Theresa Brehm
Western Dubuque High School
Epworth, IA
Haiti, Factor 9: Water and Sanitation

Haiti: Productive Sanitation in Rural Haiti

Life for the average Haitian is a daily struggle for survival. A woman wakes up early in the hot morning to fetch water for her family. As she travels the two hours it takes to reach the nearest water source, she has time to contemplate her actions. While the water she is obtaining may contain parasites that could make her entire family severely ill to the point of death, drinking this water is the only way to go on living. Without the water, they will all become dehydrated to the point that they can no longer continue on in their daily routine. This is an incredibly difficult situation because if one family member were to fall ill without the proper medical supplies, the situation would most likely result in that person's death because the family cannot pay the fee for hospitalization on their meager wages. As a mother and a wife, this woman does not want to be forced to deal with this terrifying reality. While she continues to think, she begins the long journey home again with the water-filled jug settled on her head. When she returns to the hut she calls "home," she prepares food for her family to eat, using the water she collected. Later in the day, she washes the family's clothing. Throughout the day, her children and husband stop the fieldwork outside to get a drink of water. All of the while, this woman is thinking about the pollution in the water and how this could infect all of them. The knowledge that the water could contain traces of human feces in it makes her want to scream and throw out all of the water she has collected. However, she keeps her mouth closed because she knows this is the better of the two options. She knows a slow death of dehydration is worse than the possibility of contracting a disease through the water they are ingesting. It is an internal and external struggle for her every day because knows the consequences this contaminated water can have on her husband, children, and herself.

People of Haiti live with their families, generally consisting of a mother, father, sister, and brother (Gomez). The women of the family cook the meals, sell articles at the market, and obtain water while the men spend their times cultivating the fields. Coffee, sugarcane, coconuts, avocados, oranges, limes, and mango grow wildly for all to eat. Traditional meals are *pain patate*, *soup jamou*, and *mayi moulen*, the national dish. Sweetened potatoes, fig plants, and banana pudding make up *pain patate* while *soup jamou* is a type of pumpkin soup. *Mayi moulen* is a cornmeal mush consisting of kidney beans, coconuts, and peppers. Starch items such as rice, corn, millet, yams, and beans are staples of Haitian diets ("Haiti." *Food*). This provides the people with the energy they need to survive daily. While starch and fruits are relatively plentiful, there is a severe lack of protein available for the general population. The rich of Haiti can go into the Port-au-Prince, the capital, or another large city to obtain meats, nuts or other sources of protein. However, as the poorest country in the Western Hemisphere, many people do not have enough money to simply buy foods that contain protein. In certain situations, schools provide one or more meals to students attending. In this way, students are able to receive at least one nutritious meal per day. This availability of meals promotes attendance of school. However, 48.7% of people are illiterate. For Haitians 25 years and older, the average amount of schooling is a mere 4.9 years ("Haiti." Worldmark). Due to this rise in food availability, the average amount of children attending school is increasing. However, more people means less time each child can spend in the classroom. Six hour school days have transformed into four hour days to accommodate the advancing number of children hoping for an education. Children generally walk for two hours to reach the nearest school they can learn at. However, these two hours sometimes must be spent traveling to the nearest hospital or clinic available. 40% of the Haitian population has limited access to basic healthcare, much less to advanced care (Agriculture). While this distance steers many people away from the idea of healthcare by a professional physician, money is also a driving factor. Many people, living on less than two American dollars per day, do not have the money to pay a physician that has 3,999 other people to care for. There are a mere 1.3 hospital beds per

every 1,000 people in Haiti (Healthcare). The limited healthcare access deters people from seeking help when they so desperately need it.

For most rural families in Haiti, farming is the only way of life they know. Farms are generally one hectare, or 2.5 acres, in size (Encyclopedia). On these small family-owned farms, field work is done almost entirely by hand. Tilling is done using machetes, pruning knives, hoes, and other handheld tools. These tools are used to plow the land because animals and machinery are too costly for many farming families to obtain and maintain. Sweet potatoes, bananas, beans, maize, and coffee are grown by some, while others grow mangos, cocoa, sugarcane, rice and sorghum ("Haiti." *Food*). By these practices, on these small plots of land cultivated, harvests are not overly abundant. However, whatever extra harvest is produced is sold at the nearest marketplace.

Agricultural practices are constantly being hindered by the periodic flooding, droughts, and hurricanes that wreak havoc on this Central American country (Central Intelligence). The deforestation of the area only makes these harsh conditions worse due to the lack of protection from the elements the cultivated land receives. Without tree cover, dirt becomes exceedingly dry and coarse during droughts, too dry for a large yield to be produced. During flooding and hurricanes, the land has too much water retained, which essentially drowns the growing crops. During all of these horrid conditions, it is unsafe for rural families to be tending to the fields. On one hand, the work must be accomplished to survive, but on the other, it is dangerous for people to subject themselves to the elements of nature at work around them. Another obstruction standing in the way of improving agricultural productivity is the lack of water available to nourish the land. This also ties into the severe situation of droughts because the deficiency of water slows, or in certain cases, halts the growth of crops. In addition to all of these factors, only 40% of land is actually being used for farming at this point in time ("Haiti." Worldmark). This is due to the extremely mountainous terrain in Haiti. With 60% of land not being used towards food production, productivity cannot be increased astronomically. If there is any extra food produced, however, women must walk several miles to the nearest marketplace whilst carrying large produce-filled baskets on their heads ("Haiti." *Food*). These women then spend however long it takes to sell the goods they brought to market, many times amounting to having to spend the entire day there. Purchased food is extremely expensive, so rural families survive on what they are able to grow on their own land. This adds to the lack of proper nutrition because certain farms may not produce the nutrients needed to lead a healthy life, but those crops are the only food they have; rural Haitians eat what they are able to provide for themselves and live without what they cannot.

75.6% of the population of Haiti is living with sanitization facilities that have been left unimproved for many years (Central Intelligence). Due to lack of advancing sanitization practices, many Haitians are affected by waterborne illnesses contracted from pathogens in water contaminated by feces. Cholera is a prime example, exemplifying the toll this can take on the lives of people affected. Haiti recently struggled through a cholera epidemic killing 700,500 civilians and infecting over 600,000 more ("About David."). This tragic, preventable disease selectively afflicts the poor of the population, including many rural farmers. When afflicted, people suffer from severe dehydration. In many situations, they do not visit a hospital; they simply drink more infected water in attempt to cure themselves. When someone is affected with cholera, they become very sick. So sick, in fact, that they cannot work. In this situation, for rural families, the land is being neglected in order to preserve the life of the ill. This, again, halts productivity because the land and that which is planted in it is not being properly looked after. Currently, three-quarters of Haitians have no access to clean, uncontaminated water to drink ("Haiti." *Haiti*.). This number is slowly decreasing, but it still remains a primary issue to resolve. Sanitation is first and foremost the cause of aforementioned illnesses. By taking these sicknesses out of the equation, Haitians would be able to focus on their farms and their ways of life. If people are not affected by cholera due to limited sanitation practices, there will be more money, previously used to pay for doctor’s visits, to pay for necessary food or other supplies needed by a family. With more money available for people to use, the

economy will not be focused on negative ideals such as hospital bills. Rather, it would be centralized on promoting buying and selling of goods because people that did not have the money to spend previously would now have it to utilize.

While lack of adequate sanitation is the foremost issue needing to be addressed, many factors add into the severity of Haitians' situation. Pollution contaminates the water they are drinking and bathing in. Wells, garbage systems, and sewage systems that were destroyed in the 2010 earthquake have yet to be repaired, adding to the pollution strewn ubiquitously ("Water In Crisis"). With a limited number of water sources, many Haitians share wells, streams, and other water sources. If one water source is polluted, the people depending on it are forced to either search for a faraway alternative supply or use the contaminated water. Due to the use of this impure water, waterborne diseases are prominent in Haiti. In rural settings, clean water sources are even farther away than for urban dwellers. With roughly two hours being spent each day fetching water for the family, women would have to travel much farther away to reach a non-contaminated water source (Countries). This takes time away from more productive chores such as tending to the field that produce the food needed to survive. General pollution is a result of open defecation by civilians. Only one in five Haitians, or 2,064,000 people, has access to a toilet (Kennedy). Some pit latrines are available for usage, but the horrible smell and dirty environment discourage Haitians from taking advantage of the facility (Kennedy). Rather, they choose to choose to "go to the bathroom" in the open. In this way, feces enter into water being utilized by other Haitians and spread disease to the general population of an area. By taking open defecation out of the equation, lives could be saved. One way to eliminate this is through a system of productive sanitation.

By way of productive sanitation, or composting human excrement to later be utilized to replenish farming land, feces would be used to rejuvenate the land rather than causing its occupants to fall ill. In excrement of any sort, phosphorus and nitrogen are main components. With this process of sanitation, feces are mixed with carbon-based organisms, such as shredded paper or decomposing foliage. This mixture is then fermented on high heat for six months and, in the culmination of this process, applied to the land as a form of fertilizer (Dagerskog). Phosphorus, nitrogen, potassium, and other nutrients would be restored to ground after the decomposition process has concluded. If there are more nutrients in the land being used to grow, the crops are able to utilize them and, thereafter, increase in size and yield. With a larger harvest, rural families would have more food than they need to survive and could sell the excess at market for a profit, increasing their family income. With more money in circulation and trade on the rise, the economy would also escalate. In this way, the country as a whole would benefit as a result of productive sanitation.

Currently, in Haiti, a non-governmental organization by the name of Sustainable Organic Integrated Livelihoods, or SOIL, has been producing EcoSan [economic sanitation] toilets that can be used to begin this process ("SOIL Haiti."). When a person defecates, they do so in the toilet. These contents are, at the end of the week, transported to a composting facility. Whilst in the facility, the human waste is turned over often to ensure its thorough decomposition. At the conclusion of the six month period, samples of the compost are taken to verify that there are no health risks in connection with usage of it. After this rigorous process is passed successfully, farmers are supplied with a certain amount of the feces, which have by that time been converted into a form of organic fertilizer. Throughout this progression, workers are needed to run the operation. Jobs in the form of feces truck driver, compost turner, operational manager, soil sampler, and many more are created due to this process. With these jobs and the rising in the economy that would consequently result, every person in the area would benefit.

Farmers who receive the composted fertilizer are able to apply it to their fields in a variety of methods. The compost could be centralized on a small area, providing higher yield in a concentrated area but maintaining yield the same on the rest of the farm. On the other hand, the nutrients could be added to a larger area for a less noticeable increase in production overall, but an increase for the farm as a whole rather than merely one section. Each tactic would result in increased harvest, but it is really a question of

the length of time willing to be spent working on and waiting for the end product. The smaller area with higher application would indubitably raise the output per manpower required to boost productivity for each individual family quickly. Conversely, the larger area with lessened application throughout would take a much longer time to reach the same level of efficiency. With these side by side comparisons, taking into consideration the desperate need for the rapid end of world hunger, the former method is recommended for usage. A smaller plot of land that is growing up to its full potential could easily compare yield to a larger plot of land that is slowly working its way up to that point. For example, one farmer chooses to apply the compost into a small, half acre area of his farm while maintaining routine practices of farming for the rest of his property. At that same time, a neighboring farmer spreads the same matter onto his entire two and a half acres of land. At the end of the harvest season, Farmer 1 collects his regular crop from two of his acres while gathering quite a bit more from the half acre on which the compost was spread. Farmer 2 accumulates a slightly larger harvest than what he would have regularly, but the manpower required to apply the compost, work the soil, and harvest the crop was much greater than the effort needed by Farmer 1, simply because of the greater land area being worked upon. Farmer 1 is left with more yield than the second farmer due to the significant increase in productivity from his fertilized half acre of land. At the beginning of the next year of planting, Farmer 1 has the decision of whether to continue spreading the compost on the same plot of land, or to move his focus to another area. The first area still has the boosted nutrients due to the previous year of fertilizer, so it is completely to the digression of the farmer as to which area he will concentrate on next. This adds to the willingness of the farmers to participate because they are the ones in control of what is happening on their land; they are able to choose what they believe to be best for the farm rather than having to follow strict guidelines for it set by another person or group of people that do not know the land as well as the farmer who lives on and works with the soil.

The entire process of productive sanitation would not be able to run without full community support and involvement. This means people using EcoSan toilets rather than defecating in the open, close to water sources, contaminating them with human feces. One issue with this would be changing the mindset of people so they understand why open defecation is not healthy to do (Kennedy). An education program being implemented by SOIL and local organizations together is the most promising answer to this issue. Every time a community is supplied with EcoSan toilets, leaders from the community meet with workers from SOIL and connected organizations to learn about the possibilities available with proper sanitation facilities. Then, a workshop on the proper usage of said facility is held for people of the area (“SOIL Haiti”). Because up to five families with five people in each could share one EcoSan toilet, only 330,240 toilets would be needed for available services for the rest of the 10,000,000 people country. However, toilets vary in size, so, in some situations, one or two larger toilets could be used for an entire community (“SOIL Haiti”). Many people of the area do not understand the implications of their defecation practices, so an education system is necessary for thorough understanding of health risks associated it. Community members could share toilets between a few families to reduce the maintenance cost of it for each family ("SOIL Haiti."). This benefits all members of the community because the water they are using for drinking and eating will not have pathogens contaminating it. The water is more sanitary and healthier for people to be using for all things. This is not simply a small area project though. In this situation, the Haitian government and outside organizations could play a massive part. Together, they could provide start-up funding for the project in a larger scale, country-wide. This would be an entire community and country effort rather than being something one person could attempt to completely accomplish alone. The benefits from added nutrients in the land would be available and continue to multiply for generations of Haitians to come, laying a platform for Haitians in the future to build upon. In addition to governmental and outside organizational funding, those organizations and national leaders could provide support for the program through advertisement. They could speak with members of communities around Haiti to convince them of the benefits their fellow Haitians could receive from using EcoSan toilets. Those people could go back to their communities and talk to leaders there and implement a system of sanitation to use. Every single person in the country would be assisting in the end goal by using the toilets. They would be

doing their part in keeping the water clean and everyone around them healthy. Feces of all people in the country-national leaders, people just passing through the country, workers with local non-governmental organizations, and ordinary citizens- would be used for compost rather than being exposed to and polluting water sources. There would be no worries of water cleanliness or diseases being contracted through unclean water, because there would only be clean, unpolluted water everywhere in Haiti.

Productive sanitation could contribute to hundreds of thousands of lives being saved, not to mention the money saved during this process. The Haitian woman mentioned before would not be concerned for the health of her family on a daily basis. Drinking water would be just that: drinking pure, unpolluted water. No hospital bills would drain the small amount of money the family has, nor would time be wasted by days upon days being spent tending to a person infected with a waterborne pathogen. When the woman is collecting water, she could be thinking about what she is going to make for dinner for her family or how well the crops are growing in the fields. Using productive sanitation as a way to eliminate the feces that contaminate water sources would provide a sense of ease to this woman and others like her all around Haiti. Productive sanitation would also ease the worry about the family's entire food supply. With nutrients being put back into the land, the woman's family would receive a larger harvest. In this way, they would have more food to feed them, rather than surviving on less than they should be receiving in their daily diet. To make this process of productive sanitation succeed, everyone in the community and nation will have to get behind the project. They will have to work hard, but it will be worth it when there is more food available to Haitians. Rather than defecating in the open, it will be accepted nationwide to do so in a toilet being used for productive sanitation. Haitians will know that their feces are making a difference on peoples' land all around the area because there will be a larger crop production due to the organic fertilizer being added to the land and, therefore, more food availability. Hunger could be ended in rural Haiti due to this process of productive sanitation and efforts by civilians, farmers, and the government alike would contribute to effectively driving out this monster we know as hunger.

Works Cited

"About David." *TEDxBeaconStreet An Independently Organized TED Event*. N.p., n.d. Web. 20 Mar. 2015.

"Agriculture and Food Security." *Agriculture and Food Security*. N.p., 12 Feb. 2015. Web. 20 Mar. 2015.

"Cholera - Vibrio Cholerae Infection." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 27 Oct. 2014. Web. 18 Mar. 2015.

"Countries and Their Cultures." *Culture of Haiti*. Advameg, Inc., n.d. Web. 15 Mar. 2015.

Central Intelligence Agency. Central Intelligence Agency, n.d. Web. 10 Mar. 2015.

Dagerskog, L., and R. Gensch. "Productive Sanitation and the Link to Food." (n.d.): n. pag. *Sustainable Sanitation and Water Management*. Web.

"Encyclopedia of the Nations." *Haiti Poverty and Wealth, Information about Poverty and Wealth in Haiti*. N.p., n.d. Web. 19 Mar. 2015.

Gomez, Alan. "5 Years after Quake, Haiti Still on Shaky Ground." *USA Today*. Gannett, 30 Dec. 2014. Web. 20 Mar. 2015.

"Healthcare in Haiti." *REACHH*. N.p., n.d. Web. 20 Mar. 2015"Haiti." *Food in Haiti*. Food in Every Country, n.d. Web. 18 Mar. 2015.

"Haiti." *Haiti*. Human Rights Watch, n.d. Web. 20 Mar. 2015.

"Haiti." Worldmark Encyclopedia of Nations. 2007, "Haiti." Cities of the World. 2002, Jean-Marie Salien, James Ferguson, Brad Kadrich, "Haiti." Junior Worldmark Encyclopedia of Foods;Recipes of the World. 2002, "Haiti." The Columbia Encyclopedia, 6th Ed.. 2014, "Haiti." Junior Worldmark Encyclopedia of Physical Geography. 2003, "Haiti." World Encyclopedia. 2005, TIMOTHY T. SCHWARTZ, "Haiti." Junior Worldmark Encyclopedia of World Cultures. 1999, "Haiti." International Encyclopedia of Marriage;Family. 2003, and "Haiti." Oxford Dictionary of Rhymes. 2007. "Haiti." *Encyclopedia.com*. HighBeam Research, 01 Jan. 2007. Web. 24 Mar. 2015.

Kennedy, Siobhan. “Toilets in Haiti: The Importance of Social and Cultural Factors in Construction and Use.” – *IFRC*. N.p., 8 Nov. 2013. Web. 31 July 2015.

"SOIL Haiti." *SOIL Haiti*. N.p., n.d. Web. 20 Mar. 2015.

“Water In Crisis – Spotlight Haiti.” *The Water Project.* N.p., n.d. Web. 31 July 2015.