



Economic Sustainability of a Community Water System in Southern Haiti

02.18.19

Michele Girard
Master of Development Practice Candidate
Humphrey School of Public Affairs
University of Minnesota

Table of Contents

Executive Summary.....	2
Problem Statement.....	2
Opportunity Questions.....	3
Project History and Timeline.....	3
Phase 1: Surveying.....	3
Phase 2: Project Implementation.....	4
Community Garden.....	4
Water Delivery System.....	6
Projected Fund Balance.....	7
Sustainability Model.....	7
Theory of Change and Logic Model.....	8
Team Description.....	9
Appendix	
Survey.....	10
Budget and Additional Funding Sources.....	16
Consent Form for Survey Participants.....	17
Project Photos.....	19

Executive Summary

Economic sustainability remains a systemic problem amongst NGOs (non-governmental organizations) who provide necessary services to communities. Haiti has more NGOs per capita than any other country in the world.¹ Many NGOs in Haiti are run by non-natives and although the work they do is very valuable, lack of community involvement and sustainability are deep-rooted problems. Many NGOs find themselves in the cyclical problem of trying to provide services at a low cost or no cost to those in need whilst struggling to maintain an income that allows them to survive. Due to this pervasive issue NGOs require donations that are often intermittent and require staff to devote long hours to fundraising and not servicing the community.

Tree of Hope Haiti (TOHH) is unique as its programs are responsive to the needs of the community. Its founder, Gama Parayson grew-up in the community that he now serves. Since the organization's founding in 2015 TOHH has worked tirelessly to provide water for the residents of Grand-Goâve, Haiti. The average individual is estimated to walk 3 to 5 miles to collect water at TOHH.²

The goal of this project is to implement an income generating program to allow TOHH to continue to run the water system for decades to come. Although one-time contributions are very valuable, they are unsustainable for the organization to rely on. Even though recurring donations allow for a more steady stream of investment, the community at large does not have ownership over the water project. In order for TOHH project to become a successful and permanent part of the community, the community itself must take ownership of it. This project aims to generate an income for TOHH by surveying the community and implementing a program that will allow TOHH to continue to provide water to a community that is invested in its own success. This project has two specific goals: 1. Surveying the community. 2. The implementation of an income generating program (either a water delivery system or community garden as supported by survey). The more likely project to be implemented is the community garden based on initial conversations with TOHH.

Problem Statement

“Less than half of Haitians in rural areas have access to water. People in the Haitian countryside are generally served through piped water systems with standpipes or water points with hand pumps, however a substantial portion of these systems are not operational, because of a lack of funds for operation and maintenance.”³ Lack of sustainability is a massive issue within Haitian water projects. Communities have built water systems, those provide them with water for a short time, then the system

¹ <https://nacla.org/news/ngos-and-business-poverty-haiti>

² <http://treeofhopehaiti.org/about-us/our-projects/>

³ <http://www.worldbank.org/en/news/feature/2015/05/27/five-things-you-need-to-know-about-water-in-haiti>

fails or shuts down and the communities are once again placed into limbo. This volatility places tremendous stress on communities hindering further development without this necessary resource. This project aims to make TOHH's water system an anchor for the community by generating income from the community. This income will both ensure the longevity of the organization but also empower the community.

Opportunity Questions

What social and economic mechanisms can be put in place to empower the local community?

How does this project's approach enhance economic sustainability for Tree of Hope Haiti and the community?

Project History and Proposed Project Timeline

In 2015, I was fortunate to win the Kathryn W. Davis Projects for Peace grant.⁴ I partnered with TOHH and used the \$10,000 to construct a water tower system. The system currently serves 250-400 people per day and pumps 2,000 gallons per day to be made available to the public. The water system's use has increased and TOHH faces mounting material replacement costs as more individuals use the system.

Water pumps and accompanying equipment are subject to wear and failure based on hours of operation, which can take precious resources and time to replace and leaves the system lying dormant unable to supply water. Although TOHH does not have exact data, the traffic to the site has increased over the past three years as the organization's popularity has grown.

The timeline for this project are as follows. In August of 2019 the surveying would be conducted. Through the Fall of 2019 the data would be cleaned, organized and presented to the TOHH. I have a faculty member willing to assist in the compiling and cleaning process. Once the data is presentable I will meet with TOHH in the fall of 2019 to discuss the implementation phase of the project. Throughout those months we will hone our program, gather the necessary supplies, and reach out to community stakeholders involved in its implementation. In the winter of 2019/2020 I would travel once again to the site to aid in the implementation of the project.

Phase 1: Surveying

The current data that TOHH uses is a very rough estimate. Although TOHH knows the water system intimately, there has not been data collection about the individuals that use it. The best that can be

⁴ a{{u@μ . . °XNfbyuxnfZV(y_nxuZMWZ°nx' μuxnfZV(yμuxnfZV(yμ nXZμBÜäB'

done is estimating the impact of the water system. The lack of data is problematic as it leaves both TOHH and the community vulnerable. This data is imperative for many reasons but the two that are paramount are: TOHH needs to understand the water needs of the community in order to better serve them, and the community will provide feedback as to the most realistic income generating program.

The survey was developed through conducting a literature review of similar projects in Haiti as well as borrowing from DHS (Demographic and Health Surveys). The questions fall into two main categories: basic demographic and practice information, and feasibility of income generators. The demographic questions ask about transportation time to the water site, the age and gender of the collectors, the quantity of water used daily, and the activities it is used for. The practice questions propose two income generating ideas and ask the community to provide feedback on each one.⁵

Surveying will take place on TOHH's property and the sample will be individuals who visit the water collection site. The surveying will take place over seven days in the August of 2019 with the goal of surveying two hundred individuals. Two local surveyors will be hired, one male and one female to provide community members with options as to create a safe environment. Surveyors will be trained by me over the course of two days prior to surveying. Neither myself nor the TOHH staff will be present during the surveying to reduce bias. However, at the beginning and end of each day the surveyors and myself will meet to go over questions, problems, and observations from the day. Children under the age of eight will not be accepted to complete the survey, but older children will be asked to participate as they often conduct water collection. This surveying requires asking information from vulnerable populations and thus requires the utmost attention to research ethics. This project will attain the Institutional Review Board's (IRB) approval. There are faculty members in place to advice on this matter.

Phase 2: Program Implementation

Over the past four years TOHH and myself have been developing ideas on how to make the NGO more self-reliant. The two ideas that were developed below deemed by myself and TOHH to be the most realistic in terms of time implementation, available resources, and scalability. The questions in the survey were specifically tailored to asses which project the community would support. Although frequent conversations about the ideas have occurred with community members it is paramount that surveying occur to obtain a larger feedback.

Community Garden

The first project that is feasible to implement is a community garden supported by the water supply where TOHH sells produce. TOHH is poised to do this successfully for several reasons. First, the location of the NGO is situated in an area between the nearest market and beginning of the mountains.

⁵ @xfZt'yNk ujZ'MfNqNjZ b' MruZI Xb.:

TOHH sees heavy foot traffic daily due to individuals collecting water as well as those who live in the highlands passing by to continue into town. Secondly, TOHH has the available space for a plot as the organization owns an acre of land that the main buildings reside upon as well as for the water system. If in scaling up space were to become an issue “tire gardens” could be added to different locales to increase output.⁶ Thirdly, the inputs for the garden are readily accessible. One of the rarest inputs and most expensive inputs, water is readily available on-site. Skilled labor is also readily available as there are residents living close to the area that could be paid to maintain the garden as well as sell the produce daily. Other inputs such as gardening tools, seeds, and fertilizers are available through the organization’s local suppliers or on-site already. Lastly, the garden serves a dual purpose as it can reduce the cost of TOHH’s staff meals by using produce grown on site as traveling and buying from the market often require time and additional funds.

For this project it is imperative that TOHH has a partner to consult with on matters of implementation and gardening knowledge. SeedMoney, a non-profit aiding international community gardeners will play an advisory role in the implementation of the garden. The organization specializes in adapting gardening plans to varying climates, soil fertility, budgets, and in addition provides training and educational materials for start-up projects. SeedMoney coupled with local agricultural knowledge will ensure that the garden project commences successfully. Another partner for the project is the University of Minnesota itself, with a rich agricultural history the faculty are experienced in providing an advisory role. Pricing the produce is also important to the success of the garden. Using TOHH’s network, prices for similar produce will be examined as well as identifying holes in the market for new produce, especially water intensive or sensitive crops. It’s important that prices provided by TOHH do not undercut local merchants and distort the market but rather remain competitive. Through this analysis TOHH and myself will be able to price produce with an acceptable margin for profit based on local market prices and demand. This flexible model will allow for adjustment should input prices rise, changing supply or demand, or other catalysts.

The most feasible crops to grow in the climate are beets, carrots, collards, peppers and turnips. Other options are available but must be assessed to ensure their heartiness. The garden would start with a few of the easiest plants to grow and expand in both size and variety as profits and skills increase. Careful attention will be paid to scaling-up as the organization has to ensure that a solid customer base is in place. The goal would be to have the garden break-even in twenty-four months, paying back the initial cash infusion that the grant money provided. Twelve months later a profit would hope to be gained as to begin a small income for TOHH so the money can be used to replace water system parts. Through careful consideration of budget, inputs, location, pricing, crop selection, and local training and education, the community garden is a viable income generating option for TOHH.

⁶ “Tire gardens” in Haiti are popular due to their size and ease of set-up. Plastic is placed into the hollowed-out tire and can be used as a nursery or for small bunches of plants with minimal upkeep.

Water Delivery System

Water delivery is a sensitive topic in Haiti, and has come under scrutiny in the past decade. In 2009 National Water and Sanitation Authority (*Direction Nationale de l'Eau Potable et de l'Assainissement*, DINEPA) was created as a governmental organization that controls the national water supply.⁷ Since 2009 Haiti has experienced the privatization of water, which results in high prices for citizens. DINEPA has charged citizens up to \$1.75 a month for water, a high price in comparison to living wages.⁸

The goal of the water delivery system is to save individuals time by getting their water delivered to certain “drop-points” around the community. In the survey individuals are asked three questions that provide critical information to assess this project. First, the survey asks willingness to pay questions which allows for estimation of how much people value the water on a monthly basis. Some discount of this averaged value would allow for a good starting point as to how much to charge individuals each month for water delivery. Secondly, the survey asks individuals to point to the general location of their residence. This information will allow for the formation of “drop-points” that will service the most people and make the delivery system more efficient. Lastly, the survey asks how much water individuals use per day. This allows for an average estimate of how much water would need to be delivered per household and thus the project is able to estimate transportation needs. The water delivery, like the idea for the community garden would start with a small number of households and be able to grow with demand.

Projected Fund Balance⁹

⁷ <https://haitiliberte.com/water-for-profit-haitis-thirsty-season/>

⁸ <https://haitiliberte.com/water-for-profit-neocolonialism-as-cannibalism/>

⁹ This is for either the community garden or water delivery system.

	Funding and/or Donations + Fund Balance*	Labor Cost (annual) (number of workers)	Maintenance and Supplies (annual)	Revenue	Fund Balance
Year 1	\$2,000	(\$350) (1)	(\$1500)	\$400	\$550
Year 2	\$800*	(\$350) (1)	(\$300)	\$800	\$1500
Year 3	\$300*	(\$700) (2)	(\$200)	\$1200	\$2100
Year 4	\$100*	(\$700) (2)	(\$200)	\$1900	\$3200

*TOHH would continue to allocate donations to this project.

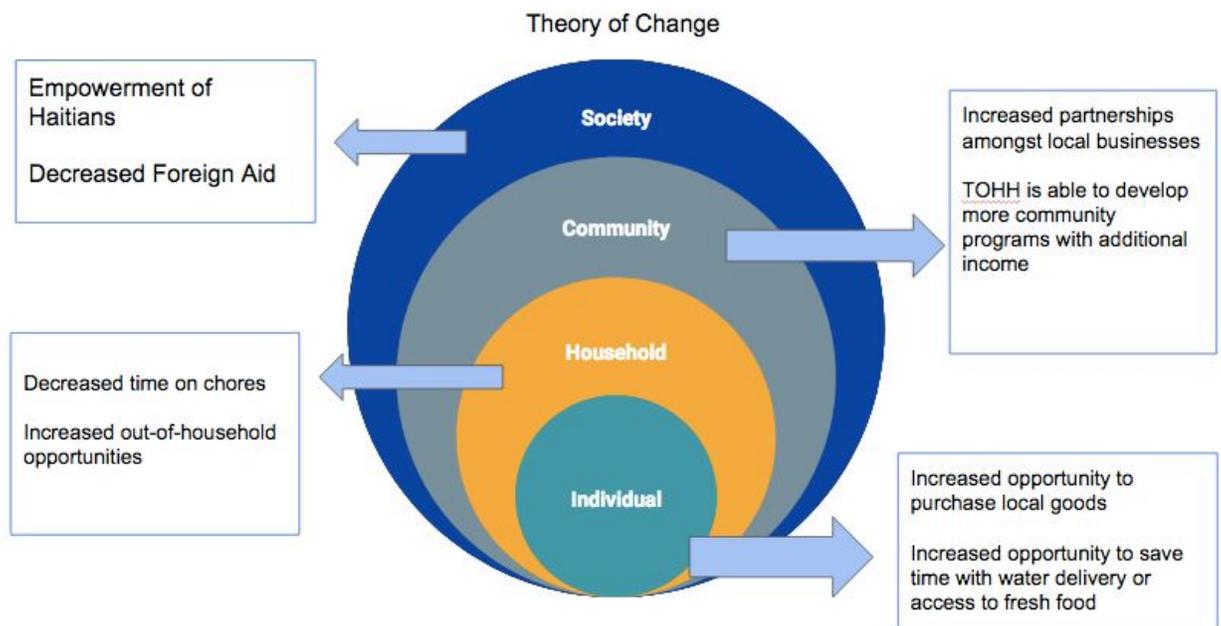
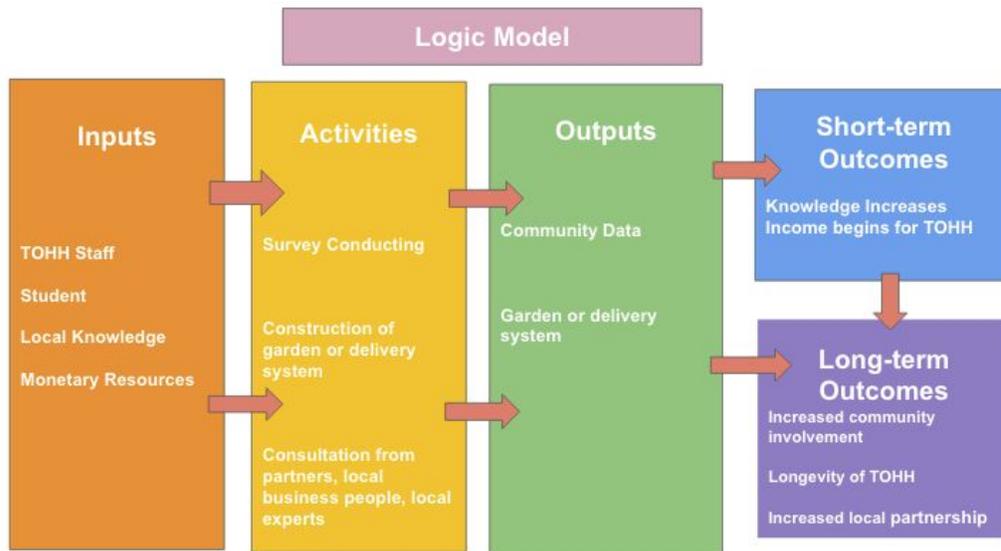
Sustainability Model

Throughout this project it is imperative that economic sustainability not only be an end result of the project but is also an important factor throughout the implementation of the project. The main way that the project will have economic sustainability throughout the implementation process is by utilizing local products, labor, and ideas. In every possible situation where a product or job needs to be completed the project will use local resources. This covers every aspect from the employment of surveyors to the gardening equipment. In the construction of the original water system TOHH and myself employed local laborers and used all locally sourced construction materials. This next phase of the project will be no different.

Although this principal may seem rudimentary it is revolutionary. Large NGOs that are run by non-natives often purchase or use inputs that are internationally produced.¹⁰ By not utilizing the local economy for goods and services, Haitian business owners and entrepreneurs are not empowered. Goods produced domestically are often unable to compete with international goods given to NGOs for free or at a drastically reduced cost. The budget proposal reflects this effort by giving a cushion on certain items in order to ensure that goods and services can be purchased locally (although will still be affordable due to the exchange rate). Purchasing and employing locally will also generate new relationships and strengthen existing ones for TOHH to utilize for work.

¹⁰ a{{uy@μ . . ^unfZx{tb Vnx' μ

Theory of Change and Logic Model



Team Description

Angela and Gama Parayson- Founders of Tree of Hope Haiti



Gama Parayson grew up in Leogane, Haiti where he was raised by his grandmother as one of nine children in the household. Gama attended the New Missions Christian School where he learned to speak English. Gama and his wife Angela moved to Grand-Goâve, Haiti after Gama was offered a position working for an orphanage as the Facilities Director and thus began his career in nonprofit management. Gama left the orphanage to run Tree of Hope Haiti full-time.

Michele Girard- Master of Development Practice Candidate



Michele made her first trip to Haiti in 2014 volunteering for the orphanage that Gama worked for. It was during this first meeting that Gama shared his plans to start his own organization and Michele was eager to work with a local director. In 2015, having secured grant funding from the Davis Foundation, Michele traveled to Grand-Goâve, Haiti once again to build the water tower system . Michele is currently pursuing a Master of Development Practice Degree at the University of Minnesota. She would like to study the intersection of data collection and community empowerment. She plans to pursue a doctoral degree in Development Studies.

àÈ BcbÐ[Á
&È DU_cbbYb#Ö[} ¢Á } [, Á
Á

HÈ ?Unici ` _UXYg]XY dci `dYmY`&[ci X'a k U dci `nc`g,,j]U_`X`c`bUb`HfYY`cZ<cdY`
<U]H]3EY [`|àÁ[`|ÁQ` `^@|àÁ^Á] q]q * Á Á æ ÁÁ [`|à^ÁÁ [] ¢Á Á^Á@Á æ|ÁÁ
V|^ÁÁ ÁP [] ^ÁP æÁÁ
æÈ K]#^Á
àÈ BcbÐ[Á
&È DU_cbbYb#Ö[} ¢Á } [, Á
Á

I È GUgYd][k c` _Ub]H`dUa k U dci ` _Unici ` _UXYg]XY dci `dYmY` dci `g,,j]U_`X`c`bUb`
HfYY`cZ<cdY`<U]H]3EY @æÁ Á@Áæ*^ÁÁ [`] ¢Á|Á [] ¢Á@æÁ [`|ÁQ` `^@|àÁ [`|àÁ
à^Á] q]q * Á Á æ Á Á^Á@Á æ|ÁÁ V|^ÁÁ ÁP [] ^ÁP æÁÁ
æÈ G` a `UUbÐ [} Á Á [] ^ÁÁ ` ` ` ` Á
àÈ Á [`|à^Á
Á

Í È G]HfYY`cZ<cdY`<U]H]H` [Yb`dci `Z,`ncb`g]gh,a ``]j fYncb`X`c`H`U`ci `dYmY` dci ``]3#ÁÁ
V|^ÁÁ ÁP [] ^ÁP æÁÁ |^ÁÁ Á [ÁÁ æ |ÁÁ|q^|`Á^`c` { Á [`|àÁ [`] Á æ Á |ÁÁ
æÈ K]E^Á
àÈ BcbÐ[Á

Î È G]HfYY`cZ<cdY`<U]H]j Ubb`Zk]U_`Y [ja `H`U`ci ` _cbg]XYfY`UW H`a Ub`Y`ci `bUb`a Yb`
nc3EÁ V|^ÁÁ ÁP [] ^ÁP æÁÁ [|àÁ` æ ÁÁ áÁÁ^`^ÁÁ|`Á [`|àÁ [`] Á } • æ|ÁÁ`^`q * Á [`|Á [`] áÁ
+ [{ Á@ { ÁÁ
æÈ K]E^Á
àÈ BcbÐ[Á
Á

Ï È c`nci `XYWXY`k \ Uhnci f \ ci g\ c`X`Vi ng3`
æÈ K]E^Á
àÈ BcbÐ[Á

Á
Ì È]_chY`ci `k Ybb`Zk]U_`Y [ja `ci `U]EY @|^ÁÁ [Á [`Á^Á [`|ÁÁ` æ ÁÁ áÁÁ^`^ÁÁ|`ÁÁ
æÈ : Uba]a `Ud [fUbX]E^ÁÁ q`Á [, • Á@ { Á
àÈ A k Yb`UW H`nc`bUb`ncb`a UW YÁÁ`^Á@ { Á [{ ÁÁ æ|ÁÁ
&È Mcb`nUba]cgk U`ncb`a Uba `ZUba]Ud [fUbX]nc#OÁÁ } áÁ|ÁÁ q`Á Á { à|Á [, • Á
@ { Á

d. Lôt, tanpri presize/Other, please specify: _____

Á
Ï È HUbdf]`cb`Y`Xk ,,hgci ` _chY`U`gci ` _Uh`Y`nc [fU] `U_`chY`ci `Ud`j]j `U`#U|^æ^Á [q ¢Á Á@Á
[{ æÁ } Á } Á@Á æ Á @|^Á [`] ÁÁ
Á
Á

J"Á]`XYZ]ci `Z,`ZUg`U`,,`k`Ud`_c`Y`hY`X`c3#Y @æ&@æ|^}*^•Á[Á[~ Áæ&^Á @} Á[~ Áæ^Á
&[|^&cã * Á ææ!ÑÁ

Á

Á

A,,g]dci h,hci `Ud`dfUb`gcbXU^U`E\@æ \ Á[~ Á[!Áæã * Á@Á~!ç^`ÁÁ

Á

Bci `j f,,a Ub`UdfYgmY`HUb`U`Y`ci `hY`dUgY`U`bci ``HUbdf]`U`gYdhY`gU`UVU`bUb`gUj`cb`_`a`
ncb`ZUgcb`dci ``]X]ci `a ,,g]`EY ^Á^æ[|^æ]|^&ææ^Á@Áã ^Á@æÁ[~ Á@æ^Á]^} óã ã@Á•ÁÁ
Ú|^æ^Áæ&^] ó@ÁãæÁ-Á[æ[Áæ Áæ æ Á-Á æã * Á@æ \ Á[~ Á

Budget and Additional Funding Sources

The project will also seek additional funding sources. The other funds being applied for are through the University of Minnesota's Institute on the Environment Mini Grants. These grants offer \$3,000 to spur projects that concern environmental projects at the University of Minnesota (deadline is March of this year). Additional Funding could facilitate acceleration of the water distribution project.

Item	Cost	Number of Units	Total
Surveyor Salary and Food	\$75	2	\$150
Student Housing, Transportation, and Food	\$575	2	\$1,150
Student Flight	\$800	2	\$1,600
Misc. Research Materials	\$200	1	\$200
Survey Reward/Bars of Soap	.50	250	\$250
Project Implementation	\$2,000	1	\$2,000
Total			\$5,350

Consent Form for Survey Participants

CONSENT FORM

Economic Sustainability of a Community Water System in Southern Haiti
In Partnership with: Tree of Hope Haiti

You are invited to participate in a research study about water projects economic sustainability in Haiti. You were asked to participate in this survey because you receive water from Tree of Hope Haiti. We ask that you listen to this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Michele Girard, a Masters student in Development Practice at the University of Minnesota. It is supported by the University's Institute on the Environment through an internal grant at the University of Minnesota.

Background Information

À

The purpose of this study is to understand basic information about how much water is used everyday and ask you basic questions about what you use the water for and how long it takes you to travel to get here. The survey will also ask questions about how much you value the water as well as possible income generators for Tree of Hope Haiti.

Risks and Benefits of being in the Study

À

A risk of participating in this study may arise if others take issue with your responses. This risk is minimal. Responses are confidential. The only identifying information asked will be your age and your gender. All responses will be recorded in a password-protected computer. The paper that the surveyor records your responses on will be destroyed after they are imputed into the computer. Your name will not be provided to anyone outside the research team and no individual identities will be reported in publications and reports. There is also a risk you may find some questions to be uncomfortable or personal. If you are uncomfortable with any questions, you may choose not to answer them; there is no penalty for choosing not to answer a question. You may stop the survey at any time.

Benefits of participation include increased awareness of how to improve the water system for future use. Broader social benefits of this study include contributing to the development or further economic development programs for Grand-Goâve.

Compensation:

There is no compensation for participation in this study.

Confidentiality:

The records of this study will be kept confidential. All survey responses will be kept confidential. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. Study data will be protected according to current University policy for protection of confidentiality.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the Tree of Hope Haiti or the University of Minnesota. If you don't feel comfortable answering a question, that is entirely fine. We will skip it and move on to the next question.

You do not have to be in the survey, but we hope you will agree to answer the questions since your views are important. The survey will take about 30 minutes. If I ask you any questions you don't want to answer just let me know and I will go on to the next question or you can stop the interview at any time. In case you need more information about the survey please tell me and I will write down the contact information below.

Contacts and Questions:

The researcher conducting this study is: Michele Girard. Supervisors are Dr. Angela Fertig, Humphrey School of Public Affairs. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Michele Girard at marqu510@umn.edu. You may also contact research supervisor Angela Fertig at arfertig@umn.edu with concerns.

Verbal Consent:

_____ I agree to participate in this survey.

_____ I do not agree to participate in this survey.

Surveyor's Initials: _____

