

Clean Water for Life: Gisenyi, Rwanda

Background

During the 1994 genocide in Rwanda, nearly one million lives were lost in less than a hundred days, due to ethnic conflict. Over the past 16 years, the country has been devoted to reconciliation and peace by alleviating ethnic division. In addition to the well-known Hutu and Tutsi tribes in Rwanda, a third ethnic group, the Twa, are an indigenous cultural group who were also persecuted during the genocide. Today, the Twa represent 10% of the country's population and are widely marginalized by the rest of the population who consider them ignorant and uncivilized (Minority Rights Group International, 2010). Although Twa villagers are highly skilled potters, they struggle to earn an income and to maintain a healthy quality of life. The Twa experience severe discrimination and are significantly disadvantaged regarding access to education, healthcare, and land rights.

In Rwanda, the lack of access to safe drinking water is one of the primary reasons behind poverty, hunger, and disease. Life depends on water, and health depends on safe water. Each year more than 3.575 million people die due to unsafe drinking water, according to the World Health Organization. Diarrhea remains the second leading cause of death among children under five years and kills more young children than AIDS, malaria, and measles combined (WHO, 2011). This reveals how essential the access to clean water is for a community. While working with the Twa community in Gisenyi, Rwanda during the past two summers, I have seen how they have been affected by these issues. They must travel a long way to obtain water from a polluted river which causes the children to miss school and the women to forgo work to support their families. The river water is filled with parasites, bacteria, and worms, and as a result, many of the Twa live with water-related diseases. Our *Clean Water for Life* project is committed to obtaining access to clean water for this uniquely cultured community and to assisting them to achieve higher levels of economic well-being, health, and respect.

Objectives

- To increase availability of simple and inexpensive approaches to treat and safely store water at the household level. This will be accomplished by installing bio-sand filters in each of the homes in the Twa community and constructing a concrete rainwater harvest system in a central location for the village.
- To provide health education to the people on water sanitation and instructions on how to maintain the filters and the rainwater system installed.
- To build community by engaging the local people through building their own clean water systems and involving them in the local art project of painting health education murals on the concrete rainwater system.

Project Plan

In the summer of 2012, we plan on implementing the *Clean Water for Life* project over a course of 8-12 weeks in Gisenyi, Rwanda. I will be partnering with Rwanda Sustainable Families, the University of Florida's Center for Arts in Healthcare, and Engineers without Borders. As a team we will connect with the Twa through the local Red Cross. Through our experience with this community for the past two summers, my team and I have developed this project based on the most pressing needs of the Twa. The project will be broken down into two distinct phases: 1. Construction and Health Education and 2. Community Engagement.

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Phase 1: Construction (6-8 weeks)

During the construction phase, we will install 50 bio-sand filters in each of the homes in the Twa community and build a concrete rainwater system for the entire community to provide better access to water. The bio-sand filter system is composed of layers of sand that filtrate and purify water. It has been found that the filter combats the leading causes of death and disease in the developing world by reducing parasites, bacteria, and viruses found in contaminated water. One filter is designed to deliver safer water for a family for more than 10 years. These 50 filters will serve the entire population of the Twa community which is approximately 150 individuals. There are many benefits these filters have such as they are accessible for everyday needs, low-maintenance, low cost, and operated on demand without electricity. As previously noted, the Twa are skilled potters. The filters will be made from their pottery thus utilizing a previously unutilized resource. As a team we will provide the additional necessary content for the filters which includes different grains of sand, gravel, and fixtures for the device. The rainwater system involves three primary components: catchment, conveyance, and a collection device. The catchment device is the surface that captures the rainwater. In this project, the catchment is the rooftop where rainwater falls naturally. Rainwater drains down the slanted roof top to the conveyance instruments, or gutters, at the base of the roof. These gutters transport the water from the rooftop to the collection device, a large cement cistern. The rainwater is then stored in the collection device until its use. The rainwater cistern will be located in a central and safe location for the Twa to access the water source. The construction of the rainwater system will be done by members of the Twa community and designed by McElroy Engineering. Engineers without Borders will also assist in providing local engineers to assist in the design and construction phase. During this phase of the project I will oversee the construction and coordinate working with the Twa community through our partnership with the Red Cross of Rwanda.

Phase 2: Health Education/ Community Engagement (3-4 weeks)

As a team we will also implement a health education component. A comprehensive program of sanitation and hygiene education is fundamental to any safe water solution. A compassionate community education and follow up program addressing the key causes and transmission routes of disease is necessary before any health impact from water filtration is possible. We will follow up by painting various health education murals on the concrete collection tank, thus providing education that includes those unable to read. We will have a team of artists and healthcare professionals working with the Twa community on this phase of the project. We will include the community in all aspects of this project including the construction, health education, and development of the images for their mural. By having the Twa people involved in every step of the process, it will foster a stronger sense of community and will allow them to understand the importance clean water can have in their lives.

Sustainability and Future Impact

The *Clean Water for Life* project will go beyond providing safe water to a community; it will promote a greater sense of unity among the Twa people. It will enable them to improve their health, education, economic opportunities, and their social standing. As active contributors to the project, they will develop a stronger sense of self-worth and they will gain more respect among the other communities of Gisenyi. Also by using concrete for the cistern in the construction, the rainwater system will be much more sustainable and maintainable by the Twa people. This will also be true of the Bio-sand filters as they will be constructed using the Twa's pottery. This will have the potential benefit of allowing them to market and sell these filters once they have learned how to construct them. It is the hope of the project that this will also help foster economic development and have a sustainable impact in their lives. As water is essential to life, this project will create a needed state of peace for the Twa and the broader Rwandan community.