

Mariah Cox
 Zane Trace High School
 Chillicothe, Ohio
 Haiti, Factor 16: Education

Haiti: Improving the implementation of agricultural research and technology by investing in education and training.

While Haiti previously had a history rich in natural resources and beautiful landscape, today, the present Haiti is in stark contrast to the Haiti of old. Haiti was once known as the 'Pearl of the Antilles' though it may be difficult to believe that today. The island, which was once lush and forested, now is largely barren. Haiti was known as a pearl due to the riches and beauty that the country possessed. In contrast, today Haiti is a picture of poverty and is considered the poorest nation in the Western Hemisphere. While there are many reasons this nation has been in dire poverty, land use practices are the primary cause of the economic disaster.

Massive deforestation is a major reason why Haiti suffers more than its neighbors from natural disasters like hurricanes and flooding. Poor land use practices that were brought to the island by the French and used by the slave population have raped the land of vegetation and potential for land use renewal. Haiti is now about 98% deforested (Treesforhaitinow). Arable land is reduced simply to rubble. In contrast from the 1780s, Haiti exported 60% of all the coffee and 40% of all the sugar consumed in Europe; more than all of Britain's West Indian colonies combined (Henley). Though poor in wealth, infrastructure and natural resources, Haiti is a country rich in culture and democracy.

The key to re-establishing Haiti as a self-sufficient nation is investing in education, training, and extension to improve implementation of agricultural research and technology. Land use practices and sustainable farming methods must be implemented in Haitian culture by improving education. Haitian families must have access to knowledge of the nutritional value of foods so that they can develop a balanced, nutritious diet. Families must be taught appropriate use of foods based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

A partnership must be established between the well-developed agricultural and leadership youth organizations in the United States and the youth of Haiti. Haitian rural farm and urban families should partner with teens of the United States to develop better farming practices, improved nutrition access and better access to clean water.

Haiti at a glance:

Haiti covers the western third of the Caribbean island of Hispaniola. The capital city of Haiti is Port-au-Prince. Upon review of the Haitian geography, the country and its capital city straddle the major fault line between the North American and Caribbean tectonic plates. Haiti is also positioned on the region's principal hurricane track. In Haiti, every single factor that international experts evaluate when trying to measure a nation's vulnerability to natural disasters, is at the very top of the scale. When it comes to dealing with disasters, Haiti is at the bottom. There are very few first-responders--police, firemen, medical rescue workers or otherwise--in Haiti.

The Haitian people were the second nation in the western hemisphere to revolt and receive their independence from a European country. Haiti remains the world's oldest black republic. While this is part of the Haitian rich heritage, it also lends itself to the vulnerability from a corrupt government. The last five centuries have combined to produce a people so poor, an infrastructure so nonexistent and a state so helplessly ineffective. Alex von Tunzelmann, a historian and writer, states, "Haiti has had slavery, revolution, debt, deforestation, corruption, exploitation and violence. Now it has poverty, illiteracy,

overcrowding, no infrastructure, environmental disaster and large areas without the rule of law. And that was before the earthquake. It sounds a terrible cliché, but it really is a perfect storm. This is a catastrophe beyond our worst imagination."

In recent years Haiti has struggled with problems ranging from near-constant political upheaval, health crises, an annual barrage of hurricanes and the worst earthquake in the region in more than 200 years. The January 12, 2010 earthquake significantly damaged any key remaining infrastructure.

Haitian Living:

An average family size in Haiti consists of about 4.5 people. Extremely poor have about twice as many children as non-poor households. This is due to the fact that poor families lack funds and children are the only security for old age (World Bank). Children and youth account for more than half the population (UNICEF). Men and women both value children and both contribute to child care, but women generally bare most of the burden. Parents take pains to ensure that all of their children receive equal portions.

Men are usually the head of the households, but in poorer households the women can also be the head. Men are responsible for most of the hard work, such as tilling, whereas women are responsible for selling the produce and assisting the weeding and harvesting. Poorer families are less likely to get divorced for the cause that they cannot afford the court cost. The life expectancy of Haitians is 57.6 years. 94.2% Haitians are from African decent, with the remaining small percentage from a mix of origins (haitioutreach.org).

Haitians generally eat two meals a day: a small breakfast of coffee and bread, juice, or an egg, and a large afternoon meal dominated by a carbohydrate source such as manioc, sweet potatoes, or rice. The afternoon meal always includes beans or a bean sauce. Usually a small amount of poultry, fish, goat, or, less commonly, beef or mutton, typically prepared as a sauce with a tomato paste base. The cost of food continues to rise as the demand for it grows as the population grows. The population has outstripped the production of food creating a big problem. The World Food Program estimates that about 2.4 million Haitians cannot afford the recommended minimum daily calories. Sixty percent go without food on a regular basis.

In Haiti, about 4 out of 10 people cannot read or write. Literacy rate is 52.9 % (haitioutreach.org). Most schools are private schools. Only about 50% of school-aged children attend school. Most school-age children discontinue their education by sixth grade because the family cannot afford education any longer (hopeforhaiti.com). Even before the earthquake, there weren't enough schools or qualified teachers. According to the Haitian government, 4,000 schools were destroyed and as many as 1,300 teachers died as a result of the 2010 earthquake.

Most Haitians make less than US \$2.00 a day and the extreme poor make less than US \$1.00 a day (haitipartners.org). Of those living in the rural areas, 80% live in dire poverty. Over two thirds of Haiti's population does not have consistent jobs. Nearly half of the population has no access to healthcare. As a result of poor healthcare access, there are major malnutrition and disease problems especially in children (Shah). These diseases include bacterial and protozoal diarrhea, hepatitis A and E, typhoid fever, dengue fever, malaria, and leptospirosis.

A typical farmer has a tiny patch of land that is about 1 hectare on the side on a hill or mountain. He lives in a small one-room hut that has a thatched-roof and is made of sticks covered with dried mud. Most farmers sharecrop and do not own the land that they farm. Since the country is 70% mountainous (adaptationlearning.net), it makes farming very difficult. Natural disasters like earthquakes and hurricanes also create a vulnerability to significant damage to the crop production.

The crops grown in Haiti have changed from cash crops to subsistence farming. Coffee is grown on humid mountain slopes, cotton on the semiarid plateaus and sea-level plains, and bananas as well as sugar on the irrigated plains. Rice has become a basic staple for Haitians, but local production only meets a little more than 20% of demand (nationsencyclopedia.com). The Haitian farmer also raises beans, corn, and yams for their own food, and if he is fortunate, he may have some chickens, a pig, or a goat. Few farmers have a cow, a horse or oxen.

Haiti is an island with a limited amount of cultivable land. The farmers in Haiti employ traditional agricultural practices, more than farmers in any other part of the western hemisphere. Land use in Haiti is 28.11% arable land with 11.53% permanent crops (CIA). The subsistence farming that exists does not meet the needs for the entire country with a population estimated to be about 9,000,000 (haitioutreach.org). Poor farming practices in the past have taken the nutrients from the soil, which have not been replenished.

Peasant attitudes and limited access to credit also help to explain the traditional nature of farming. Agricultural underdevelopment in Haiti is due to the peasants' individualistic nature, their beliefs in superstition, and their unwillingness to innovate. Small farmers also lacked access to credit. Informal credit markets flourished, but credit is not always available at planting time. When credit is available, it is usually provided at high interest rates. The country's major public financial institutions provide loans to the agricultural sector, but this lending practice only benefits less than 10 percent of all farmers.

Haiti's Need for Better Agricultural Education:

According to the World Health Organization, food security is built on three pillars:

- Food availability: sufficient quantities of food available on a consistent basis.
- Food access: having sufficient resources to obtain appropriate foods for a nutritious diet.
- Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Without a higher level of education, it is impossible to have food security. A lack of education leads to the use of primitive farming techniques, which leads to reduced production of foods. One example of the lack of education in Haiti is the practice of continuously planting the same crops in the same soil season after season, thus producing insufficient quantities of food. This practice drains the soil of vital nutrients for subsequent crops to thrive. The innovative technique of rotating crops must be introduced so that soil nutrients are preserved.

A second farming practice that has been in place for the past six decades is deforestation. Since the 1950s, people have been cutting down the trees and cooking with charcoal. As the population has soared, the forests have been eliminated. This, in turn, has led to the loss of valuable top soil and clay, as the tree roots previously held together the soil; now soil has washed away with each new storm that occurs. As a result, Haiti is now 98% deforested (Treesforhaitinow). Best farming practices preserves the soil by replenishing trees that have been used. This technique must be taught so that an increase in quantities of a variety of foods is available on a consistent basis.

Another area that education is a key factor is access to appropriate foods for a nutritious diet. It is very important that families have access to knowledge of nutritional value of foods. Adequate food availability at the national, regional and household levels, obtained through markets and other channels, is the cornerstone of nutritional well-being. At the household level, food security implies physical and economic access to foods that are adequate in terms of quantity, nutritional quality, safety and cultural acceptability to meet each person's needs.

Improved access to foods with high protein content is needed in the Haitian culture. Most of the Haitian diet consists of carbohydrates. Introducing fish and poultry farms would improve access to higher protein foods. Aquaculture is an innovative way to introduce fish to the Haitian diet. Fishing from the coastal regions of Haiti does not produce adequate fish for the population due to the high level of pollution in the areas directly surrounding the island. The coastal ecosystem has been destroyed by tons of garbage that washes into the ocean each year due to the lack of infrastructure on the island. By developing fish farming, Haitians have access to an inexpensive high protein food.

Poultry production is another high protein food production that needs to be developed and sustained in Haiti. Currently, most poultry products are being imported from the Dominican Republic. As a result, the products are costly and of lower nutritional value as they are not fresh. Poultry production must be developed as a sustainable source of high protein foods in egg production as well as meat production.

Lack of education also affects the appropriate use of foods. Malnutrition can occur even when a household has access to adequate amounts of nutritious foods as well as access to sanitation and health services. While adequate incomes, greater food availability and expanded health services are necessary for adequate nutrition; they will not bring about improvements unless households are able to take advantage of them. Knowledge of basic nutrition and care must occur in every community. Adequate clean water and sanitation is essential for Haitians to go from poverty to prosperity.

Greater female education leads to more productive farming and accounts for over 40% of the decline in malnutrition achieved since 1970 (Center for Career and Development). Therefore mothers need to be a target group for education on basic nutrition and care. By using community health education programs, women can be taught basic nutrition principles.

Some of these basic nutrition programs must contain information regarding access to adequate clean water and sanitation processes. Most water sources are contaminated. Most people cannot afford expensive filtration systems, and cannot afford to buy treated water. They have no choice but to use these contaminated sources. Adequate clean water is needed to prevent many diseases that are prevalent in Haiti. Women are primarily responsible for providing water for the family. By choosing clean water, women can improve their standard of health and quality of life as well as prevent diseases in the men and children.

According to the Center for Global Development, education is a prerequisite for short and long-term economic growth: No country has achieved continuous and rapid economic growth without at least 40 percent of adults being able to read and write. Education can help fight poverty by promoting economic growth. A person's earnings increase by 10 percent for each year of schooling they receive, translating to a one percent annual increase in GDP, if quality education is offered to the entire population (results.org).

As the Haitian population growth continues to climb, the need for improved agricultural education regarding food security becomes more important. With a greater number of people to feed from a very small arable landmass, environmentally sound agricultural practices must be implemented. With the population increase, so has the concern for increased pollution and impure water. Educating the Haitian population through community health programs will ensure the wellbeing of Haitian families in the decades ahead.

Very few Haitians have the privilege of attending school beyond the sixth grade. In the United States, agricultural education is offered to high school students. Youth programs such as 4-H and Future Farmers of America (FFA) empower youth to develop agricultural skills that will enable them throughout their life. Improved food production, sustainable agricultural practices, and hands-on experience are offered to

students in these youth programs. Students learn basic nutrition and care during their agriculture classes and club meetings.

In contrast, Haitian youth do not have access to organized programming that will develop food security. While the American farmer is only 0.05% of the US population (NumberOf.net), still programs of research and development of agricultural practices are being offered. In Haiti, 38.1% of the population is involved in full-time farming (CIA). By the sheer numbers alone, increased and developed agricultural education must be offered to the Haitian youth to bring this nation from poverty to prosperity.

American youth programs, like 4-H and FFA, should implement programs to partner with and invest in the youth of Haiti. These organizations have proven that the development of youth can make a difference in society by instilling best practices of agricultural and nutritional education. Haitian rural farm and urban families should partner with teens of the United States to develop better farming practices, improved nutrition access and better access to clean water. These programs clearly demonstrate that, if given the opportunity, Haitian youth can become the new generation of leaders in communities, the private sector, and the government.

An example of a local project: Double Harvest:

A successful local project in Haiti has been developed by the non-government organization (NGO) Double Harvest. Double Harvest operates in third world countries to establish and develop agricultural projects, by providing capital resources and implementing best practices to increase food production, and to build the local economy. This organization educates local villagers and farmers in the countryside with modern and effective farming techniques and business management.

Double Harvest group is partnering with indigenous men and women to start sustainable, productive agricultural enterprises using modern, environmentally sound technology. They use practical conservation regimens and bring together the knowledge, capital requirements and hands-on experience to increase productivity. The founders of Double Harvest are skilled horticulturalists. They have used modern forestry techniques to develop land in Haiti. Hiring Haitians and teaching them sustainable practices accomplish this task.

Double Harvest not only introduces better farming practices, but they also develop the community. This NGO realizes when co-workers and neighbors have critical needs that are not being met by society. Responding to these needs the organization has built churches, clinics, houses and schools. They have piped drinking water to the local villages and taught the basics of sanitation.

Though poor in wealth, infrastructure and natural resources, Haiti is a country rich in culture and democracy. While Haiti had a history rich in natural resources and beautiful landscape, today, Haiti is in stark contrast to the Haiti of old. Haiti of today is a picture of poverty and is considered the poorest nation in the western hemisphere. While there are several reasons this nation has been in dire poverty, land use practices are the primary cause of the economic disaster. Massive deforestation is a major reason why Haiti suffers more than its neighbors from natural disasters like hurricanes and flooding.

Investing in agricultural education may hold the power to bring food security, decrease deforestation, stabilize Haitian's diets, and provide health benefits by prevention. Land use practices and subsistence farming methods must be implemented in Haitian culture by improving education. To obtain food security, Haitian families must be taught appropriate use of foods based on knowledge of basic nutrition and care, as well as adequate water and sanitation. They must have access to knowledge of nutritional value of foods so that they can develop a balanced, nutritious diet.

An example of a successful project is the Double Harvest NGO. The Double Harvest group is working with indigenous men and women to start sustainable, productive agricultural enterprises using modern, environmentally sound technology. They use practical conservation regimens and bring together the know-how, capital requirements and hands-on experience to increase productivity. Hiring Haitians and teaching them sustainable practices accomplish this. Along with agriculture achievements, Double Harvest works hard to educate teachers and children to ensure that the next generation has the tools to succeed.

A partnership must be developed between the well-developed agricultural programs and leadership youth organizations in the United States and the youth of Haiti. Haitian rural farm and urban families should partner with teens of the United States to develop better farming practices, improved nutrition access and better access to clean water. By partnering with American youth, Haitian teens can become the new generation of leaders in their country and bring about the change that is needed to lead the country from poverty to prosperity through improving the implementation of agricultural research and technology by investing in education and training.

Works Cited

- . *All Projects* . N.p.. Web. 5 Apr 2014. <http://www.worldbank.org/en/country/haiti/projects/all?qterm=&lang_exact=English&os=0>.
- . *At a glance: Haiti*. N.p.. Web. 5 Apr 2014. <http://www.unicef.org/infobycountry/haiti_statistics.html>.
- Barnes , Joslyn. *Haiti: The Pearl of the Antilles* . N.p.. Web. 5 Apr 2014. <<http://www.thenation.com/article/haiti-pearl-antilles>>.
- Brioche, Dominick Brioche. "Haiti- the Pearl of the Antilles (Short History of Haiti) ." . N.p.. Web. 5 April 2014. <<http://beholders.org/mind/artshistoryculture/194-haiti-the-pearl-of-the-antilles-short-history-of-haiti.html>>.
- . *Countries and Their Cultures*. N.p.. Web. 5 Apr 2014. < <http://www.everyculture.com/Ge-It/Haiti.html>>.
- . *Education and the Developing World*. N.p.. Web. 5 Apr 2014. <http://www.cgdev.org/files/2844_file_EDUCATON1.pdf>.
- . *Education Program*. N.p.. Web. 5 Apr 2014. <<http://hopeforhaiti.com/Education.html>>.
- Franz, Paul. *Improving Access to Education in Haiti* . N.p.. Web. 5 Apr 2014. <<http://pulitzercenter.org/blog/untold-stories/improving-access-education-haiti>>.
- . *Haiti - Agriculture* . N.p.. Web. 5 Apr 2014. <<http://www.nationsencyclopedia.com/Americas/Haiti-AGRICULTURE.html>>.
- . *Haiti-Info-History*. N.p.. Web. 5 Apr 2014. <<http://haitioutreach.org/wp-content/uploads/2009/06/Haiti-Info-History.pdf>>.
- . *Haiti*. N.p.. Web. 5 Apr 2014. <<http://www.adaptationlearning.net/haiti/profile>>.
- . *Haiti Statistics*. N.p.. Web. 5 Apr 2014. <<http://haitipartners.org/who-we-are/haiti-statistics/>>.

- Henley, Jon. *Haiti: a long descent to hell*. N.p.. Web. 5 Apr 2014.
<<http://www.theguardian.com/world/2010/jan/14/haiti-history-earthquake-disaster>>.
- Jennifer, Kristin. *Socioeconomic Factors Affecting Education*. N.p.. Web. 5 Apr 2014.
<http://www.ehow.com/info_8240412_socioeconomic-factors-affecting-education.html>.
- Masters, Jeffery. "Hurricanes and Haiti: A Tragic History." . N.p.. Web. 5 Apr 2014.
<<http://www.wunderground.com/resources/education/haiti.asp>>.
- . *Millennium Development Goals look out of reach for increasingly impoverished*. N.p.. Web. 5 Apr 2014. <http://haitiinnovation.org/files/UNDP_Haiti_0.pdf>.
- . N.p.. Web. 5 Apr 2014. <<http://articles.latimes.com>>.
- . N.p.. Web. 5 Apr 2014. <<http://countrystudies.htm>>.
- . N.p.. Web. 5 Apr 2014. <<http://haitioutreach.org/.pdf>>.
- . N.p.. Web. 5 Apr 2014. <<http://www.nationsencyclopedia.com/.html>>.
- . N.p.. Web. 5 Apr 2014. <<http://www.state.gov/.htm>>.
- . *Number of Farmers in the US*. N.p.. Web. 5 Apr 2014.
<<http://www.numberof.net/number-of-farmers-in-us>>
- . *Our impact on global education*. N.p.. Web. 5 Apr 2014. <<http://www.worldvision.org>>.
- Schaaf , Bryan. *Recovery and Education in Haiti*. N.p.. Web. 5 Apr 2014.
<<http://haitiinnovation.org/en/2010/07/31/recovery-and-education-haiti>>.
- Shah, Anup. *Poverty Around The World*. N.p.. Web. 5 Apr 2014.
<<http://www.globalissues.org/article/4/poverty-around-the-world>>.
- . The World Food Bank. Web. 5 Apr 2014. <http://siteresources.worldbank.org/_CSA.pdf>.
- . *Trees For Haiti Now*. StartLogic. Web. 5 Apr 2014. <<http://treesforhaitinow.info/index.html>>.
- Von Tunzelmann, Alex. Red Heat: Conspiracy, Murder, and the Cold War in the Caribbean. New York, NY. Henry Holt and Company. 2011.
- . *Why Education Matters*. N.p.. Web. 5 Apr 2014.
<http://www.results.org/issues/why_is_education_for_all_so_important/>.
- . World Bank Publications. Web. 5 Apr 2014. <<http://www.scribd.com/doc/15739335/Social-Resilience-and-State-Fragility-in-Haiti>>.