifty responses I had already received from participants to my first set of questions. These answers indicated an extremely strong emphasis on resource conservation, to the point where few other aspects of "environmentalism" were mentioned at all. In this way, my second set of questions allowed me to delve into the resource conservation orientated answers that were established in my first set of questions.

After these two sets of semi-structured interviews, I then conducted three focal groups of five mothers each ( $n_3=15$ ). These groups were used for me to more freely converse with mothers to better understand the data I had previously collected (APPENDIX V & VI).

Lastly, I conducted three different key informant interviews. My key informants were the Sagara Village Chairman, a representative from TFCG, and a primary school teacher. The questions asked were meant to find out how these people have influenced my sample population of Sagarans by establishing their own individual views on “environmentalism”, and more specifically, resource use (APPENDIX VII & VIII).

Only descriptive statistics were used when analyzing this data. Tables and figures with percentages of respondents’ answers allowed for a better understanding of trends in how “environmentalism” and resource conservation is conceptualized in Sagara.

## **RESULTS AND DISCUSSION**

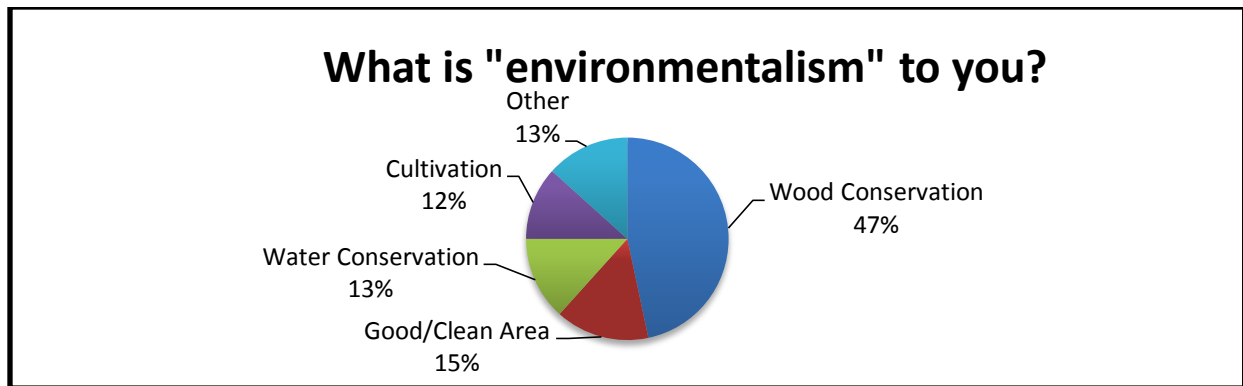
The object of my study was to explore Sagarans' individual conceptual analysis of the term "environmentalism" and its importance to their lives. To investigate this topic further, I delved into Sagarans' focus on the aspect of resource conservation. These two analyses are accompanied with an examination of the knowledge-transfer between the local government, the forest conservation NGO, TFCG, and the local education system, to the people of Sagara. This perspective will allow for a macro-viewpoint on the overall understanding and conceptualization of environmentalism in Sagara.

This section will be segmented into two parts. The first will discuss Sagarans' concept of "environmentalism" and its role to Sagaran life. This segment will also analyze which actors have taught Sagarans about the environment, what they have said, and if this attempted transfer of knowledge was successful. The second part of my results and discussion will focus directly on the concept of resource conservation in Sagara. Here, I will identify the most important resources indicated by Sagarans, and their relative uses, sources, and availabilities. These results will then be compared to the thoughts and opinions held by the three actors (mentioned previously), to identify the successes and drawbacks of resource conservation in Sagara.

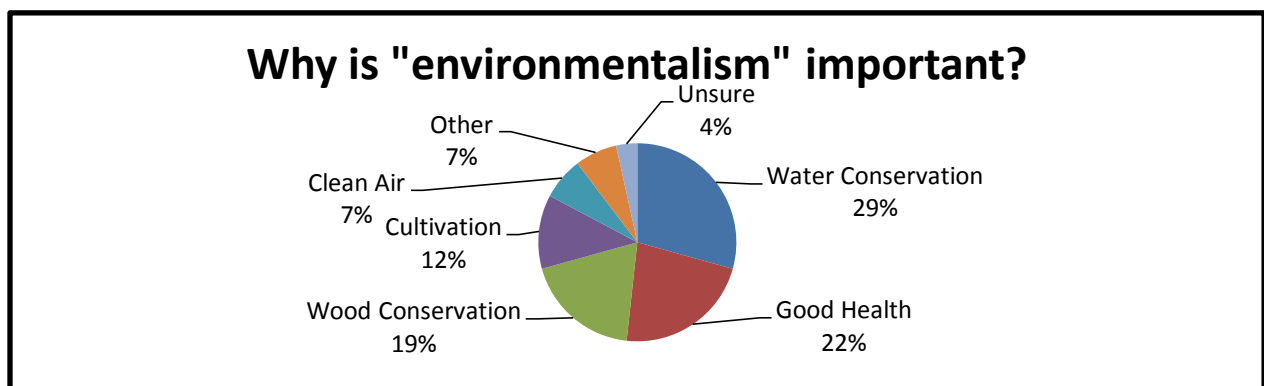
This twofold discussion will eventually lead to an overview of the conceptualization of "environmentalism" and the issues surrounding resource conservation in Sagara.

### **Part I**

The questions asked in my first set of semi-structured interviews were used to establish Sagaran mothers' concept of "environmentalism" and its importance. These same questions were also used to identify the teachers, and their respective teachings, about the environment in Sagara (APPENDIX I & II). This set of questions was asked to fifty mothers in Sagara ( $n_1=50$ ), all of these participants were asked the questions in Swahili and responded in Swahili.



**Figure 3:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.



**Figure 4:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

Many of the categories shown above indicate a general conglomeration of varied answers under one heading. This categorization was done for organizational purposes, but therefore requires further explanation. Of those who responded indicating "wood conservation", most used phrases such as "plant a tree" or "avoid cutting down trees". The few references to afforestation/deforestation and desertification were also included in the "wood conservation" category. Those that spoke about "water conservation" often used phrases such as "rain formation" or "get good/clean water". The "cultivation" category can be further specified to the cultivation of food and was referenced most often through phrases such as "conserve seeds" or "plant beans/corn". Many of those who defined "environmentalism" as a "good/clean area" went on to indicate its importance as "avoiding disease" which was designated as "good health" in Figure 4.

Through personal observation, I believe that this focus on health and the environment is very indicative of life in rural Tanzania. I attended the Mgwashi Clinic

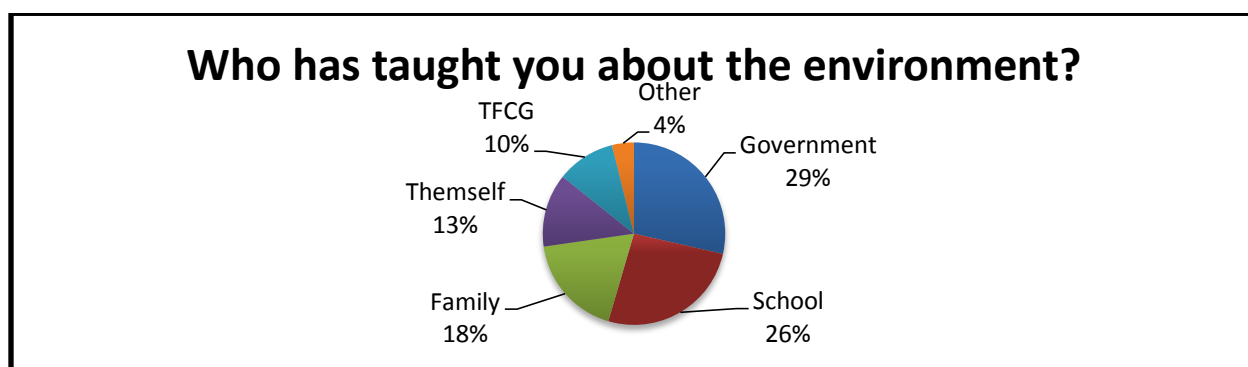


during my time in the Sagara region and was aware of the great need for better access to healthcare in the area. For this reason, I feel that many mothers focus on hygiene, even in reference to the environment (i.e. “keep a good/clean area”), because disease is, unfortunately, such a central part to life in Sagara.

A large trend seen is the similarity of responses to the two questions. Three categories remained present in the responses to both questions in Figure 3 and Figure 4. “Wood conservation” and “water conservation” both held relatively high percentages in each set of responses, with “cultivation” being indicated by 12% of respondents in each set.

These repetitive answers, although indicative of consistency, may also signify a lack of knowledge concerning environmentalism. Another indicator of insufficient environmental education would be that 4% of mothers were “unsure” of why the environment is important. This lack of understanding will be further discussed when analyzing the actors that have influenced environmental education in Sagara.

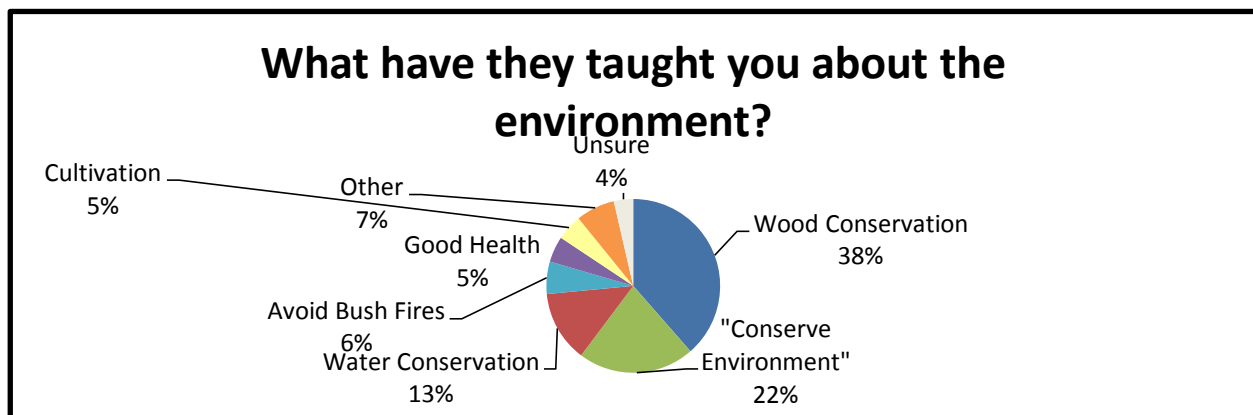
Lastly, it should be noted that most responses signify some sort of focus on natural resources. This major attention to resources is understandable in a village where the average income remains at 240,000 TSH or about \$147 annually (Sagara Village Chairman, pers. comm., 2014) and 98% of respondents indicated that they were farmers. Sagarans rely directly on natural resources for everyday activities such as cooking and bathing, as well as for their source of income as agriculturalists. Therefore, an intense focus on resources and resource conservation is logical for those of Sagara. This trend towards the mention of the benefits brought by water, wood, and arable land (indicated as “cultivation”) is also what led to my second set of questions which focused mostly as “environmentalism” viewed through the specified lens of “resource conservation”.



**Figure 5:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

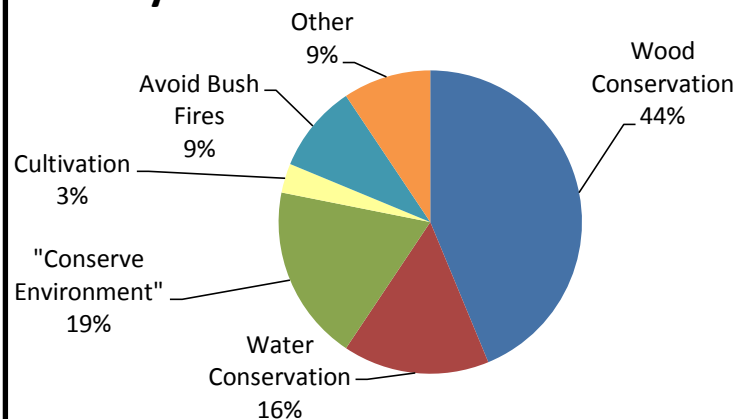
Figure 5 represents the actors who have taught about the environment, according to mothers in Sagara. As indicated above, the government and the local school are shown to have the highest influence with a combined total of over 50% of Sagaran mothers citing them as a teacher of the environment. It should be noted that when respondents indicated “school” it was most likely in reference to primary school. This can be assumed because of those asked that attended any school at all (4 mothers had not), 98% of them did not go on to attend secondary school. In addition to “government” and “school”, “family” or specific family members were also indicated frequently, representing a form of informal environmental education.

Many Sagaran mothers also claimed that no one had taught them about the environment and therefore explain that they had taught themselves. In this case, the next question “what has (actor previously indicated) taught you?” was not asked. Lastly, TFCG was, of those actors expressed, indicated the least frequently. During my study, I would have to pry interviewees quite a bit, asking many follow up questions, for them to even speak of TFCG at all. Many times, I feel, TFCG was thought to be another entity within the local government, which could be an indicator as to why it was referenced so little. Additionally, TFCG may not have the most direct relationship with the people of Sagara. In other words, TFCG seemed to work *through* other institutions in place. This multifaceted flow of knowledge will be discussed later, in greater detail.



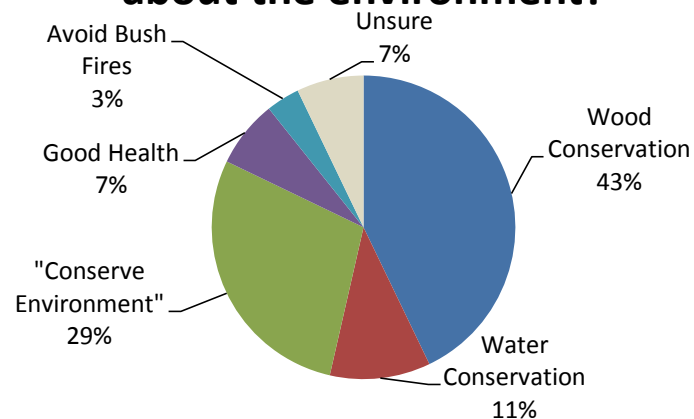
**Figure 6:** Data was collected from randomly selected mothers (n1= 50) during semi-structured interviews in Sagara, Tanzania. April 2014.

### What has the *government* taught you about the environment?



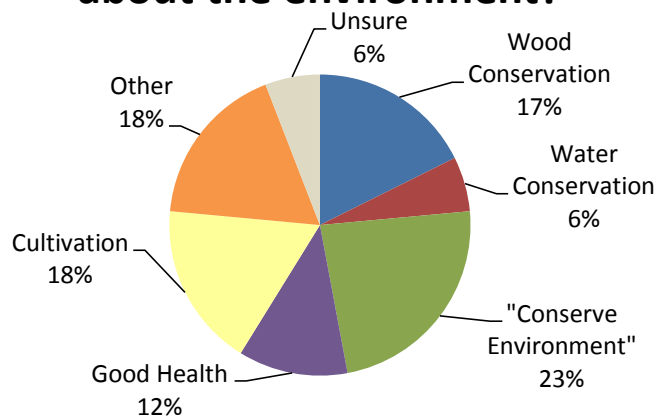
**Figure 7:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

### What has *school* taught you about the environment?



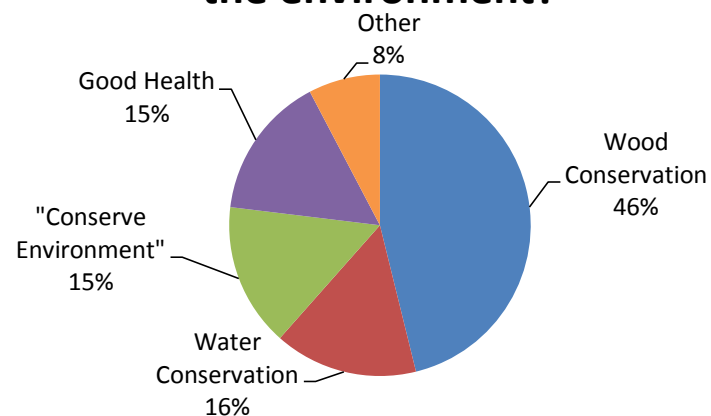
**Figure 8:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

### What has your *family* taught you about the environment?



**Figure 9:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

### What has *TFCG* taught you about the environment?



**Figure 10:** Data was collected from randomly selected mothers ( $n_1 = 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

Figure 6 represents, overall, with all actors combined, what had been taught to mothers of Sagara regarding the environment. Figures 7-10 demonstrate what was taught by each of the actors previously indicated (besides “themselves” or “other”). The headings “wood conservation”, “water conservation”, and “cultivation” should be defined as they were previously, as general categories rather than direct translations. The category “conserve environment”, however, is a direct translation. I feel that this phrase was often used as a sort of last resort for those who were unable to think of anything explicit about their environmental education. Therefore, “conserve environment” demonstrates a more generalized, rather than critical, way of thinking about the environment and “environmentalism”. In addition to the phrase “conserve environment”, 4% of the fifty mothers interviewed plainly stated that they were “unsure” what was taught to them. This answer, as was seen before in response to the question “why is ‘environmentalism’ important?”, is representative of an ambiguous and incomplete knowledge on the topic.

As shown above, the top “teachers of the environment” indicated by mothers were the local government (29%), primary school (26%), family (18%), themselves (13%), and TFCG (10%). Of these actors, the only feasible ones to interview were a member of the local government, a school teacher who teaches about the environment, and a representative from TFCG. Therefore, I conducted key informant interviews (APPENDIX VII & VIII) with these three actors to get another perspective on “environmentalism” in Sagara and assess the success of knowledge transfer between “teacher” and “student”.

Each actor was asked what the institution they worked for did concerning the environment. This question was asked in order to establish what each actor perceived they were teaching Sagarans, therefore providing a baseline for knowledge transfer. When talking with the Village Chairman of Sagara, a representative of the local government, he indicated that they teach the people of his town to avoid cutting down trees and to “make good sources of water”. This response was furthered when the Village Chairman explained that there is a local law in place that those found cutting down trees from the Sagara Forest Reserve are fined 50,000 TSH, a considerable amount to villagers that make an average of 20,000 TSH per month. The Village Chairman’s focus on the resources of wood and water are reflected in Figure 7, where 44% of those that said the government taught them about the environment explained that they taught them about “wood conservation” and 16% said that they taught them about “water conservation”.

Environmental teachings within the education system in Sagara are, in fact, obligatory. There is a law, passed in 2004, that mandates environmental education in standard 6 and standard 7 in primary school (Sagara Village Chairman, pers. comm., 2014). However, only 30% of those in primary school are female (Sagara Village Chairman, pers. comm., 2014) and it was found in Mayo, a neighboring village, that “three times as many male students (46%) as female students (14%) can successfully define conservation” (Boggaram, 2012). Despite this sizeable gender gap, and its effect on my interviewees, who were all women, the primary school teacher interviewed explained that he mostly taught about planting trees within the farm to avoid soil erosion and to get timber, therefore avoiding cutting down trees from the forest.

Outside local entities such as the Sagaran government and Sagaran education system, Tanzania Forest Conservation Group (TFCG) was also indicated as an influential actor on the environmental knowledge in Sagara. When I interviewed a TFCG representative she explained the organization’s work in Sagara, stating that most of the work done in Sagara attempts to build the local economy, attempting to wean it off a dependence on selling wood from the neighboring forest reserve. The TFCG representative listed many initiatives in Sagara such as organizing lending groups to create small business, promoting conservation agriculture, supporting bee keeping and goat keeping, and encouraging tree planting in the farm and surrounding areas. The representative also indicated that TFCG is responsible for building pipes to transport water from the forest reserve into town, further explaining that this infrastructure prevents villagers from entering the reserve as often where they might be tempted to illegally cut down trees.

Although these responses indicate what each actor claims to have taught to the people of Sagara, upon further investigation, it becomes clear that one actor holds a stark monopoly in the environmental education of Sagarans. When asked who taught *them* about the environment, both the Village Chairman and the local primary school teacher explained that TFCG was at the root of most of their environmental teachings. In fact, the Village Chairman explained that the 15 people designated to deal with conservation in the community are not local government representatives, but actually work directly for TFCG. TFCG also goes door-to-door with environmental information and has influenced the law-making process of Sagara. Ever since TFCG first came to Sagara in 2004, they have had a large hand in local politics, spurring them to mandate environmental education and to

instate monetary penalties for cutting down wood from the forest reserve (both referenced previously). When asked what TFCG has taught him about the environment, the Village Chairman explained that they told him to avoid cutting down trees. After these responses, it seems that the government, outside enforcing TFCG-created laws, has very little to do with the environment of Sagara.

A similar situation was found within the primary school in Sagara. Although the teacher noted that some of his environmental education came from his time in secondary school, he also explained that TFCG had had a heavy influence on his perceptions of the environment. In fact, when I signed in to the guestbook of the primary school, I found just days earlier, that TFCG had also been at the primary school. The primary school teacher explained that TFCG speaks with teachers and tells them to teach their students about planting grasses and trees to avoid desertification and to get good air. In fact, the TFCG representative interviewed indicated environmental education as an initiative the organization has taken on in Sagara.

In this way, TFCG is indirectly controlling all forms of formal environmental education in Sagara. The results of this are clearly shown in my data collected. When respondents indicated that they were taught by either the government or the school (Figures 7 and 8), both of which were greatly influenced by TFCG teachings, the results of “what was taught” were extremely similar to the results of those said TFCG taught them directly (Figure 10). The similarity seen here becomes even more stark when contrasted to the teachings of “family” (Figure 9). In Figures 7, 8, and 10, TFCG’s focus, “wood conservation”, holds a strong majority, ranging from 43% to 46% of respondents indicating that the actor promoted it. Additionally, “water conservation”, another major concentration of TFCG has a strong 11% - 16% in Figures 7, 8, and 10. Figure 9, however, shows that out of those taught by their family, only 17% were taught about “wood conservation” and a mere 6% spoke about “water conservation”. Instead, in Figure 9, we see a much higher percentage of families (18%) teaching about “cultivation”. This is in comparison to 3% of governmental teachings, and 0% of teachings from the school or TFCG itself referring to “cultivation”.

This data indicates the differences between the teachings of TFCG (whether direct or indirect) and the teachings of Sagaran family members. Although both concerned with resource conservation, it can be said that TFCG’s work is skewed more towards resource

conservation for the sake of environmental health while local family's attempt to conserve resources for the good of the people. Whereas "wood conservation" and "water conservation" attempt to preserve the local environment and therefore the amazing biodiversity found in the West Usambaras, teaching about "cultivation" indicates more of a focus on improving Sagarán livelihood.

To further investigate this information, in my focal groups (APPENDIX V & VI), I asked mothers which actor, out of the four in Figures 7-10, was the "best" at teaching the environment. During one of my focal groups, two mothers indicated TFCG was the best teacher, while three mothers indicated that their families taught about the environment the best. When asked to elaborate, the former two mothers explained that TFCG "teaches more about the environment" and has "taught people to plant trees/make a farm of trees". Those who explained that they were taught better by their family said that their family was the one to instruct them on conserving their farm. Although this is not to say that TFCG and its related actors (i.e. government and school) do not care about the people and that families do not care about the environment, these responses do provide ample support to the differences in teachings between the environmentally-focused TFCG and the more anthropocentric informal teachings of Sagarán families.

In order to assess the knowledge-transfer of TFCG and TFCG-influenced actors versus that of Sagarán families, a comparison can be made between Figures 7, 8, 10, and 4 versus Figures 9 and 4. All interviewees were asked "why is 'environmentalism' important?" (Figure 4) before they were asked which actors had taught them about the environment. Figure 4, therefore, demonstrates an unbiased and initial perception of what Sagaráns have learned about the environment. When observing Figure 4, it becomes evident that water and wood conservation are very much on the forefront of Sagaráns' minds in relation to environmentalism, as they were referenced 29% and 19% of the time, respectively. These categories, more associated with TFCG and its indirect teachers (i.e. government and school), show a higher prevalence than "cultivation" (18%) which is associated more with family teachings. This effective contrast of Figures 4 and 7 – 10 leads to an identification of TFCG and TFCG-influenced actors as performing a more successful knowledge-transfer than the families of Sagara.

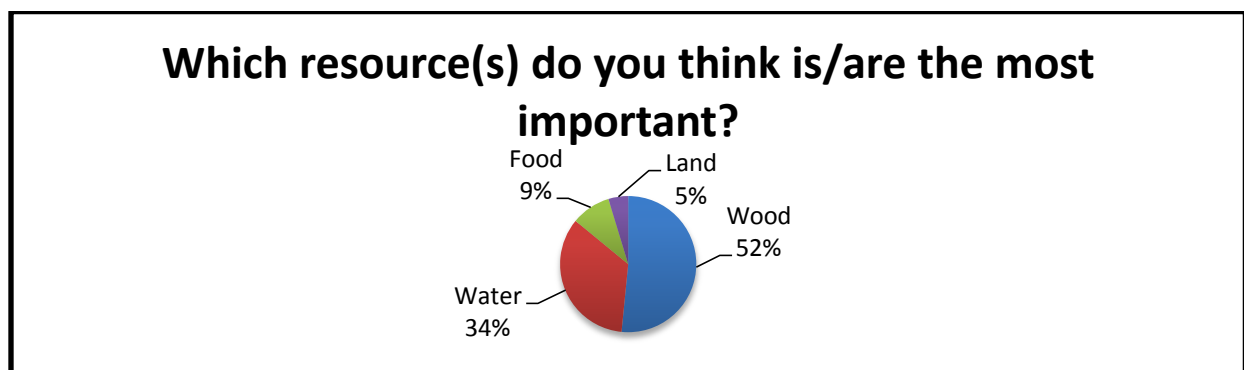
It should be noted, however, that one constant, throughout all actors, is the phrase "conserve environment". This go-to generalization was present in many answers as a way

for those to respond without specified knowledge and therefore may be indicative of a *lack* of knowledge-transfer in general.

Although TFCG's conservation-focused teachings have been proven to be relatively well conveyed to its students, it remains unclear whether the knowledge of these teachings is actually practiced in the village of Sagara. In order to deduce whether these known conservation practices are truly actualized, one must observe the specifics of "resource conservation" within the daily lives of Sagarans.

## Part II

The questions asked in my second set of semi-structured interviews were used to establish Sagaran mothers' resource conservation practices. These interviews were performed due to the evident focus on resource conservation by the mothers of Sagara when asked to define "environmentalism". Additionally, these interviews took place to assess whether the teachings mentioned previously were actually brought to fruition in the actions of Sagaran mothers (APPENDIX III & IV). This set of questions was asked to fifty mothers in Sagara ( $n_2=50$ ), all of these participants were asked the questions in Swahili and responded in Swahili.



**Figure 11:** Data was collected from randomly selected mothers ( $n_2= 50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

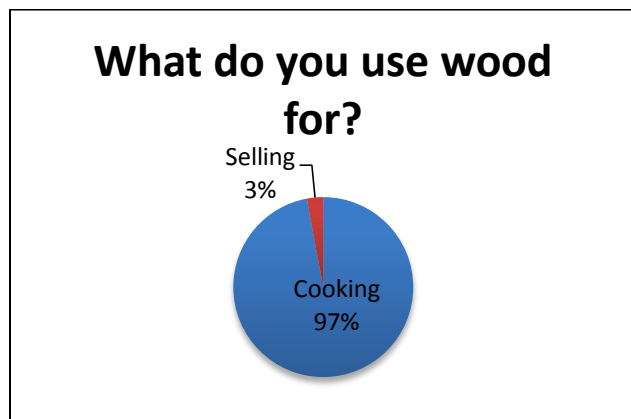
This question was asked in order to establish a baseline for further questions on the use of these prominent resources. As shown above in Figure 11, "wood" was most often indicated as important followed by "water". These two resources match up with the wood and water conservation teachings of TFCG and TFCG-influenced actors. Both of the other two resources indicated, "food" and "land", lend themselves to the "cultivation" teachings of Sagaran families. Figure 11, therefore, reinforces the previously-stated hypothesis that



TFCG's teachings, rather than family teachings, are more pervasive in the Sagaran community.

In order to establish the success of knowledge transfer between actors and those interviewed, I questioned key informants about which resources they thought were most important to Sagarans (APPENDIX VII & VIII). The Village Chairman indicated “wood”, the primary school teacher responded with “water”, and the TFCG representative indicated both “wood” and “water”. Therefore, TFCG and both TFCG-influenced actors all responded with “wood” and “water”, just as a large majority of Sagaran mothers (86%) did.

After each mother indicated which resources were most important, I asked further questions referring to her use of the resource. For each natural resource indicated (i.e. wood, water, food, and land) I explored their uses, their sources, and the amount used per person in the household per week. This data can be analyzed to evaluate the true resource usage and resource conservation patterns of mothers in Sagara.



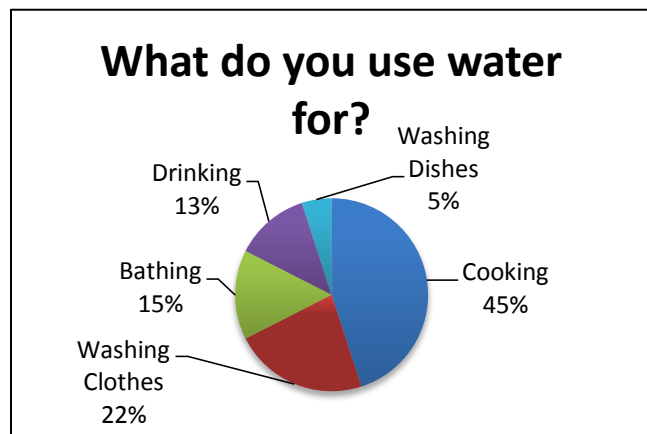
**Figure 12:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.



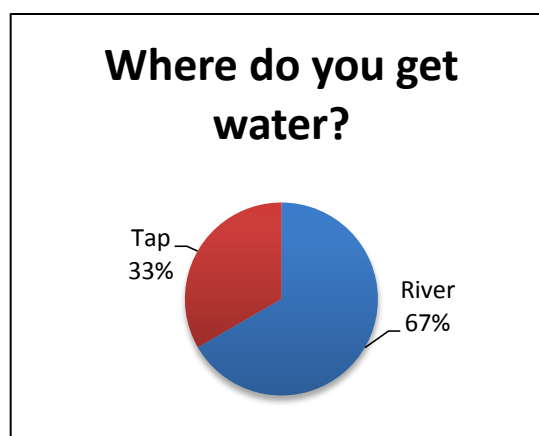
**Figure 13:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

Of those who indicated “wood” as the most important resource, they were asked to further specify what they used wood for and where they found it. Figure 12 and Figure 13 indicate the responses given. Although a high percentage of mothers (97%) indicated that they used wood for cooking, 3% admitted that they sold wood for profit. Additionally, almost half of mothers interviewed (46%) indicated that they extracted wood from the forest. Although, on average, mothers used only 3.04 headloads per person in their household per week, it ranged greatly from 0.43 headloads to 11.67 headloads. This data proves that a considerable amount of wood is being extracted from the neighboring forest

reserve and some of it is being resold to the general public, both practices condemned by the government and TFCG. Therefore, Figure 12 and Figure 13 indicate noticeable deviations from TFCG's "wood conservation" teachings.



**Figure 14:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.



**Figure 15:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

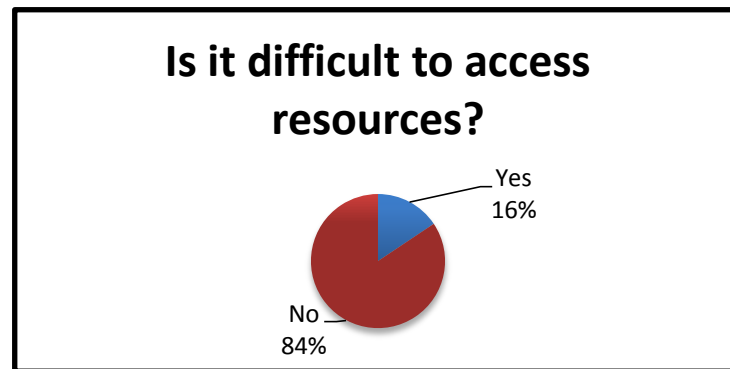
Figure 14 and Figure 15 demonstrate the data I collected concerning water use in Sagara. As it can be seen by the variety of responses in Figure 14, water is an integral part to many aspects of life in Sagara. I found that an average of 5.5 buckets of water was used per person in the household per week. However, this number ranged greatly from only 1.11 buckets per person per week to 21 buckets per person per week. Water was most often accessed from the river by mothers interviewed, but at times it was said to be accessed from the tap. I conducted all of my interviews either in the hamlets of either Handei or Kwemashai and, due to their proximity to the river, those in Handei more often indicated that their source of water was the river.

In terms of those who indicated "food" as the most important resource, 100% indicated they got it from their farm and that it was (quite obviously) used for eating. I found that, on average, about 1.72 kilos of food were eaten per person in the household per week, with a range from 1.25 to 2.33 kilos. However, this data may not be representative as only six respondents indicated food as the most important resource.

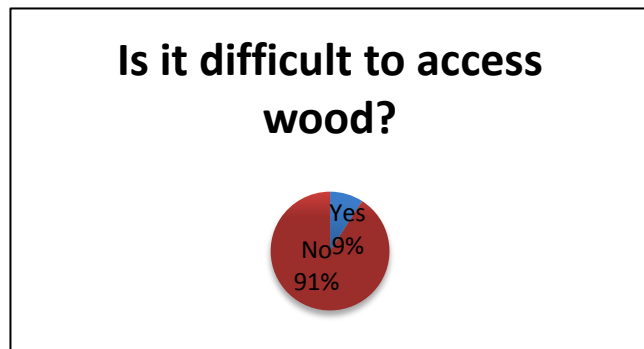
Every respondents that indicated "land" as the most important resource explained that they used it to cultivate some sort of food and that they bought their land from "a person" outside their family or the government. It is interesting that so many of those that listed "wood" as an important resource said that they got it from their farm (54%),

however, of those that listed land as an important resource, none of them indicated that they used the land to grow trees. This leads me to think that many of the mothers that said they got wood from their farms were being deceitful. After some further investigating, my translator explained that she agreed with this theory (Christina, pers. comm., 2014).

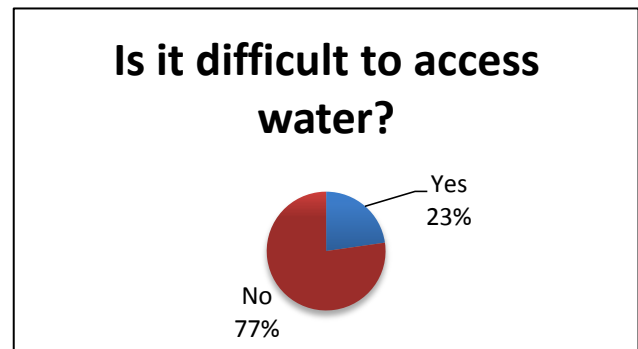
Outside the discussion on the amount, source, and uses of each of the resources mentioned, their relative availabilities and accessibilities must be addressed.



**Figure 16:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.



**Figure 17:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.



**Figure 18:** Data was collected from randomly selected mothers ( $n_2=50$ ) during semi-structured interviews in Sagara, Tanzania. April 2014.

Figure 16 indicates, overall, what mothers indicated about the accessibility of resources. As is apparent by the figure, a large majority of mothers indicated that "no", resources are not difficult to access. This sentiment was found across the board for each resource. 91% of mother indicated wood was not difficult to access, while 77% of mothers indicated water water was not difficult to access. 100% of mothers indicated that food was not difficult to access, while only 33% said land was not difficult to access. The explanation behind this last response was mostly due to the monetary challenges in buying land, not based on its abundance.

Additionally, it should be noted that when water was indicated as difficult to access it had little to do with scarcity. During my study, I interviewed mothers only in the hamlets

of Handei and Kwemashai. Due to the former's close proximity to the river, their accessibility to water was relatively high, although many mothers did indicate a need for the installation of more taps and even indoor plumbing. When I interviewed mothers in Kwemashai, a hamlet much farther from the river, I noticed many more respondents indicating difficulty with access to water. Here, many mothers explained that there was one tap for the entire hamlet and that not only was it a far walk, but since it was shared between so many families it, at times, ran dry. The issue with a lack of taps was echoed during my key informant interviews as well. When asked to discuss the availability of water, the primary school teacher explained that the government should be building more taps, a solution that was often brought up amongst the mothers I interviewed as well. When speaking to the government official, however, he said that they were currently spending 100,000 TSH on a project to repair and install more taps throughout Sagara.

Overall, these trends seem to show that wood, water, land, and food are readily available in Sagara. However, during my focal groups with mothers I found that not to be the case. When asked generational questions, such as "did your father and grandfather have more natural resources than you?" or "do you worry about your children having enough natural resources in the future?" all respondents expressed a decline in the availability of resources. Of the three different groups interviewed, they all explained that previously there was more natural resources and that they are, indeed, worried about their children's access to resources in the future. When pressed as to why this is occurring, many cited population growth, a viable factor. One mother suggested an increase in the prevalence of birth control in Sagara may be a way to remedy this option. Additionally, all respondents, when asked if there are enough resources for those in Sagara now, responded with "no". This point is interesting because it contrasts so starkly to the information I gathered in my semi-structured interviews where, overall, 84% of mothers indicated it was not difficult to access resources (Figure 16). I feel that, the focal groups, in taking a sense of personal investigation out of the equation, allowed for more truthful answers.

In order to investigate how aware the "actors" or "teachers of the environment" were in the perceptions of Sagarans, I asked each of them the same questions concerning resource access. Both the government official and the primary school teacher agreed that, "no", there is not enough access to resources in Sagara, while the TFCG representative responded by saying "yes", there are enough resources citing the fact that most Sagarans

are now planting more trees on their farms. These answers are truly indicative of how “in touch” each of these actors are with the issues of resource scarcity in Sagara. While the government official and the primary school teacher both understood the complications felt by Sagarans, TFCG was either unaware or unwilling to admit these challenges. I feel this is in part due to the fact that TFCG is based out of Dar es Salaam and, although they pay frequent visits to the Sagaran community, they, by no means live and work there on a daily basis as do the government official and the primary school teacher. Additionally, TFCG’s entire work revolves around the challenges of resource use and conservation in Sagara, therefore, they may be reluctant to admit that their initiatives may not be extremely successful and are not entirely beneficial to Sagarans.

Overall, a trend noticed within my data is that many mothers struggled with their need for resources now and conserving resources for the future. In all of my three focal groups, the mothers indicated that they thought the government should instate even more laws to protect the forest. However, all groups also explained that they needed more access to the resources within the forest. This contradiction was apparent throughout my entire study and further emphasizes the Sagaran community’s reliance on resources as it becomes clear that there is a drastic need for natural resources now, but there remains a great worry for, and hope for laws to reduce, the degradation of the environment for the future.

## LIMITATIONS AND RECOMMENDATIONS

I have identified several biases that I was aware of during the data collection period of my study. Firstly, I feel that many of the mothers I interviewed were apprehensive to tell me the truth of their resource conservation habits. This is because they have been accustomed to those asking questions about the environment to be associated with TFCG or the government. If Sagarans are extracting resources outside the bylaws put into place, they must pay a 50,000 TSH fine (Sagara Village Chairman, pers. com., 2014). This law suggests that Sagarans may be hesitant to divulge information to me as they may associate me with others that are in a position of disciplinary power (mentioned previously). I combated this bias by attempting to take blame off the individual with focal groups. Additionally, I asked my translator for further information in order to verify the truth of the statements given by mothers.

A second bias I discovered was the fact that my translator does not speak fluent English. I was able to work around this by translating my questions into Swahili before the interviews. I also used Mr. Kiparu and Oscar as additional resources for help with more difficult translations.

Additionally, there is no direct translation for “environmentalism” in Swahili. Therefore, when referring to the word “environmentalism” during interviews, the word *mazingira*, meaning literally “environment” was used. Although this greatly affected the data collected within my study, the fact that there is no direct translation to “environmentalism” lends evidence to the fact that the concept itself is much less developed in Sagara than in the Western world. This bias was worked around by asking other conceptual questions relating to the environment itself.

Another bias to consider, would be that there were many interruptions and interferences with my interview. Many children, fathers, or other mothers I was not interviewing at the time would take it upon themselves to answer my question before my interviewee had a chance. This greatly affected my respondents answers as they would typically repeat what had just been said. My translator, would also, at times, give examples of natural resources in order to give a better understanding to the mothers interviewed. However, when then asked “which resource(s) do you think is/are the most important?”

they would, once again, repeat the examples given to them. I attempted to discourage interference as much as possible during the interview period.

Lastly, my study was conducted with only 13 days of data collection. Due to this relatively short period of time, the data collected may not have been as completely accurate or representative as hoped. Possibly if I had conducted my study in the dry season, I would have found more of a concentration on water conservation than I did in my time in Sagara. If I had had more time, I would have also been able to venture to all the different hamlets of Sagara, rather than just Handei and Kwemashai, which would have given me more representative data.

In the future, I think it would be interesting to compare a village like Sagara, where there has been much of an outside, NGO influence from TFCG, to somewhere that has remained relatively untouched by more Western factors. Sagara's long-standing relationship with TFCG and their proximity to a rainforest that boasts extremely high biodiversity has presented them with a focus surrounding the environment that may not be representative of most Tanzanians. In this way, it would be interesting to see perceptions of "environmentalism" in different landscapes and with less outside influence by NGOs and other, more Westernized institutions.

## CONCLUSION

This study was conducted in order to better understand the perceptions of “environmentalism” in Sagara in comparison to a Western definition and how patterns of resource use in Sagara fit into these two definitions. I found definitions of “environmentalism” in Sagara to be extremely resource conservation focused. This can be viewed in comparison to a Western definition which is more multi-faceted and includes elements unconcerned with the need for resources, but merely with the beauty and sublimity of nature. This concentration on resources is so apparent because there is such a reliance on them for daily Sagaran life. I found the patterns of resource use in Sagara, however, to often be in conflict with the teachings mothers said they had learned about resource conservation. That is to say, the formal teachers of conservation, all influenced by TFCG, exhibited successful knowledge transfer to the people of Sagara, however, this knowledge was not actualized in the actions of Sagarans. Overall, I found there to be a large conflict regarding resource use and conservation within the mothers interviewed. All exhibited a need for resources now and in the future and therefore were unable to definitively say whether there should be more or less protection of local resources.

In order to apply this study to a broader context, I would like to bring up the question of whether Sagaran “environmentalism” is *really* “environmentalism” if it only holds a resource conservation element. However, this is to say that “environmentalism” is defined solely by the Western definition, which is very much a culturally imperialistic statement. It remains that if resources are being conserved semi-successfully within Sagara, does it really matter what their definition of “environmentalism” is? I would say that most in the Western world have a better understanding of “environmentalism”, but each day contribute much more to the degradation of the environment with their carbon footprint than Sagarans do by cutting down a few trees for firewood.

Lastly, this study verifies the importance of understanding another culture’s conceptualizations. As TFCG seems to be more unaware of the problems Sagarans face with access to resources, they are unable to remedy the problems as well. This can be seen in the context of macro-aid, where harmful side effects are often seen in development projects that are unsuccessful in addressing issues on a local level, but instead attempt, and fail, to combat them on a larger, more generalized scale.



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## **APPENDIX I**

Hello my name is Emma Chapman. I am a student studying the environment. I would like to ask you a few questions. Your name will not be used in the final version of my study and you can stop answering these questions at any time. You will be compensated with 1,000 TSH for your answers. I may use a voice recorder during this interview. Do you understand and agree to all of this?

- 1) What is your name?
- 2) How many children do you have?
- 3) How many people live in your household?
- 4) What is the highest level of education you have completed?
- 5) What is your occupation?
- 6) Where were you born and raised?
- 7) What is “environmentalism” to you?
- 8) Do you think “environmentalism” is important?
  - a) If so, why?
- 9) Who has taught you about the environment?
  - a) What have they said?

## **APPENDIX II**

Naitwa Emma Chapman. Mimi ni mwanafunzi, nasoma mazingira. Nataka kuuliza maswali kadhaa. Jina lako si kutumika katika toleo la mwisho la utafiti wangu na unaweza kuacha kujibu maswali haya wakati wowote. Utaluwa fidia kwa shilingi elfu moja kwa ajili ya majibu yako. Mimi wanaweza kutumia kinas sauti wakati wa mahojiano hii. Je, kuelewa na kukubaliana na yote hayo?

- 1) Unaitwa nani?
- 2) Una watoto ngapi?
- 3) Watu wangapi wanaishi nyumbani kwako?
- 4) Ni kiwango cha juu cha elimu ya kumaliza nini?
- 5) Una kazi gani?
- 6) Ambapo walikuwa wewe kuzaliwa na kukulia?
- 7) Utunzaji wa mazingira ni nini?
- 8) Utunzaji wa mazingira una manufaa/faido gani kwako?
- 9) Nani alikufundisha kuhusu mazingira?
  - a) Walikuambia nini?

### **APPENDIX III**

Hello my name is Emma Chapman. I am a student studying the environment. I would like to ask you a few questions. Your name will not be used in the final version of my study and you can stop answering these questions at any time. You will be compensated with 1,000 TSH for your answers. I may use a voice recorder during this interview. Do you understand and agree to all of this?

- 1) What is your name?
- 2) How many children do you have?
- 3) How many people live in your household?
- 4) What is the highest level of education you have completed?
- 5) What is your occupation?
- 6) Where were you born and raised?
- 7) Do you think resources are important?
- 8) Which resource(s) do you think are the most important?
  - a) What do you use it for?
  - b) Where do you get it?
  - c) How much does your household use in one week?
  - d) In your lifetime, has it become more difficult to access these resources?
    - i) If so, why?
    - ii) How can this be resolved?

### **APPENDIX IV**

Naitwa Emma Chapman. Mimi ni mwanafunzi, nasoma mazingira. Nataka kuuliza maswali kadhaa. Jina lako si kutumika katika toleo la mwisho la utafiti wangu na unaweza kuacha kujibu maswali haya wakati wowote. Utaluwa fidia kwa shilingi elfu moja kwa ajili ya majibu yako. Mimi wanaweza kutumia kinasauti wakati wa mahojiano hii. Je, kuelewa na kukubaliana na yote hayo?

- 1) Unaitwa nani?
- 2) Una watoto ngapi?
- 3) Watu wangapi wanaishi nyumbani kwako?
- 4) Ni kiwango cha juu cha elimu ya kumaliza nini?
- 5) Una kazi gani?
- 6) Ambapo walikuwa wewe kuzaliwa na kukulia?
- 7) Unafikiri maliasili ni muhimu?
- 8) Maliasili gani/ipi ni muhimu sana/zaidi?
  - a) Je, unaitumia kwa ajili gani?
  - b) Je, unapata wapi?
  - c) Ni kaisi gani unatumia katika familia yako kwa wieki?
  - d) Katika maisha yako, ina maliasili hii ya asili kuwa haba zaidi?
    - i) Kwa nini?
    - ii) Unawezaje kutatua tatizo hili?

## **APPENDIX V**

Hello my name is Emma Chapman. I am a student studying the environment. I would like to ask you a few questions. Your name will not be used in the final version of my study and you can stop answering these questions at any time. You will be compensated with 1,000 TSH for your answers. I may use a voice recorder during this interview. Do you understand and agree to all of this?

- 1) Who had easier access to natural resources: you now, or your parents then?
- 2) Are you more worried about finding natural resources now or for your children finding natural resources?
- 3) Are there enough natural resources for the people of Sagara right now?
- 4) "Teachers of the environment" according to mamas: school, government, TFCG, family. Which of these people explains issues of the environment the best?
- 5) Do you think that the government is protecting the environment well?
- 6) Do you think the government is allowing enough access to resources?
- 7) Do you think the rain forest is beautiful?

## **APPENDIX VI**

Naitwa Emma Chapman. Mimi ni mwanafunzi, nasoma mazingira. Nataka kuuliza maswali kadhaa. Jina lako si kutumika katika toleo la mwisho la utafiti wangu na unaweza kuacha kujibu maswali haya wakati wowote. Utaluwa fidia kwa shilingi elfu moja kwa ajili ya majibu yako. Mimi wanaweza kutumia kinasa sauti wakati wa mahojiano hii. Je, kuelewa na kukubaliana na yote hayo?

- 1) Unafikiri mailiasili sasa (mazingira) ni mazuri ukiringanisha sasa na zamani (wakati wa Baba, Babu)?
- 2) Unafikiri kizazi kijacho kitakuwa na mazingira mazuri na ya kutosha?
- 3) Watu Sagara wana maliasili yakutosha sasa?
- 4) Walimu wa mazingira ni shule, serikali, tasisi shirika (TFCG), na familia. Watu hawa wanaelezea nini zaidi kuhusu mazingira?
- 5) Unafikiri serikali inalinda mazingira vizuri?
- 6) Unafikiri serikali inaruhusu kutumia mazingira?
- 7) Unafikiri misitu ni mzuri?

## **APPENDIX VII**

Hello my name is Emma Chapman. I am a student studying the environment. I would like to ask you a few questions. Your name will not be used in the final version of my study and you can stop answering these questions at any time. You will be compensated with 1,000 TSH for your answers. I may use a voice recorder during this interview. Do you understand and agree to all of this?

- 1) What is your name?
- 2) What is the highest level of education you have completed?
- 3) Where were you born and raised?
- 4) What duties does your job consist of?
- 5) What does your organization do concerning the environment?
- 6) Who has taught you about the environment?
  - a) What have they said?
- 7) What is “environmentalism” to you?
- 8) Do you think “environmentalism” is important?
  - a) If so, why?
- 9) Which resource(s) do you think are the most important in Sagara?
  - a) What is it used for?
  - b) Where does it come from?
  - c) Is it becoming more difficult to access this resource?
    - i) If so, why?
    - ii) How can this be resolved?

## **APPENDIX VIII**

Naitwa Emma Chapman. Mimi ni mwanafunzi, nasoma mazingira. Nataka kuuliza maswali kadhaa. Jina lako si kutumika katika toleo la mwisho la utafiti wangu na unaweza kuacha kujibu maswali haya wakati wowote. Utaluwa fidia kwa shilingi elfu moja kwa ajili ya majibu yako. Mimi wanaweza kutumia kinasauti wakati wa mahojiano hii. Je, kuelewa na kukubaliana na yote hayo?

- 1) Unaitwa nani?
- 2) Ni kiwango cha juu cha elimu ya kumaliza nini?
- 3) Ambapo walikuwa wewe kuzaliwa na kukulia?
- 4) Wajibwako ni nini?
- 5) Shule/serikal/TFCG ina fanya nini kuhusu mazingira?
- 6) Nani alikufundisha kuhusu mazingira?
  - a) Walikuambia nini?
- 7) Utunzaji wa mazingira ni nini?
- 8) Utunzaji wa mazingira una manufaa/faido gani kwako?
- 9) Maliasili gani/ipi ni muhimu sana/zaidi kwa watu wa Sagara?
  - a) Je, wanaitumia kwa ajili gani?
  - b) Je, wanapata wapi?
  - c) Hakuwa tatizo kwa Sagara kupata (maliasili)?
    - i) Kwa nini?
    - ii) Unawezaje kutatua tatizo hili?