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Kenya Factor 9: Water Sanitation

Kenya: Spring Protection System to Solve Water Contamination.

His lips were cracked and his tongue was swollen. His mother reached down and caressed his forehead. She whispered sweet comforts as she looked down at her son in utter despair, though she knew her words would do no help. Her son's hands wrapped softly around his throat and he opened his mouth as if to beg, but no words came out. His throat was far too parched. All he wants, all he *needs* is water. What he needs, his mother cannot provide. Any water she may come across is several miles walk away, only to find that the water is tainted by animal feces, human feet, mud, and more. In the rural area of Kenya, it is difficult to find a person who is not in need of water, but it is even harder to find clean water to provide them. Much of Kenya's water would be deemed undrinkable by most parts of the world. However, when the option is between contaminated water and death, what options does one truly have?

In a world where clean drinking water is a foreign idea, millions are forced to consume contaminated water daily, if any water at all. The entire country of Kenya struggles for a consistent supply of clean water, but rural areas are at an ultimate loss. More than three quarters of Kenya's population live in rural parts of the country. The population in rural areas relies almost completely on agriculture for their income. It is quite difficult to keep that income afloat when the arid areas suffer through droughts constantly. The rapidly growing population also puts stress on the rural areas need to prosper. Compared to just thirty-five years ago, the population has tripled in size. The large population leaves little opportunity for women and young people to reach their full potential, as men come into the area and take the better jobs involving agriculture, livestock, and pawning due to cultural beliefs in Kenya. They are often left with small farm duties and/or house cleaning duties, which are often difficult to fulfill with the declining water supply ("Rural Poverty").

Dealing with this issue of inability to farm and care for agriculture should be a priority for the Kenyan population. Evidence has shown that improving the agricultural aspect of Kenya will reduce poverty at a higher rate than improving industrially ("Rural Poverty Approaches"). The government has recognized that the only way to improve economically is dependent on agriculture, tourism, manufacturing and the energy sector. All of which rely on natural resources, one major resource being water. In 2012, the government applied three major reforms; The Land Act to regulate land use, The ALFFA Act which focuses on agriculture, and Corps Act which facilitates the crop market. These are a step in the right direction, but none of these focus on the most important fact: lack of clean water. If Kenya were to focus on repairing their water it would be the stepping stone to fixing their society as a whole. The reforms are a movement in the right direction, but in order to succeed economically Kenya needs to find a solution to their dwindling water supply ("Rural Poverty Approaches"). However, it is not the Kenyan government failing to see that the country needs clean water, they just don't have the resources to obtain it (Synder).

While Kenya's water supply is damaging their potential for agriculture, it is important to keep in mind that the impure water is doing damage to more than just the rural farming aspect. Untreated water creates a serious issue for citizens' health and well-being. For example, in the village Athanai in Nakuru, Kenya nearly all of the water is supplied by the very muddy, very disease ridden Molo River. The people of Athanai have little other option than to take from this muddy river. Some families fetch water from springs close by, but even at these springs the water is nowhere near clean. When the water from the river is pumped into the city, it comes out laced with mud and dirt. Any person from the Western world would shrink back at the thought of consuming this water, but for the people in rural Kenya this is the standard (Harrison, "Kenya").

Without any other options, the village of Athanai uses this water to drink, clean, and bathe themselves. There is one major problem. The water is making everyone, from infants to adults, ill. Sixty percent of Athanai's population is ill from the water, some illnesses fatal while others are just uncomfortable (Harrison, "Kenya"). The most common illness is a waterborne disease known as cholera. Cholera is a very serious diarrheal infection that can be attributed to consuming water that has been contaminated by the bacterium known as *Vibrio Cholera* ("Cholera Outbreak"). In Athanai, there is a clinic known as Mogotio available for the service of 30,000 people, so the village's residents *should* have easy access to the care they need, but the clinics are forced to use the same water supply that originally contaminated the patients (Harrison, "Kenya"). Unfortunately, this leaves the sick with very little options. Cholera is a fatal disease without available treatment, and almost no Cholera patients will survive in a city such as Athanai. Circumstances such as this are not original to Athanai. They are happening in many parts of the country. Kenya has always struggled to maintain a steady water supply, particularly when it comes to water sanitation.

The poor water sanitation is a major factor in many Kenyan's declining health. The presence of cholera in Kenya is clear, but some may be surprised to hear that improper care for water can actually lead to illnesses that are not waterborne as well, particularly a higher rate of HIV/AIDS. Although HIV is not a waterborne disease, Kenya has no experience with hygiene and practicing safe and careful lifestyles. Living in an unhygienic environment, consuming contaminated water, and living in unsanitary areas are all factors that could make one more susceptible to diseases such as HIV. At the very least it makes living with this disease more difficult ("Water, Sanitation, and Hygiene."). Another common disease in Kenya is trachoma. Like cholera, trachoma is caused when there is a lack of clean water available. It is a bacterial infection that often leads to eventual blindness. Children are especially susceptible to this infection because their immune systems are not equipped to fight off the bacteria that causes trachoma. Studies have found that this disease can be decreased by twenty-five percent with adequate water supplies ("Water, Sanitation, and Hygiene").

Many countries in Africa, and other areas of the world struggle with similar issues. Though Kenya is a country that is suffering at a greater magnitude than most. Half of the country's population lives below the poverty line, meaning they survive on less than the equivalent to one U.S. dollar. Only 32% of the rural population has access to any water sanitation facilities. This has a direct connection to the 85% mortality rate for infants under the age of five and those who do survive have a life expectancy of just 56 ("Statistics Kenya"). Lack of clean, fresh water makes it difficult for infants and elderly to stay healthy. Kenya struggles greatly to keep its life expectancy and health standards up to par. For every 10,000 people in Kenya there is just one doctor. Many of the doctors seek to work abroad for better opportunities ("Poverty and Health Care"). Even when there are doctors available to Kenyans, only a small part of the population can afford to seek out medical care. This is where they really run into trouble.

These statistics soar when Kenya is in the midst of environmental hardship. In the past, Kenya's issues have become especially prevalent during times of drought. During times when water is at a shortage for people across all plains, people living in rural areas hold on for dear life. Some families lose everything to a drought: source of income, health care availability, food, water, and more. A family who once relied on a small pond just a half mile away now have to trek five miles to the nearest river. During droughts, crops are lost, livestock suffer, prices soar, and people on all levels struggle. Smaller bodies of water face real trouble during this time. Waters such as springs and ponds dwindle to almost nothing. Even before a drought occurs these waters are mistreated. They are full of dead animals, feces, dirt, mosquitos, bacteria, and in extreme cases human feces. All of these things combined create a deadly mix. Add the drought on top of this and springs and ponds get a higher concentration of the bad and lesser concentration of the water people are searching for ("Hatcher").

From 2013 to 2014 Turkana, Kenya suffered a twenty-six month drought, leaving almost everyone in northern Kenya in ashes. One man, Samuel Aboto, spoke about how the drought affected him. In 2012 he owned 600 goats; In December of 2014, he had none. He simply didn't have the water or food to support them. But now, without his goats, Aboto has little to support *himself* economically ("Hatcher"). People all across the country struggle with similar stories to Aboto, losing what little hope they once had. "The [food] quantities are very small: that's what hurts the most. . . These days you pay hundreds of shillings and get almost nothing [food]" says Rodha Lokirion an elderly women living in Turkana in the midst of the drought ("Hatcher"). The small food portions are having an obvious effect, with an increase of 60% more people suffering from malnutrition compared to the previous year without a drought. Lack of proper water supply causes issues affecting more than just dehydration.

Unfortunately, the water issues do not only stem out of environmental factors. There are numerous social factors that contribute to the atrocious water supply. Women play a huge role in the rural life. As more and more people are forced to move into rural areas women are being pushed out. More often than not, men rely on women to help them with water and farming, now many of them are pushed back into the slums as rural population increases. Here, in the slums, they are put in charge of simple tasks such as fetching water and cleaning as opposed to cultivating land. Although, a woman fetching water in a slum area is not a safe woman. Women often find themselves in violent situations while doing something as simple as gathering water for their children or using the latrines. In efforts to avoid this abuse, the women feel they have no other choice but to opt out of using the latrines at all. Latrines in Kenya have been known to be extremely unsanitary for years, as well as an increased risk for gang violence and rape (Nderita). The violence they may come across at the public latrines is so frightening that is common for women to defecate in a plastic bag as opposed to making the trip to the latrines. After defecating into the bag, they will throw it out the window and onto the ground. While the woman's intentions are not bad, this creates a number of issues. ("Women in Kenya"). Without meaning to, the women are actually adding to the poor treatment of water in Kenya, because the bag of feces will likely end up in a lake, spring or pond after being blown around. Human feces is very dangerous to consume and adds to the long list of contaminants in Kenyan water.

The water issue in Kenya has gone on far too long, it is time to find a viable solution. The most common, and perhaps the direst, water contamination happens at springs. This is very saddening because springs in Kenya have such a great potential for providing safe, clean water for Kenyans. Although, more often than not springs in Kenya are neglected. When the water of a spring first bubbles up to the surface it is clear and pure, but almost immediately the water is contaminated by mud, animal feces, human feces and bare human feet (Harrison, "Gasi Spring"). One way to help prevent this contamination is to educate the people in the area. Many charities that come in to help a suffering country want to fix the issue *and* prevent further issues by educating the people on how to keep their community clean.

In Ethiopia, Gasi Spring suffered a similar issue. Just as many of the springs in Kenya are contaminated, Gasi Spring was murky and filled with feces and dirt. At the very beginning of the spring pristine water can be seen, but none of the people of Gasi Spring were heading for the muddled puddle around the heart of the spring. Instead they scooped water into their Jerry Cans from the muddled mess below. Thankfully, for the residents of Gasi Spring, this terrible water source would not have to be their only option anymore. An organization known as Charity: Water committed to help the area out. Instead of the traditional well, they installed a spring protection system. A spring protection system is composed of a concrete box that encases the spring which forces the water from the spring to flow up through a piping system rather than spilling out on to the ground. The maintenance is not terribly difficult, but it would be wise to inform the Kenya community how to patch concrete, clear blockage and drainage, and perform basic cleaning of the system (Kremer). Spring protection systems can be implemented in any of the two-hundred springs in

Kenya, such as Misma Springs, and are expected to decrease the presence of E-coli by sixty-six percent (Kremer).

The residents of Gasi Springs were terribly excited when the protection system was finished, and they would get their first glance at clean water. The new clean water gave the women a new purpose in life. “There’s finally a reason to try to keep things clean” said a woman from Gasi Springs who had formerly claimed there was no use in cleaning dishes would only remain dirty and parasite ridden. (Harrison, “Gasi Spring”).

Just as the spring protection system was so effective in Ethiopia, it can do the same for Kenya. The spring protection system will create a source a clean water for many towns and cities Kenya. The knowledge of a clean water source will bring peace to many minds and hearts, and will no doubt quench thirsts. Perhaps the greatest part of a spring protection system is its comparatively low cost. The spring protection system in Ethiopia cost only \$1,000 compared to a well system which can often cost up to \$7,000 (Harrison, “Gasi Spring”). Fresh water wells are very important to Kenya as well, and are a very viable option as well, but when keeping in mind that the money will have to come from private donation in charity, smaller is better. The government can’t afford to budget for wells, nor can they get the resources to develop a piping system to bring water to many parts of the country. However, springs are found in Kenya, and the protection system could be exactly what rural areas need.

The money for the spring protection systems will likely have to come from certain charities such as the one who provided Gasi Spring with theirs. The charity that funded the spring protection program in Ethiopia was founded by a man named Scott Harrison. Every year since 2004, the year the charity was started, Harrison looks for an area in the world that truly needs help, particularly in the area of water. This mission of providing water to those in need seems to go hand in hand with Kenya’s issue. They need clean water; Harrison is looking for to give his hand to help. Scott Harrison recognizes that water is one of the most important resources for a country. With a steady water supply, the rest of the needs seem to fall in to place: food, health, safety, and a sense of equality (Harrison, “Why Water?”). I think rural areas in Kenya are a great candidate for Scott Harrison’s next water charity mission. Harrison’s charity also does a nice job at explaining to the local people how his contributions work and how the community can keep the system up and running. It is fairly easy to maintain. The people will be informed that is important that the water outlet is kept clean, and that the system is kept fenced off from children, animals, and other possible contaminants.

Another world renowned charity is UNICEF. Unlike Charity: Water, UNICEF focuses on more than just solving issues of water sanitation and supply, but that does not mean it is lacking in the water department. UNICEF already is present in 100 countries worldwide working on water. It has brought safe water to 2.1 billion people since 1990, and is looking to bring it to even more. UNICEF is already doing work in Kenya, particularly Turkana. This is amazing, and with their help and support, even more parts of Kenya can have water brought into their lives as well. In Turkana they helped residents get clean water by using piped water that beings at a spring close to the lake that most residents were previously retrieving water from. It seems fitting that UNICEF would be interested in funding a spring protection program in Kenya, seeing that they have already acknowledged how valuable springs are in Turkana and other areas of the world (“Drinking Water to Turkana”).

However the money is acquired, it is undeniable that the spring protection system is an effective, inexpensive way to end the issue of poor water sanitation in Kenya. With the reduced amount of waterborne diseases spread throughout Kenya, the country will have more time to deal with other issues at hand. What may seem like a small solution, could be a lifesaving factor to many. Kenyans, especially those who live in rural areas, have no knowledge of what it means to life a healthy and clean lifestyle. Creating clean water for Kenya is the first step in improving Kenya in all aspects of life.

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