

CHILDREN OF THE NATIONS

INTERN PROPOSAL

Integrated Water Security Program

Overview

This intern program is a community centered, locally led approach to provide integrated water management and water security solutions to the families and villages we serve at Children of the Nations (COTN). These solutions are designed to strengthen citizen participation and provide improved health, reduce poverty and accelerate environmental ownership of water resources in developing countries. The uniqueness of this project from many of the other water related global projects is 1) it is an integrated and sustainable approach that leverages water storage, re-use and reclamation within a community and 2) this project is planned, implemented and managed by the local community and COTN graduates and influence from global leaders—thus increasing citizen participation in data collection, health, and conservation efforts within their communities.

Worldwide, more than one billion people do not have access to safe drinking water or adequate sanitation, and every year thousands of children die from waterborne diseases. Approximately 840,000 people die each year from water-related diseases¹. For several years, COTN and its partners have provided safe access to clean drinking water for tens of thousands of children and their families. Our approach in this project is to train indigenous COTN student graduates to design, test and manage an integrated water system in their community to improve the impact of water resources for consumption, hygiene, sanitation and agriculture. Our direct objectives are cleaner water to reduce the occurrence of diarrhea and other illnesses in children, better sanitation disposal, retaining and reusing water, and controlled access of water for agriculture. Some of our indirect objectives are increased household income, increased business development, drought resistant agriculture and use of new technologies (solar, windmills etc.).

Background

Children of the Nations® (COTN®) is a nonprofit organization dedicated to raising children out of poverty and hopelessness, so they can become leaders who transform their nations. Founded in 1995, the organization currently provides care to orphaned and destitute children in Sierra Leone, Malawi, Uganda, the Dominican Republic, and Haiti. By partnering with local communities, we help establish Children's Homes and Village Partnership Programs to benefit children living with families or caregivers who are currently unable to provide a healthy, thriving environment for their development. The programs and services we promote through local leaders include education, nutrition, medical care, and sustainable initiatives such as agriculture, clean water projects, skills training, and more. COTN believes true, lasting, and meaningful change to a nation begins with children—so children are the focus of our mission. COTN stands apart from other organizations in our goal to support COTN youth as they lead their local communities to a life of self-sustainability and declining dependency.

COTN has four key areas of sustainability that directly impact our children; 1) Water Security 2) Food Security 3) Renewable Energy and 4) Economic Independence. All these factors impact the human flourishing of our children. Because access to water and diversification of water resources is essential to the wellbeing of each child at COTN, we have built strategic partnerships that align with our mission and can provide life-changing solutions to each community. Through our strategic partnerships and the leadership of our older COTN graduates, we are committed to the assessment, training, implementation and maintenance of quality integrated water solutions.

Problem Statement

COTN is aware of the significant impact of water issues and their effect on the children and families that we serve. We also recognize that consumers within a water community are interdependent; therefore, integrated water resource management is essential to maximize the return on their water investment and to minimize water consumption. For example, upstream users of water impact the potential of downstream users to meet their needs for land use, agricultural, and development which all affect water resources. Another example is that agriculture rich communities will impact the availability of water for drinking, cooking and healthcare. In this project, the community will learn to plan and coordinate strategies on the full range of solutions that affect water ecosystems, natural hydrology, and water consumption. Some of the issues facing our partner communities that arise from lack of clean water and proper sanitation are highlighted below:

1. Agriculture accounts for 70% of freshwater usage, however approximately 60% is lost due to waste involving irrigation system leakages (waste), inefficient application, and planting crops exceedingly thirsty for where they are grown.
2. Increases in food prices and lack of water cause population migration to where water is readily accessible.
3. Water scarcity leads to food shortages while raising commodity prices thereby hindering trade with developing economies.
4. Water scarcity has a direct impact on rain-fed and irrigated agriculture as well as livestock.
5. Lack of access to water for agriculture during seasons of drought leads to food insecurity
6. Expending several hours each day on retrieving water from local resources (rivers and streams) creates unsafe conditions for women and girls that collect water for their families.
7. Water borne illness, especially in children under 5, occur with limited access to clean drinking water.
8. The inability to provide local village-based health facilities with clean water diminishes access to healthcare.
9. Sanitation issues (lack of latrines and handwashing, open defecation etc.) increase the instance of illness and death in younger children.
10. Poor health impacts student's ability to concentrate and have high performance in school.
11. It is difficult to have a thriving economy when fresh water is not easily accessible for industrial, farming, and individual use.
 - a. Production of water-intensive goods could be limited by lack of freshwater resources.
 - b. Lack of freshwater can also affect worker productivity by causing illnesses.
12. Higher water costs to purchase bottled water can reduce household disposable income.
13. Higher healthcare costs due to recurring illness reduces household income

Supporting Baseline Data

Over the last several years, COTN has partnered with the University of Texas and Africa Ahead to provide baseline assessments of water quality and usage as part of our Community Health Club and Water Sanitation and Hygiene (WASH) programming. The results of those assessments have identified core issues that are central to the ongoing health issues, economic poverty and environmental instability that plague most Caribbean and Sub Saharan African developing communities.

Malawi Preliminary Summary (1269 households surveyed):

- The percentage coverage rates of sanitary facilities are very low, with very minimal coverage rates in drop-hole and hand washing facilities with 23% and 9% respectively.
- Latrine (enclosed bathroom) coverage is at 53% (n=1269) with presence of feces around the yard at 27%. Since we are aiming at eliminating open defecation, increasing the number of latrines will reduce open defecation.
- Water and hygiene practices such as the use of ladles and storing water in covered containers is very low at 47% and 35% respectively.

- Low hygiene practices encourage high levels of water contamination which can result in diarrhea diseases and other water-borne diseases.
- The percentage of households with children with malnutrition is at 69% (n=1139). 20% are not dewormed. Intestinal worm contributes to malnutrition in children.
- 58% of the households do not have a nutrition garden due to drought, lack of balanced diet also contributes to malnutrition amongst the children.

Project Objectives

Desired Outcomes for Interns

It is our desire to partner with Emory University students to bring data, planning and recommendations to the following concepts:

- Integrated solutions that provide clean water, adequate sanitation, and irrigation for agriculture from existing sources to include:
 1. Reduction in groundwater extraction
 2. Reduction of impact on natural resources
 3. Development of water storage systems to combat effects of drought
 4. Improve the use of reusable water using hydroponics and other technologies
- Increase in food security through improved crop irrigation
- Improved sanitation demonstrated by increase in the number of latrines, hand washing stations etc.
- Use of mobile technology for ongoing consultation and reporting
- Measurable improvement in health conditions; particularly ages 0-5
- Recommendations for on the job training and additional real-world experience for COTN graduates
- Increase in household income due to improved health conditions and reduced cost in purchasing water
- Increase in economic independence through income generating businesses effectively using the integrated water systems
- Active community participation in ongoing maintenance of systems and community training

Measurement and Evaluation Data

In addition to measurable outcomes in the community, we desire to collect and share data that will provide real time statistics and data for replication and/or expansion of the proposed system to other communities and countries. Some of this data will include:

- Assessing the impact of water insecurity on poverty
- Determining if current solutions (i.e. stand-alone wells) are working?
- How can access to renewable clean energy accelerate the impact of clean water solutions?
- Record cases of water borne illnesses
- The impact of water security on three key human index factors:
 1. Long and Healthy Life
 - Sustainable access to clean, treatable and affordable drinking water
 - Sustainable access to improved sanitation facilities
 - Access to clean energy sources
 - Reduction in malnutrition

2. Income of families living above the poverty level (\$1.25 per day)
3. Education – impact on performance

Desired Outcomes

Phased Approach

COTN and its partners will use a phased approach for the research, implementation and replication of this project. Our goal is work first in Uganda, Haiti and Malawi since we have baseline data that indicates a strong need for a solution. The work in Malawi will create a demonstration model that can be replicated in the other villages and countries. It will also allow us to accurately estimate the cost of each phase based on accurate outcomes of the previous phase.

1. **Year 1 - Data Gathering and Research** – this phase will be led by Emory University interns to include training and leadership for COTN graduates. Leveraging the existing work already done, more detailed and formal data gathering will be done using a ‘participatory method’ led by community leaders and other designated nationals. Participatory data collection provides an opportunity for the collection of data that gives an insider’s analysis of the efficacy of the intervention. Participatory research is a continuous cycle in which nationals and global leaders together decide what needs to be researched, design the research and collect the necessary information.
2. **Year 1/2 - Adaptive Implementation** – this phase takes the data and outcomes from the first phase and implements recommended solutions in a fixed population. This phase should be a demonstrative model of an integrated water system that can be measured and evaluated for desired outcomes.
3. **Year 2/3 - Measurement and Evaluation** – the most significant phase is evaluating the inputs and outcomes for measurable impact to the local community. The community leadership will be given the tools to measure and report on changes, issues and positive outcomes. This data will be used to assess and recommend changes, to adjust the system and determine feasibility of replicating or expanding the solution.
4. **Replicate and/or Expand** – once the pilot implementation is completed and has gone through a reiterative adjustment process, the final implementation will be expanded to a larger population in the community and/or replicated in another country.

Tools and Resources

COTN will use technology and resources that will ensure accurate and timely communication, reporting and problem resolution. Community leaders will be trained to use resources and tools to research and validate data in order to maximize sustainability. Some of our recommended tools are:

- GIS system by ESRI
- mWater or Akvo – monitoring and evaluation mobile applications
- Poverty Index (PPI) by Grameen Foundation
- Android Tablets
- Android Phones

Partners

- Children of the Nations, Sustainability Department
- Emory University
- African Windmill Project, Malawi
- Africa Ahead (Malawi)

Timeline

Following is a preliminary timeline for this project

Phase	Estimated Dates	Deliverables
In country Data Gathering and Research	June 2019 – November 2019	Complete assessment for implementation of integrated water solutions.
Recommended Strategy	November 2019 – December 2019	Completed recommendation of integrated water systems.
Beta Implementation	January 2020 – August 2020	Pilot Phase of System Implementation
Measurement and Evaluation	August 2020 – October 2020	Monthly updates reflecting progress, issues and impact analysis of the implemented system
Replicate and Expand	October 2019 -	Expansion and/or replication into other COTN communities

ⁱ Source: <http://water.org/water-crisis/water-facts/water/> (Accessed June 12, 2015)