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Haiti, Factor 9: Water and Sanitation

Haiti: Water Quality Issues

Haiti, located in the Caribbean and sharing a border with the Dominican Republic, has a total land area of 27,750 square kilometers. This is close to five times smaller than the state of Iowa. Although it is very small in size, Haiti is known as the poorest country in the Western Hemisphere. According to the World Bank in Haiti, over 59% of the Haitian population is under the national poverty line of \$2.41 a day. Roughly 24% of the population lives under the extreme poverty line of \$1.23 a day. Major exports include clothing, handicrafts such as wood carvings or paintings, oil, and also crops. Haiti's major cash crop is coffee. Other crops also include plantains, yams, bananas, sweet potatoes, rice, and corn. Major imports include foods such as rice and wheat, fuel, manufactured goods, and equipment. The country is very dependent on imports due to poor infrastructure. Agriculture is the largest sector of the Haitian economy, employing nearly two thirds of the working force.

The majority of farm houses consists of two rooms with mud walls and flooring. The roofs are covered with local grasses and palm leaves. Haitian farming is broken up into numerous plots of land that are roughly one hectare per family, which is equal to almost 2.5 acres of land. Most farmers collect their crops for their families and may have additional crops for selling on the street markets. There are very few Haitian farms that are over thirty acres. The men of the household typically do the planting of the crops and the women are responsible for the harvest and controlling the earnings of the husband.

Most farmers concentrate on crops that they can grow to support themselves. As I said before these crops include cassava, plantains, bananas, corn, yams, sweet potatoes, and rice. They also have had a long history of selling sugarcane. Typically they sell their crops through intermediaries, merchant houses, or speculators. They are also sold in markets and along roadways. Their most common livestock is goats and cattle. They may also have a few pigs and horses.

One of the major problems that farmers face is soil erosion. They also experience drought and a lack of irrigation. Deforestation is another issue and it causes a lot of landslides in the country. Trees help retain water and topsoil, which would improve yields. According to the World Factbook, Haiti used to have over 60% of the land covered in trees. In recent years, it has dropped down to 2%. This is a major issue that has caused a lot of other problems that contribute to the production of crops.

Haitians put a lot of importance on family. Men are looked at to make the money in the house, but families do not favor one gender over the other. Haitians believe that all children are gifts from God.

Children are taught to protect the family and are left equal inheritances. They also are taught to care for their elders and are expected to care for their parents when they can no longer care for themselves.

The diet of the Haitian community consists mostly of rice and beans. Haitians will usually have two meals a day, starting with a small breakfast in the morning, such as coffee and bread. In the afternoon they will have a meal that is dominated by carbohydrates, consisting mostly of rice, sweet potatoes, and beans. The average calorie intake is 1850 or less daily. They get most of their food from their own farms or from street markets.

Education in Haiti is required for children between the ages of six and twelve. Although it is required, very few children attend school due to lack of staff and the fact that 90% of the schools are private. According to Haiti Partners and Statistics, the children who do attend school usually attend in private areas, orphanages, or church institutions. Close to 30% of the students who attend school will not make it to the third grade, and 60% of students will not make it to the sixth grade. The schools that are available don't have the best quality of education. Roughly 80% of teachers are not trained or do not have schooling for their profession. The Haitian literacy rate is an average of 60%.

The people of Haiti experience many different diseases such as malaria, typhoid, intestinal parasites, tuberculosis. Sexually transmitted diseases is a major health issue in the Haitian community. According to Haiti Partners, it is estimated that 11% of Haitians ages twenty-two to forty-four carry the HIV virus. There is an estimate of 1:8000 doctor to population ratio. The life expectancy for Haitians is roughly 63 years. It is estimated that per 1000 births 59 babies will die before they reach their first birthday. Many mothers don't survive childbirth. According to an article by Partners in Health it was estimated that in 2014 one in every 285 births will result in the mother's death. This ratio is sixteen times higher than in the United States. I experienced some examples of these severe patient cases firsthand when I had the opportunity to be a part of a mission trip to Haiti in January of 2015. I was with a medical group and we traveled all around the country providing clinics with examinations and medications. Some of the locals would say that when people are very ill, it is safer to stay at home than to go to a hospital.

Only half of the Haitian community that live in rural areas have access to water. According to the World Bank, it states that in the country of Haiti, 24% of the population has access to a toilet. It is obvious that water scarcity is a major problem. Not only is the water not available, it is filthy. It is estimated that one tenth of major diseases in Haiti comes from the unclean water. The water is so unclean because Haitians do not have access to a sewage sanitation system. Often this dirty water is then used for cooking, bathing, and drinking. While traveling through the country I did not see one waterway that wasn't covered completely with garbage. There were people bathing in this water, washing clothes, and getting water for drinking and cooking. Everywhere I looked there were livestock roaming around drinking this water. They were so unhealthy you could see their rib cages. The diseases that are spread include typhoid, hepatitis, chronic diarrhea, and cholera. Since the year 2010, 388,950 cholera cases have been reported, making it the first outbreak in decades. Since the reported outbreak, there have been 5,000 recorded

deaths due to cholera. Unsafe water is also the leading cause of infant mortality and childhood illness.

Port-au-Prince, one of the largest cities in the world without a sewage system, has over 3 million citizens using outhouses that results in contamination of canals and ditches. This leads to the contamination of the water in all of Haiti. In 2010, many international groups had collected millions of dollars to open a sewage treatment facility in an area an hour away from downtown Port-au-Prince. After completing the first facility called the Morne a Cabrit, the plan was to create seven more in different cities. After five years, the plan had stalled and construction had stopped. The Morne a Cabrit is the only operational facility, but the \$2.1 million facility is sitting empty and unused and the volume of sewage being disposed by this facility is decreasing. The reasoning behind this failed project is that the Haitian government is too dependent on foreign aid. Foreign aid needs to be educational and not an expected donation. It goes with the old saying, "Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime."

Electricity is also another major factor contributing to the water quality in Haiti. Electricity is needed for development and also to clean the water. Only 13% of the Haitian population has access to electricity legally. Infrastructure is also another key point in the water quality issue. Infrastructure must be developed so that pipes can be utilized for distributing clean water in the country. It also is needed to separate waste water and clean drinking water. There are so many ways infrastructure could help improve the water quality in Haiti.

There is no one specific solution to the water quality issue in Haiti. There are many factors that contribute to the problem and many factors that can help improve the issue. Education is an obvious factor that can help improve the water quality. If Haitians are more educated about how poor the water is in their community, they may be more aware of ways that could help improve the issue, or even ways to avoid contact with the contaminated water. If they are more aware of the effect the dirty water has on them and their loved ones, the disease rate has more of a chance of decreasing. Another factor is foreign aid. As I said before, foreign aid should be a learning opportunity to support long term change and not just a hand out that becomes expected.

Another factor that could help improve water quality is sewage treatment facilities. Between 1400-1600 metric tons of waste is produced each day in the city of Port-au-Prince. Only 20% of this amount is collected. There are workers in the country of Haiti who are called bayakou. These workers are paid to scoop up feces in outhouses of Haiti with plastic buckets. This is often looked at as a shameful profession. Most workers do not notify their wives that they do this for a living. They pour a bottle of scented floor cleaner down into the pit to get rid of the smell and also to soften the feces. They then scoop it up and find a good place to dump, burn, or bury it. There needs to be more sewage treatment facilities available so that the waste can be taken care of properly and not thrown on the streets where it can eventually contaminate the water. There also needs to be plumbing throughout the country. Having sewage facilities and plumbing could also produce jobs for Haitians.

Some small practices that Haitian families could do include a Passive Solar Disinfection process. This process includes filling a clear PET, polyethylene terephthalate, water bottle and letting it sit in the sun for up to six hours. This process is inexpensive, simple, and the bottles can be reused. This is just one simple solution that families could practice to access clean water.

Another effective solution to water quality is an ozone waste treatment. The contaminated water enters a clear tube that then is hit with a manufactured ultraviolet light. It is much like the Passive Solar Disinfection process, but on a much larger scale. This process does require electricity, which is the major challenge due to the lack of electricity in Haiti. They started using this process in France in 1906. Since then it has been an effective way to produce clean drinking water. While staying in Haiti, I stayed in a house that had running water. They had a hand-dug well on the site of the house that led to a filtration system on the roof of the house. The water was chlorinated with calcium hypochlorite. This process could be dangerous for uneducated Haitians because both too little and too much chlorination could cause health problems. The ozone process is a much safer route that would allow for mass production for the people of Haiti. This process could also produce jobs for the people of Haiti.

The people of Haiti need a permanent solution to the poor water quality in their country. Having been there, I feel a strong connection and concern to the people of Haiti. It is my hope that in some way I can contribute to resolving this issue. Organizations such as Partners in Health, Clean Water for Haiti, and HERO are always needed to help develop suffering countries such as Haiti.

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