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Haiti - A Study in Environmental and Economic Barriers

The once beautiful, tropical island of Haiti has lost its appeal to the eyes of its citizens due to massive population growth and decreasing availability of food and nutrition resources. Haiti is comprised of the western most part of the island of Hispaniola while the Dominican Republic occupies the other eastern two thirds of the island. The total area of Haiti is 27,750 sq. kilometers and most of the island consists of mountainous terrain that previously were lush rainforests. Only 28.3% of Haiti's land is arable and only 11.61% is used to grow permanent crops. Located in the Caribbean Sea and the North Atlantic Ocean make Haiti very susceptible to tropical storms. Unfortunately, due to massive deforestation, the storms further erode the soil, leading to poor vitality for crop production. There are many barriers, both environmentally and economically, which causes Haiti's people to suffer more and more with each passing year. Over two thirds of the labor force do not have formal jobs and live on small scale subsistence farms which scarcely produce enough crops to feed their families. Barriers such as deforestation, poor soil content, economic downfall, and weather have placed Haiti as the poorest country in the western hemisphere and the third poorest country in the world.

Today the average Haitian family survives on what they can harvest themselves and whatever livestock they can afford to feed. Typical farm sizes range from 2-2.5 acres and consists of crops such as corn, tomatoes, sweet potatoes, cassava, beans, vegetables and of course plantains and bananas. Livestock such as Creole pigs, cattle, guinea fowl, and chickens are very common. However, goats are especially common because they adapt to the mountainous terrain and often just graze on grass for their main supply of food. Families in Haiti normally consist of two parents, possibly a set of grandparents as well and 6-8 children. However, due to poor food and nutrition security, deaths in infants and toddlers are very common. Additionally, there is a very low life expectancy of 51 years for males and 54 years for females. Families that own their own farms normally are more concerned with feeding their children than selling what little produce they have. The average annual income for a family is less than \$200 U.S. dollars per year and much less than that for single mothers.

Haiti is among the world's poorest nations. Haitian towns continue to increase as the population of eight million people move from rural areas seeking better opportunities for employment. Despite the increasing population shift, participation in agriculture still remains the main source of income and food for approximately 65% of Haitians. This concentration of labor in agriculture will continue because there are few viable alternatives for Haitians seeking work. Outside of the fishing industry, Haiti has a workforce of four million and finding jobs is extremely difficult with the increasing population. Agriculture provides 25% of the gross domestic product. Forestry and fishing provide another 7%. The division of family farms and property over time means that individual plots are barely large enough to feed the owners' family let alone have any extra to sell. With little produce or crops to sell, it becomes difficult to obtain quality seeds to produce healthy crops. Another reason for poor agriculture practices within Haiti is the composition of the land. Haiti's hillsides make more than half of the territory within the island unsuitable for any agriculture activity. Mountainous terrain, insufficient water supply, and the lack of knowledge to improve crop production leads to less agriculture practices yearly and more forestry activity. The amount of deforestation that has taken place within Haiti has led to major barriers of improving food and nutrition security.

Deforestation, poor soil content, economic downfall, and weather have all proven to be major barriers for Haiti to overcome in order to secure nutrition and food for its suffering citizens. The future of

Haiti is at stake unless it can become self-sufficient. With wide spread malnutrition, lack of employment and education and an unstable government, Haiti will continue its debilitating decline into a wasteland of poverty and degradation.

Nothing symbolizes the brutal cycle of poverty in Haiti better than the process of deforestation. The once lush tropical island of Haiti has become bare, dry, cracked land that is leading Haiti deeper into despair with every passing day. By 1988 only 2% of the original 75% of trees on the island remained due to massive deforestation. Deforestation is the permanent destruction of indigenous forests and woodlands. Due to the lack of electricity and running water in most towns and villages, charcoal is a family's only source of fire, heat, and light. Until the government enforces the few laws they have against cutting down trees and begins to supply electricity and running water to the towns located within the mountains, the cutting, slashing and burning of trees for fuel will not cease. Today only 2% of Haiti's trees remain and with a corrupt government, park rangers are having a very difficult time enforcing the laws against deforestation. Sadly, the Haitians are very aware of what deforestation is doing to their country and ecosystem but when they are left with no other option, they do what they have to in order to survive. Another obstacle to preventing the cutting down of trees is the economy. Deforestation is the main factor in soil erosion. Therefore, when crops will not grow one of the only other sources of income is the cutting and selling of trees for use as firewood and charcoal. Ironically, crops will not grow due to slash and burn methods which leaves the soil dry, withered and with very poor vitality. Currently the status for deforestation is very severe and worsening every year. There is no mystery as to why tropical storms create a disaster for Haiti. Tropical storms and hurricanes that blow through Haiti destroy the land, because there is no shelter from trees. Since there is nothing stopping or absorbing the rain, it has no where to go and causes mudslides and flash floods, washing what little soil there is into the ocean and streams. Deforestation has completely wiped out the rainforest, destroying all forms of biodiversity. If laws are not enforced and programs instituted to provide alternative sources of income as well as viable food resources, the future of Haiti will be devastating for its people.

While the government offers no help, organizations such as ORE (Organization for the Rehabilitation of the Environment), The Peace Core, and various missionary groups have started to set up programs that will hopefully better the future of Haiti and her people. ORE has worked to establish trends such as fruit tree production, staple crops, and increased income for better marketing. ORE hopes that these practices will lead to better economic and environmental benefits for Haiti. Wide spread grafting of fruit trees has been introduced into Haiti where it was previously unknown. Grafting is the best technique for reproducing commercial fruit trees, which will in turn produce larger profits for farmers. Grafted trees bear fruit within two to three years, while seed grown trees take five to six years to bear fruit. There are millions of low-quality fruit trees in Haiti, such as poor quality mangoes, sour oranges, and plantains. Top-grafting is a sufficient way to transform low quality trees into commercial trees that will bear fruit after about a year. ORE also helps farmers become self-sufficient by providing farmers with the "know how" of crop production as well as how to market the production. Picking, handling, transporting and selling quality fruits are all part of ORE's goal for Haitian farmers. The program has turned farmers that were once so poor that they worked for food to feed their families into crop producers that negotiate fruit prices with major exporters for the larger cities of Haiti. The benefits of tree grafting and fruit tree production has had an amazing effect to the actual income for farmers, the nutritional value of the fruits produced, and, more importantly, a decrease in deforestation. Unfortunately, there are still many barriers for Haiti to overcome before it can rise from its devastated state.

Soil erosion due to deforestation has become Haiti's largest obstacle against crop production. When trees are cut, slashed and burnt to make charcoal and housing developments, the soil essentially no longer has any nutritional value. Another factor of soil erosion is unpreventable and unpredictable tropical storms that wash the soil away into streams that carry it out to the ocean. As it may appear to be impossible to maintain a crop almost every family has some kind of subsistence family farm. Unfortunately, these small

farms take so much effort and work to keep up that harvesting an actual crop which would yield enough produce to sell is truly impossible in Haiti. Soil erosion is defined as the washing away of soil by the flow of water. Burning the trees of Haiti causes poor soil vitality which is essential for growing a successful crop. Cutting and not replanting could possibly be the largest mistake Haitians workers could have made. Without replanting trees, vitamins and nutrients will not be replaced into the soil, creating great difficulty in crop production. Soil erosion prevents many Haitian families from obtaining the daily amount of calories and nutritional value necessary to stay healthy. Non-profit organizations that come to Haiti to improve farming methods and soil vitality are making great strides, however, when they move on leaving behind tools and “know-how,” many Haitian farmers revert to their old habits. Ignorance is a key factor in holding Haitians back from improving their life styles. The status of soil erosion and deforestation does not appear to be improving. Trends to enrich the soil, such as using livestock manure, helps but also leads to other problems such as produce containing disease. This in turn could be solved easily with simply washing produce; however, the government has not supplied most Haitians with running water. Soil erosion is just another of the many factors keeping Haiti from becoming an industrialized nation.

After tropical storm Jeanne hit Haiti in September of 2004 many Haitians had no explanation as to why the damage to their country was so much worse than that of other countries affected by the same storm. The scientific explanation; deforestation, a phenomenon that is turning Haiti into a Caribbean desert, and causing massive flash flooding, mudslides and soil erosion. While three fourths of Haiti is dependent on charcoal to cook their food and most farmers are unable to earn a living without a “quick cash crop”, tree cutting is their only source of income. According to the Haitian Environmental Association around 50 million trees are cut down each year to supply fuel to Haitian families. Without the coverage of treetops and support from the roots, topsoil is easily loosened and washed away when the ground can no longer absorb water. Therefore, when storms do pass over Haiti, water pours down nude mountains and overflows the riverbanks causing flooding. Topsoil contains most of the soils nutrients so once the soil is washed away no nutrients remain in the ground to produce crops. This causes farmers to become even more dependent on the cash crop of cutting trees. About 36 million metric tons of soil is washed away from Haiti each year, one of the highest rates in the world. Unfortunately, at this rate of erosion, coral reefs, sea life and tourism are seriously threatened. Obviously, environmental barriers are just another obstacle for Haiti to overcome. Without proper structure from supporting agencies and without government assistance, Haiti has a very bleak future.

As previously mentioned, Haiti is the poorest country in the western hemisphere. However, this is not only due to a poor environment. Many islands surrounding Haiti are thriving with fish markets and hatcheries, agriculture, and tourism. This is due in most part to stable governments that offer support to those in need, unlike Haiti’s government. Only 55% of men and 51% of women in Haiti are literate. With such low percentages, it is obvious that lack of education is a major factor for Haiti. Most Haitians do not have the appropriate education necessary to become anything other than a farmer. Due to the harsh environment and the many other previously mentioned factors, it is no wonder that most Haitians live in poverty their entire lives. Only 50% of school age children actually attend school. The average girl only attends school for two to three years because she is needed at home to help with the chores and the other children. Less than one-third of the young adults between the age of fifteen and twenty-four are literate. There are very few schools in rural and mountainous areas of Haiti. Missionaries normally establish the few schools that can be found, with no government funding.

The government will neither fund nor support education, nor will it fund alternative energy sources. More than four-fifths of Haitians have no electricity to cook their food or heat their homes with. With three-fourths of Haitians living on less than two dollars a day, it is impossible to buy gas or kerosene, which normally costs four times as much as charcoal. Exploring alternative energy sources, such as wind and solar power, would have the potential to provide running water and electricity that could potentially save lives. Many Haitian would be open to switching to renewable energy sources but the question remains,

“Where is the money for such a project?” Haiti received pledges of 1.3 billion dollars last year from other countries and less than 2% of that money was spent on environmental resources. Haiti’s government cannot always be trusted to use these pledges in such a manner as to improve the living conditions of its people. Haitian families lack the basic needs that are necessary for any family to function. These needs include alternative energy sources, affordable health care, modern sanitation systems, clean running water, and schools in rural areas of Haiti. People in Haiti need to be educated in many ways. While reading and writing are extremely important, farmers also need to be taught successful crop production, and alternative growing methods to insure that they will have a product to sell and a source of income. Until Haiti’s government makes serious changes and puts forth an effort to improve the infrastructure for 99% of the population, Haiti will continue to remain as one of the poorest nations in the world.

Organizations such as ORE, the United Nations, and missionary groups have developed programs within Haiti that set goals for their future as a country. However, once programs are instituted, stable, and then left to the Haitians, unfortunately many times they are unable to sustain the programs and things eventually return to their previous condition. Personally, I believe these organizations should create long term options such as sustainable agriculture, seed improvement plans, grafted fruit tree programs, agro-forestry, and access to schools. Sustainable agriculture can be described as the attempt to ensure profitable farms while preserving the environment. This could be accomplished through the options previously mentioned. Seed improvement plans would include an ongoing breeding program and seed processing facilities. These two plans could produce improved seed of local staple crops native to and easily grown in Haiti. Small family farms could benefit from these seeds because they have higher germination rates and better yields, which results in increased income for the farmers. These types of programs would initially need loans or donations, most likely from other countries or private foundations, to get started. The grafting fruit tree programs offered by ORE should be disbursed across the entire island to ensure a stable crop production. With assistance, spreading these types of programs throughout the entire nation would result in larger yields of fruit that can be shipped to neighboring islands, other countries, and the larger cities within Haiti and the Dominican Republic.

Agro-forestry is a system of land use in which harvestable trees or shrubs are grown among or around crops or on pastureland, as a means of preserving or enhancing the productivity of the land. The agro-forest program would encourage farmers to plant trees around their own land and crops. This program would supply farmers with their own supply of trees to cut down when needed instead of cutting what little is left of Haiti’s natural, wild trees. Not only would this program supply Haitians with their own trees, but these trees would also provide shelter from the tropical storms that pass over the land. Agro-forestry organizations allow farmers to buy saplings as well as adult trees for a reduced price to transplant onto their property.

I believe that if multiple organizations worked towards establishing an infrastructure that would create bus routes and paved roads, farmers would have the means of getting their crops to market and children would have access to schools. Now, many children that live in the mountains or very rural areas do not have schools close to them. Due to the unavailability of transportation, most Haitian parents have no access or means to get their children to school. This factor is preventing half of Haitian children from obtaining an education or having anything more to look forward to than a future in subsistence farming, land denuded of trees, and a continued cycle of economic downfall.

Haiti was once a beautiful, tropical island rich in history and rich in culture. Today, Haitian people must struggle for justice, human rights, democracy, and development while living in a nation of poverty and human degradation. Awareness must continue to be raised with the rest of world to the plight of Haiti and her people. Without the support of organizations that address the needs and assist in the economic and environmental development of Haiti, the people of this small, poor nation will continue to suffer with the struggles of everyday life.

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