Peightyn Boyd
Paris High School
Paris, AR
Ethiopia, Factor 9: Water & Sanitation

What is water? In Chemistry it is H20, but to everyone as a whole it is a very important part of our life cycle. From day one when you take your first breath, you contain more water than when you're an adult. As a newborn baby the body is composed of 75% water, but as an elderly person it contains 50% of water. Water is beneficial and needed for everyday life, because without water there would not be a life to live. You need water to drink, to water plants, and many other things that could go on forever. Many people in the United States take advantage of the water we do have and waste it. The issue that Ethiopians face though is that they don't have enough water and the amount they do have is masked in diseases. There are approximately 83 million people that live in Ethiopia. While that may be a lot, Ethiopia is one of the poorest countries in East Africa. There is only 38% that have access to safe drinking water, and only 12% that use improved sanitation facilities.

Marcus Samuelsson once said "Clean water and access to food are some of the simplest things that we can take for granted each and every day. In places like Africa, these can be some of the hardest resources to attain if you live in a rural area."(Brainy Quotes) For women and children, they put water as their top priority. Some have to walk six hours to even get water. When they get the water, it can weigh up to 40 pounds, and they have to carry it on their back. (Water.org) Women are also responsible of taking care of the children and any domestic work, which means having to cook and shop. The typical foods they eat is a hot spicy stew called "wat" that is made with different varieties of meats and vegetables, a large spongy pancake made out of teff flour and water named "Injera", and Berbere which is a hot spice. While they are taking care of their responsibilities, the men are usually responsible for providing for the family and dealing with family contact outside the home. The typical household size during 1994 was 4.8, but around 2007 it dropped to 4.7 losing one member in the average report.(Population Stabilization Report)

"Education is an admirable thing, but it is well to remember from time to time that nothing that is worth knowing can be taught."(Brainy Quotes) Oscar Wilde once said, for every student may be able to sit around a classroom and say they learned polynomials, but all in all they probably did not. Ethiopians don't have the luxury of classrooms. What they have to learn is how to survive with water-borne diseases and know how cook and clean even at a young age. They have to know how to work on a farm because that is where most live and survive. Education in Ethiopia is rare, with females being far less educated than males typically are.(N.p.)

Throughout the years there has been a rapid increase of population which is why Ethiopia is also known to be called "Horn of Africa". While to some people that may sound really good with the increase, it really is not. For the last two decades there has been an increase of health care services which led to the expansion and construction of more facilities to treat the needy. With the increase of population, that meant that all the new materials that were supplied were used. It is very important to be in sync with the new comers and the medical field so that none of the people get hurt, but also they still have resources when a problem does occur. The people in Ethiopia need to be educated in the health care services. Medical Missions is a company that operates on many organizations, international trips, donations, and prayers for developing countries. They help up to two hundred countries with Ethiopia being one of them. One of the organizations that is helping Ethiopia right now is, "A Cup of Water International." Their mission is to 'reduce the number of unreached groups' in developing countries.(ACOWI) In Ethiopia there are 32 unreached people groups out of 109 total people groups.(Medical Mission) In Ethiopia there are around 7.5 million people that suffer problems related to high fluoride levels. There are also people who suffer from HIV and AIDs that estimate to around 1.3 million.(Rural Poverty Rural)

The typical Ethiopian has amazing potential in the agricultural developments because most families run off of them by raising animals or growing crops amongst their farm. The typical farm size for an Ethiopian is one hectare or less because farmers would be the poor ones amongst the country. One hectare is approximately two and a half acres of land to grow and raise agricultural products for the household. The most typical crops grown are coffee, teff, cotton, and different types of grains. While vegetables and fruits would be appreciated, they cost too much to be grown. The animals raised are cattle for the little amount of poor meat and milk supply.(N.p.) They also raise sheep, but they use camels, horses, and donkeys for traveling purposes.(Wikipedia)

With the catastrophe of having all the diseases milling throughout the water supply, it will keep everyone within that country at a stopped point where they cannot improve any without improvement of the water source. They will keep on getting more diseases with a chance of casualties in the near future. One thing they need to make sure of is that they do not have another rerun of the 1983-1985 famine. That famine was one the deadliest disasters in the 20th century with the severe shortage of water that resulted in a food shortage and the increase of grain prices. While most thought in October of 1984 that there were 200,000 deaths from the shortage, there were actually close to one million casualties.

The effect of water and sanitation amongst the country is drastic. Without proper care there can be many waterborne diseases that could cause great harm to one's health. When it is enforced, everyone can be healthy and not starving because of the water shortage. Right now Ethiopia's present status on the matter is very low, for they are starting an extreme drought which hasn't happened in over fifty years. Unfortunately, the water they do have is contaminated. The sanitation facilities are very low, with only a small percentage of people in Ethiopia having access to them. While people may be used to these types of conditions, they are worsening because they have not had very much rainfall in weeks. This rainfall spreads out some of the diseases to help keep some Ethiopians as safe as can be. By improving this factor it would not only safe some of the lives within the country, but also some outside of it too if one were to immigrate elsewhere.

One might think this is just another case of a poor country, but this is not. This is a country that has had to endure pain before with the loss of almost one million people. Nobody helped them then when they were encountering a battle of diseases within water which they could not withstand. What would we be if we were to not help them? We would be selfish. While we have new movies and other technologies developing here in our country, they are only hoping to get clean water. From the source of "How the Average American Wastes Water" the United States uses 3.9 trillion gallons of water per month. In Ethiopia they have to walk miles, struggling to even find contaminated water. For an American, all you'd have to do is go to your sink, shower, or hose to find an easy source of clean water.

We can't let another tragic famine happen again. We need to address the people of the United States as a whole, whether it be through radio, talk shows, or commercials on television. We need to tell them what is happening to the country of Ethiopia. We see a destroyed country, but to them it is their home. They need the help of others to get them through another drastic drought without so many casualties.

A project that could help that immensely would be the use of biotechnology, an agriculture based revolution. In Ethiopia with all the unpredictable rainfalls, it makes it hard to plant and keep crops alive. We can use a new revolution called Water Use Efficiency (WUE) which would make the plants drought resistant but still stay alive and sprouting.(Introduction of Biotechnology: An Agricultural Revolution) With this it would be wise to use drought resistant seeds to work with WUE system. The Drought Tolerant Maize for Africa Initiative is a donating organization for African farmers, mainly concerned with the developing countries in Africa. With this organization they have released more than 200 drought-

tolerant maize varieties, Ethiopia being one of the 13 countries they target to help.(The Drought Tolerant Maize for Africa Initiative) In Ethiopia some of the most common drought resistant seed are: sorghum, millet, and cowpea seeds. Once the Ethiopian harvests the crops, they use seed multiplication to help produce more food.(Ethiopia: Institute Multiplying Drought-Resistant Seed Varieties)

Back in the early 1900's technology wouldn't be a high priority. There would only be one television in one house, and some didn't even have one. There wouldn't be any cordless phones laying around. There wouldn't be any computers or other software devices either. Most kids were sent outside to play, while mothers cooked and fathers worked. Then is when the US and Ethiopia were slightly comparable, but that changed for the US. As years went by, we became more modernized while Ethiopia stayed the same. In some cases, Ethiopia worsened. Now that we're in the 21st century, we do have technology. We have kids who are more focused on their social life than their school work. There are technologies that help for the better, rather than posting pictures on Instagram. There are biotechnologies that help people who need it. In rural Ethiopia they don't need all the big fancy stuff like: Xboxes, Ipads, and all the newest technologies. They need technologies that would add meaning to their everyday life. Like women if they had the Water Use Efficiency system they wouldn't have to walk the six miles for contaminated water as much. The only times they would have to is to get water for drinking and bathing services, only rarely to water the plants. During the 1983-1985 famine, they didn't have very many of these more modernized technologies but now we do. This is why we should take advantage of the resources we have now and use them for the better. We should use these new technologies to make many families lives turn for the better, so they can stop worrying if they will have food to put on the table. Then parents don't have to watch their kids slowly die from malnutrition when this problem can be solved. Parents don't have to see the sadness on their kids face or hear the grumble of hunger from their little bellies. The whole family can get a decent sized meal instead of it being a tiny portion with the parents having far less because they give it to their children instead.

In this project the solution can be accounted for if we split Ethiopia into two sectors, project wise. The sectors would be with rural people in one and urbanized people in the other. You cannot solve the problem in Ethiopia and most developing countries by treating everyone the same, because in all honesty nobody is the same. Some people have better accommodations based on living situations and others are based on a whole city or town. In the more urbanized cities like: the capital Addis Ababa, Dire Dawa, Mekele, and Bahir Dar.(Largest Cities in Ethiopia) They have better numbers based on population and income, so they have an easier lifestyle to abide by. In cities like this, there could be little buildings which could sell LifeStraws and Ceramic Filters, so people not only could get the product but they could get the possibility of having a job too. In those little buildings they would be selling the product, but what if also in that building there were educators to teach one individual of the household on how to use the product and to know the regulations? LifeStraws are a bigger style of a regular straw that "let's you turn up to 1,000 liters of contaminated water into safe drinking water."(LifeStraw) LifeStraws are great for developing countries, because they are extremely lightweight only weighing two ounces. They also don't require any electrical power and greatly reduces risks of contracting diseases. The LifeStraws lasts about one year if used every day and when the LifeStraw 'expires' it will no longer let you sip threw it indicating the need for replacement. This further indicates that this product is reliable. Life Straws is yet another great contributor to developing countries. With each product bought, they donate a LifeStraw to one school child in a developing community that would then receive safe drinking water for an entire school year.(LifeStraw) Ceramic Filters would have a lot less quality, because it can serve a lot of people with just one. With the Ceramic Water Filters the 'Bucket System' would be used. The Bucket System is a system that is portable and convenient to many by installing a Ceramic Filter between two buckets. "Once in use the filter will last one to two years" which makes it a great system to benefit from because it lasts a good period of time and contributes to more than one person, rather than LifeStraws who only one person can use it at time.(Just Water) There is a good flow rate with this system with how you can get "up to one gallon of clean water per hour." This is a lot more than a LifeStraw can give. The company source

that would be good to buy from is Just Water which gives a lot of resources.(Just Water)

Now in rural cities, they don't have the satisfaction of having higher incomes and access to many jobs. Most do not even have roads with asphalt on them. In most rural cities, it is dirt pathways and locals have to know their way around. They don't have the money to pay for expenses that would come with buying LifeStraws or Ceramic Water Filters. Some do not even have the money to pay to put food on the table, so they have to starve till they get that money. For the rural areas, why try to buy something that cannot be paid for? Even with how much it cost, they need the system to live a healthy life. That is why there are Do It Yourself (DIY) projects. Then you can build something with less expense and lifetime, but it is still helpful for that person. For a DIY Water Purification Straw or better known as a DIY LifeStraw, you will need: a straw, a pipe cleaner, scotch tape, activated carbon, and a coffee filter.(Instructables) With these DIY LifeStraws, they will not have the same value or productivity as the real product. Although the real LifeStraw lasts up to about one year, this DIY Water Purification Straw will probably last up to only a few days. This is why it is great that the 'needs' to build the DIY product are very accessible so then it is easy to rebuild. With the DIY Ceramic Water Filter-Bucket System, there are a lot more complex supplies, because it is a more complex and difficult system. In this DIY you will need: three buckets, one filled ⅔'s of the way with gravel, another filled ⅔'s of the way with sand, and the last filled ⅔'s of the way with activated charcoal. Then to create this DIY you will also need a fiberglass screen and preferably styrofoam cups.(Off The Grid News) With both of these Do It Yourself projects they are relatively easy with a few short steps. Either way just like in the urban cities there needs to be an educator to teach the rural Ethiopians on how to build and use these products. Also to increase the income number rate there should be multiple areas in where there can be builders and sellers of these DIY products, so people can get everyday jobs.

To solve this situation at hand by 2030 would be to first look over and take everyone's different situations into perspective. Go to the most critically undeveloped cities in Ethiopia first and educate them in the problem at hand and start solutions for them. Then move on to the cities of the less critical inability and do the same thing. They need to be educated on the basics of hygiene and medical services first. They should also be educated on the systems that are planned to be operated which are the: Water Use Efficiency systems and drought resistant seeds, the LifeStraws and Ceramic Water Filter-Bucket Systems in both the real product and DIY product. Then if they learn how it functions, an individual of a household could operate the systems without personal help all the time. With men out working, they would not have the basic time to learn and run systems of such care. So the women who usually maintain the water and household chores should get the opportunity to learn how to operate the systems. Women and men both have rare education, but women have far less so it should be their time to take charge instead of always being belittled. They should get the opportunity to not always be the typical "housewife." They are smarter and stronger than that with them having to walk six miles back home with 40 pounds of water on their back for survival needs.

Water is very critical to one's life. It may just be a small product in Chemistry that you learn at a young age, but it is needed until the day you pass on to another world. You need to be clean, so then you do not die from disease such as waterborne or airborne. There are so many diseases within the water that we need to help countries amongst ourselves so then casualities stop and one of them is Ethiopia. Ethiopians have already faced so much grief with the 1983-1985 famine, we need to make sure that does not happen again.(The 1983-1985 Ethiopian Famine) We need to find solutions to these simple problems that we hardly face in our country where nowadays, we are only waiting for a new movie or game to come out. There are so many technologies out in the world today, yet we use them primarily for social media preferences. When they can actually be used in many different ways like solving water insecurity or to help developing countries have a better life style. While people who are suffering from water and sanitation problems are waiting for a cure or maybe a miracle to come over to their country so they can

finally be healthy or drink clean water for the first time in their lives. People who have more developed countries should help make that miracle become a reality, because it may not be your responsibility to do so. But it should be something you do, just knowing you're helping someone out there that is suffering and needs the help of others. Someone that cannot get over the big hurdle without a boost up, because water is more complex than many make it out to seem.

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