

Kaitlyn Kitzan
Sacred Heart High School
Yorkton, SK
Ecuador, Factor 9: Water and Sanitation

Ecuador: Nature, Society, Agriculture Sustainability in Ecuador

Ecuador is a country in South America with diverse landscapes; including coastal, mountains, and jungle. It covers 109,484 square miles and is a place where 15.74 million people call home. The Napo River is contaminated, and being contaminated every day by oil companies that affect and destroy agriculture, which is one of Ecuador's biggest industries. The agriculture industry in Ecuador is facing many problems. The three factors that are most visible to the public eye is erosion, deforestation, and water pollution. Water and sanitation is a huge factor causing poor agricultural trends, and resulting in widespread poverty.

There is about 35 percent of the Ecuador population living in poverty, and 17 percent more residents are in danger of entering poverty. On top of that there are 1.5 million Ecuadorians living in extreme poverty (Kliesner). Rural poverty in Ecuador is ultimately caused by lack of education, lack of employment, a low amount of market integration, contaminated water, and little access to land (Kliesner). According to a World Bank report in 2005, 87 per cent of indigenous Ecuadorians were poor, which rose to 96 per cent in rural areas (New Agriculturist).

I had the opportunity to experience the culture and lifestyle of an average rural Ecuadorian farm family, when I visited and worked with a farm family in Ecuador during the spring of 2015. I got to see first-hand some of the issues facing Ecuadorian farm families, due to the contaminated water. In the household there were many generations of family living and working together on their family farm. Women in the household were generally responsible for the upbringing and care of the children, and the men traditionally, were in charge of providing for the family. Usually the farm was not big enough to support the family, so the men were required to go to the bigger cities to find other work such as construction.

The women who live along the Napo River have many disadvantages. They have to carry water from the river long distances through the jungle, if their family lives far from the river. They have lack of transportation to go to the city or market and sell the crafts and jewelry they make. Lack of money and transportation, does not allow them to buy things like food, so they must provide food for their family in what they grow, like vegetables, fruit, and the livestock they raise such as cattle and goats. This does not leave much for them to take to the market. They face huge health issues, due to the lack of clean water and sanitation. During my visit to Ecuador, I witnessed the present status of many people with distended stomachs, which I learned from our group leaders is from consuming the contaminated water and acquiring parasites within their digestive system. I would say the present status of water and sanitation is severe. Health care access is scarce in rural areas of Ecuador. Residents of rural areas have a lack of transportation to larger centers and little money. Health care access and personal witness of diseases is difficult, therefore, they have to rely on Shamans, midwives, medicine men, or herbal remedies for health care. Life expectancy for an Ecuadorian is 78 years.

People who live on the river are extremely isolated. The only connection that communities up and down the Napo River have is through a series of health posts, which use a various selection of technologies to communicate with each other; this depends on the urgency of the issue and the availability of the technology (The Napo River Project: NapoNet). There are 17 wireless antennae towers on the mid and upper sections of the Napo River, which are the technology issues that need addressing (The Napo River Project: NapoNet).

Education is mandatory and free from grade one to six. Grade seven to nine is also free schooling, but many kids do not attend, because of obligations to help out with their family farms or businesses, or to start their own families. Residents of rural areas would sometimes have to travel long distances to attend school, which would reduce the time they could help out on the family farm.

Ecuador's main economic activity has been agriculture, but only about 11% of the land is arable or under permanent crops, and another 18% is permanent pasture (Ecuador- Agriculture, n.d.). Soil erosion is a problem in some regions of Ecuador making the cultivated land not fertile or farm-able. Soil quality is poor and is usually located on marginal lands and crops that are grown in rows, such as corn. The Andes Mountains cause the environment to be more susceptible to soil erosion. "Similar problems are evident where vast forested areas are being cleared to provide more land for crops and livestock production" (Southgate and Whitaker).

Smallholder farmers in Ecuador produce 65 percent of the basic staples in the family diet in plots smaller than 10 hectares (Heifer's Work in Ecuador, n.d.). Small, yet critical to the nutrition of Ecuadorians, these family plots account for only 10 percent of arable land in the country (Heifer's Work in Ecuador, n.d.). The rest of the land belongs to large farms and agricultural corporations (Heifer's Work in Ecuador, n.d.). The diet of an Ecuadorian is almost solely vegetarian, as many meats are considered a "rich man's" food. Nationwide, Ecuadorians rely heavily on potatoes, rice and beans. Their diets include lots of soups, which the ingredients vary from what part of Ecuador they are from. Coastal areas differ than that of the mountainous regions, as they have more access to seafood, spices, and coconut milk. Residents that live in rural areas, usually have a very nutritious diet as their food is fresh from their farms.

The farm I worked on was considered one of the biggest farms in the area. It was made up of 90 acres of land, 30 cows, 5 pigs, and many chickens. However, because modern agricultural technology does not exist in the Amazon region, all of the farm's work had to be done by hand, rather than the farm machinery we use daily in Canada.

Agricultural products traditionally have included bananas, coffee, tea, rice, sugar, beans, corn, potatoes, and tropical fruit (Ecuador- Agriculture, n.d.). In the highlands due to the cool temperatures, you can find maize, beans, potatoes and vegetables (New Agriculturist). In the coastal regions, which have a warmer climate and the soils are fertile, you can find crops such as coffee, bananas, cacao, sugar, rice and palm oil ("New Agriculturist"). Livestock production is well spread around the country, especially beef and dairy cattle, as sheep and goats are mostly found in the mountain region (New Agriculturist).

The agriculture sector of bananas accounts for about fourteen percent of the Gross Domestic Product (GDP), and supplies jobs for 1.25 million workers, but these workers are not unionized and earn only \$2-3 dollars US per day (Ecuador, n.d.). Bananas are the largest export for Ecuador (Ecuador, n.d.). This trade is deteriorating as the profits are declining as bananas are being sold at a low price on the international market (Ecuador, n.d.). Representing over 30 per cent of world banana trade, Ecuador exports more bananas than any other country (New Agriculturist). Ecuador is also one of the largest producers of white fleshed shrimp in the world (New Agriculturist). Pathogens and climatic events, including tropical storms and droughts, are the major challenges faced by this sector (New Agriculturist).

The majority of coffee is produced on small farms of 1-10 hectares (New Agriculturist). An estimated total of 150,000 hectares of land is dedicated to the cultivation of coffee, with roughly 60 per cent of this area also shared with other crops, including cacao, citrus fruits, bananas and mangoes (New Agriculturist). Smallholder cocoa farmers account for about 85-90 per cent of total cocoa production, making Ecuador the seventh largest producer (New Agriculturist). In the past, cocoa production has been hit hard by disease. To combat disease and produce higher yields, work has been underway to develop new cocoa varieties and improved technologies (New Agriculturist).

Ecuador is losing 200,000 hectares of forest every year due to illegal logging and deforestation for agricultural expansion and for road development to the oil drilling sites (New Agriculturist). Ecuador's Amazon region is one of the poorest areas in the country, due in part to lack of land tenure and the pressure from oil and mining companies on indigenous lands (New Agriculturist).

In the words of Kashmiri, "It is easy to throw anything into the river, but difficult to take it out again" (Unwater, 2011, pg.1). This quote mentions water and sanitation as the focus. I picked this factor for the focus of my research as while I was visiting Ecuador, I spent most of my time working with communities and farmers along the Napo River. The Napo River is about 670 miles long (Unravelling the Napo's Mystery, 2013). It flows from the eastern slopes of the Andes in Ecuador and descends eastward to the Peru border (Napo-River, n.d.). There it turns southeastward and continues through dense tropical rain forests, joining the Amazon River (Napo-River, n.d.). This river is completely contaminated. Water pollution is due to the influx of domestic, industrial and agricultural contamination. Communities and farms along the river use this water on a daily basis for bathing, drinking, cooking purposes, watering their crops, watering their animals, and fishing. Due to the contamination, it reduces agricultural production and makes many humans ill.

The International Fund for Agricultural Development (IFAD) states that in the Amazon region, with the lack of secure access to land and water, and the increasing pressure of the oil industry on native lands, this has resulted in high levels of poverty (New Agriculturist). There are many indigenous people who live in the rural highlands and the Amazon region that are in poverty, and the amount of impoverished indigenous is much higher than those that are not indigenous (Kliesner). These people show extremely high levels of child mortality and malnutrition, and they are much less educated than the non-indigenous Ecuadorian population (Kliesner). There are significant clean water and hygiene needs, as 75% of the population suffers from recurrent Malaria (The Napo River Project: NapoNet). Children do not get adequate nutrition, due to the lack of clean water and sanitation, and there is not always food available to adequately feed them. Their breakfast program was prepared in a hut with obvious mold, and the food was prepared on the ground, and handed out into children's hands.

According to Jorge Celi "Local residents have long used the river for their livelihoods and transportation, and recently there's been an increase in traffic from oil companies that are exploring and drilling in the region,". The Napo River is filled with people bathing, washing dishes and clothes, playing and drinking the water. As oil operations expand, so do the dangers of this way of life. This is a major concern to Ecuador's future agricultural industry as the oil companies already have done lots of damage, and they are still moving in. In 2011, a court in Ecuador fined US Oil Company, Chevron, US \$8.6 billion for polluting the Amazon by dumping billions of gallons of toxic materials into pits and rivers. The waste has been blamed for damaging crops, killing livestock and high cancer rates among the local population (New Agriculturist). Another situation on May 31, 2013, a landslide ruptured an oil pipeline, spilling around 11,000 barrels of oil into the Coco-River, further polluting the Napo River (Hance).

Mercury contamination is another huge problem in the Napo River (Webb). Mercury is damaging the aquatic ecosystem by entering the food chain (Webb, 2004). Since mercury is a potent neurotoxic agent, consumption of fish high on the trophic chain is a growing public health concern (Webb, 2004). There has been many studies done by taking samples of commonly eaten fish and then of human hair (Webb). Some of these studies have shown decreased capacities on neuro-behavioral tests (Webb). Pollution in the form of discharge water, spills, and burned gases is potentially adding mercury into the Napo River (Webb).

Due to the contamination in the river, farmers' crops do not yield their full potential, and often their livestock get ill. This leads to poor quality products to market, and therefore does not get sufficient returns to help support the family. This is the reason why many men are forced to go to bigger cities and find supplemental work to support their family.

In 2002 a study concluded that the prevalence of cancer was significantly elevated in Ecuador where oil firms operated. A school teacher on the Napo River informed researchers that the oil companies have been causing environmental damage to the water and air for decades (Jubasz). In her opinion, she thinks that is the reason why there are so many kids with mental and physical disorders in their region (Jubasz).

The children drink the water without any treatment, which affects their health (Jubasz). This country needs to address the factor of water and sanitation. The Napo River needs to be decontaminated. To do so, the government needs to get involved. In my opinion, the government should provide financial support, and prioritize the needs of these communities for future sustainability in their country. By providing fresh water and offering other initiatives to increase the agricultural sector, which would enable rural families to be more self-sufficient. Instead of government funding every little village with elaborate sport facilities, the money could be put towards sustainability of these villages and farm families. This situation will be ongoing over many years and will not be resolved short term. Another initiative would be to prohibit oil companies from putting their waste into the river causing further contamination, and eventually prohibiting further oil drilling, reducing further soil erosion and deforestation.

Many experts believe in order to avoid the worst of a future climate change catastrophe; we have to leave the “oil in the soil” (Jubasz). But the Ecuador President has different ideas, and wants to expand oil production, thinking it will decrease poverty (Jubasz).

CRACYP (Rural Forestation and Progress Network Corporation in Spanish) is a non-profit organization working with communities in Ecuador to facilitate reforestation and sustainable rural development. “Their mission is “Progreso Verde” or “Green Progress” facilitating social and economic development, but in ways which protects the environment.

Local organizations such as Quito based Accion Ecologica have gathered signatures to hold a national referendum on halting drilling in the Yasuni National Park.

Certain indigenous communities along the Napo River follow the tradition of the minga, which is where the entire community comes together to work for the benefit of everyone (Kliesner). An organization helping, Free The Children has been working with people in the Amazon region, to provide education, training, and physical help for their five pillars; education, water, health care, alternative income and agriculture (Kliesner). My trip with my high school (Sacred Heart High school in Yorkton, Saskatchewan) was with this organization. We were helping with the alternative income and agriculture pillar by helping to build a “chaos” (a building where the village women can make and sell their crafts.) Such villages need to be willing to work with the organization. When a group of people with the organization come to work on a project, the village people have to finance 10% of the total project cost, and also facilitate the project by sending a set number of workers each day and supplying the engineer from their community. In this way, they feel a sense of pride in the finished project; whether it is a school or a hospital. They are also trying to provide aid for the thousands of indigenous from the Amazon that are most vulnerable due to limited authority over labor opportunities, land use, and health care (Kliesner). Organizations like these are essential for helping the natives of Ecuador to be able to acclimate to the changing world around them and progress out of poverty (Kliesner).

Ecuador has many obstacles to overcome for sustainability of their agriculture industry and its people. It needs to recognize its agriculture potential. Economic and agricultural instability, bureaucracy, food insecurity, and poverty are an ongoing daily struggle for farm families in Ecuador. The issues of water and sanitation need to be addressed for the sustainability of this industry and their people, and to preserve their environment on which their future depends.

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