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**Ethiopia, Factor 9: Water & Sanitation**

### **Ethiopia: Improved Water Supply to Improve Health and Living**

Today in America, you can go to a restaurant and order a water and the waiter will ask you “Filtered or Tap?” Not a very important question for you, because both choices are safe to drink. But in Ethiopia, only 34% of the population has access to an improved water supply, and the locals take risks every day by drinking the contaminated water, and risk getting a water-borne illness just to quench their thirst. In recent years countries are getting more and more disconnected with the cry of help from developing countries, or providing short term aid instead of long term solutions. These citizens are fighting to survive. We need to provide relief in terms of solutions that will last lifetimes to come.

An average day for many Ethiopian women and children is the daily 4-6 hour walk to collect water. Most collect their water from shallow ponds, which they share with the local livestock. Others collect from shallow wells. The rain water they collect carries waste from surrounding areas into both these water sources. After collecting their water, they walk back carrying about 40 pounds of water on their back. (“The Water and Sanitation Crisis” 1) Average families in Ethiopia have 8-10 people, and the traditional food of different stews is served on injera, a pancake-like bread. They tear off pieces of the injera, and dunk it into the stews, or wat, a meal made up of vegetables, common ones being carrots, cabbages, spinach, potatoes and lentils. Most people do not eat pork. (“Culture of Ethiopia” 39-40) Although Ethiopia has had sustained economic growth, and healthcare has made great strides in improvement, the United Nations currently ranks Ethiopia 17th in the developing countries. (United Nations Report 2012) Currently, the population is around 85 million. “Almost 40% of the population survives on less than a dollar a day” (“Ethiopia” 1) and many people go hungry.

The economy is almost fully based on agriculture. 85% of the population rely on agriculture for their livelihood. (“Ethiopia” 1) But in the last twenty years, droughts and famine have become the norm. And in result, In 2011, over 6.5 million people relied on the food from humanitarian organizations because they couldn’t produce enough food to sustain themselves. Ethiopia agriculture is best described as many people farming very small plots of land. The country’s city populations rose fast from 1967 to 1975, but due to decreased food production, the government instituted the 1975 Land Reform program, which provided citizens with incentives to stay in the rural areas. A huge problem now, is that many farmers in Ethiopia hold only a small piece of land, and they cannot afford crop rotation, and the soil is suffering from severe soil infertility. 64.5% of rural households cultivate less than one hectare. (One hectare equals about 2.5 acres.) The average farm size can generate only about 50% of the income required for the farm household to lead a life out of poverty, if farm productivity remain the same. Five main cereals crops: teff, wheat, maize, sorghum and barley, make up three-fourths of the area cultivated.

“Statistically only 45% of children attend primary school.” (Shore 3 ) Almost 2.8 million children don’t attend school at all. Boys generally receive a higher education than the girls. Attendance at school is not a necessity, and in result of that, literacy rates are low, especially in the rural areas, where leaving their chores for a full day, just isn’t a choice. In rural areas, the children’s daily lives revolve around water. Most of the time, the young girls, who are expected to collect water for their family, which can take an average of six hours. The local schools notice that most girls are late to school, if they even come. When they grow up, the contaminated water effects them more than others at times, it’s not uncommon for women to lose a child during pregnancy due to the unsafe water.

The healthcare in Ethiopia has been described as the “least developed in Sub Saharan Africa,” and is not prepared to cope with the health problems facing the country. Ethiopia is facing a shortage of medical staff and health facilities. Malaria is the main concern in healthcare, as 8-10 million clinical cases are reported yearly. Other common diseases are tuberculosis and AIDS. (“The Health System” 4) the main problem is that most cases are caused by easily transmitted diseases, or complications due to malnutrition. These diseases affect children even more than adults, and Ethiopia is one of the top countries for children dying before they turn five. (Nguyen, Moses, Gabroy 1) 54,000 children die every year from diarrhea caused by unsafe water and poor sanitation in Ethiopia. (“Water and Sanitation in Ethiopia” 3)

The countries of Egypt and Ethiopia have been in political conflict for over a year for the control of the Nile River. Ethiopia has started construction on a \$4.2 billion (U.S. Currency) dam up the river from Egypt. The dam, once completed, will be one of the largest dams in the world. Egyptian authorities call for Ethiopia to halt construction until the long term effects of the dam can be determined. The main issue Egypt has is the potential downstream impact this dam could have, by reducing the river’s flow, causing a food shortage for their country. In 2011, Ethiopia revealed the Great Ethiopian Renaissance Dam Project or (GERD) which intends to use the water collected by the dam, to generate 6,000 megawatts of electricity, hopefully boosting their economy, and lowering the percent of poverty. (Hussein 5) The criticisms of the project is how will it affect Egypt in the long run, as Egypt relies on the Nile for almost all of its water. Egypt has reached out the the United Nations Committee, to decide if Ethiopia is jeopardizing the welfare of other counties.

In the rural areas, life is a day to day struggle. Only 65% of households consume the minimum standard of food a day. Most of the poor families share their sleeping quarters with their livestock, but the horrible conditions of living don’t end there. In the capital city, Addis Ababa, 55% of the population live in “slums.” Sanitation issues are a big problem, with most of the population unable to access waste treatment facilities. Illness is spread through the unhealthy water that is distributed throughout the city. Outside of Ethiopia’s major cities is where the water standards drop even lower. “The water that most drink is contaminated with human and animal waste, worms, and diseases.” (Shore 2) During the drought seasons are when the villages and towns have the highest disease problems. 80% of illness in the country is caused by preventable communicable and nutritional diseases. (“Health System in Ethiopia” 4)

When Ethiopia is suffering from a drought, there isn’t enough water for people to drink, let alone bathe. Due to this, the population, especially children, suffer from scabies and eye infections. (“The Water and Sanitation Crisis” 3) The remaining water sources in the area, have been contaminated heavily by environmental waste, which includes both human and animal waste. Since the water remains still in the shallow sources, it becomes a breeding ground for mosquitos. (“The Water and Sanitation Crisis” 2)

There are many immediate solutions to Ethiopia’s water problem. For example, getting Ethiopians to boil their water, or using iodine to purify their water, will temporarily fix the problem. But how can the Ethiopian people afford the bottles of iodine to clean their water daily, when they don’t even have enough money to buy food? The government itself provides food aid, and humanitarian organizations send food during famines. Iodine tables alone are a viable option, but it doesn’t solve the problem of the water supply being unsafe, it only prolongs the long-term solution. Also, boiling the water isn’t economically possible. In Ethiopia, the fuel for the fire can be so expensive, they just can’t afford to boil water and cook food. Even if it were possible, boiling the water would take up so much time a person would just collect water and purify it all day long to supply enough water for a household. In the rural areas, where each child and the parents are busy with chores trying to get enough food so they don’t have to rely on aid, they can’t spare one person to work with water alone. However, most of these immediate solutions are too expensive, or too time consuming for the people to afford. To use the short term solutions, outside organizations have to donate funds, and the donations don’t bring the Ethiopian people any closer to

solving the water sanitation issue. If organizations are going to donate to the financially unstable farmers, the long term solutions are going to be the best investment.

Three different long-term solutions can help Ethiopia have a clean, efficient water source for years to come. Rope pump wells are hand pumps that are so easy to use, a child can operate them. These pumps are efficient, and keep the water source uncontaminated and last long periods of time. In areas where rainfall is more common, rainwater harvesting jars collect the water off a clean roof into a giant jar that can hold a large amount of clean water that can support more than one family. The key to this solution is that it works best in areas of a large amount of rainfall. Another more expensive route is the deep water well, which can serve a large community of people with a safe reliable water source. Past success with this solution shows large communities being supported by one deep well.

The first possible solution, Rope Pump Wells, are sometimes referred to as an Elephant Pump. Using recycled parts of bicycles, rope and scrap metal, the cost of these pumps can stay very low. In villages with existing wells that may be shallow, improving the depth of the well will also increase water supply. The pump can lift water from 50 meters deep and produce a liter of water every second. (“Elephant Pump”) With regular maintenance, the Rope Pump Wells can last over 10 years. (“WaterAid- Our Approach 10) The cover over the open well, helps keep the water from being contaminated. Installing these pumps gives jobs to local skilled laborers and mechanics, keeps the well in the local’s hands, and is able to be repaired without having to get outside help.

The second long-term solution, the rainwater harvesting jars, to be effective require regular rains to fall onto a relatively clean roof, and a clear gutter. The gutter directs the water to the jar. The jar is made by covering a wooden mold with mud and letting it dry, then covering it with concrete. The inside wooden mold and mud is removed, then the inside of the jar is plastered to make it waterproof. One jar can supply multiple households with up to 1,500 liters of filtered rainwater. The roofs and gutters of Ethiopian houses aren’t exactly sanitary, so contaminants and debris are removed by a basin filter before it gets into the jar. Maintenance is limited to the annual cleaning of the tank and filters which will become full of dirt, leaves and other materials. Experts recommend cleaning before the start of the rainfall season. (United Nations Environment Programme) One problem with this solution is that if a family installs this, jealous neighbors may try to break in and steal the clean water. A solution to this is to have the tap you empty the water out of the jar with, have a lockable box around it, preventing potential thieves.

Deep water wells are by far the most expensive solution of the three long-term solutions. Because of all the labor and equipment that is required to drill a deep water well, the cost of the well can be very expensive, with some projects costing \$30,000 dollars or more. However, the benefits, outweigh the price tag. Some of these large wells can provide water to over 3,000 people. (“Digging Wells In Africa: How it Works” 14) The well itself, in some of the different environments installed in, must be over 900 feet deep. For this task, charities that pay for these projects, unite with expert teams, as it is a complicated project. These wells are also completely sealed, preventing any contaminants getting into the water source.

The above solutions are great ways to help combat the poor water quality epidemic in Ethiopia. However, most Ethiopians simply don’t have the money to help pay for one of these in their communities. Many organizations and charities are donating rope pump wells, and rainwater harvesting jars. The following organizations: The Water Project and Water Aid, are raising the awareness of the need for clean water in Ethiopia. In addition to helping raise awareness on Ethiopia’s behalf, as well as digging wells, these organizations help educate the local citizens how to keep the water supply safer. The organizations bring in the local government officials to help teach the locals how to maintain the wells, and tips to keep their other water sources, such as those for animals, healthier. Hygiene is addressed to help combat the spread of diseases. (WaterAid- Our Approach 2)

The three most important basic needs for all humans are water, food, and shelter. Possibly the most important of the three basic needs isn't being met in Ethiopia. Without being able to fulfill these basic needs, how are the people supposed to become independent of aid and improve their lives? Without help from outside organizations, the water issue in Ethiopia could continue for many years to come. With the water-borne illnesses that kill 33,000 children each year, this can't continue any longer. Women won't have to worry about losing a baby mid-pregnancy because of the harmful contaminants in their water. They can work to improve their lives and focus on other activities rather than water. These pumps and wells will give the children of Ethiopia a chance to get an education, instead of spending long hours collecting water. And every glass of water they drink? They won't have to worry about all the potential killers lurking in the water.

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