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Ethiopia, Factor 6: Sustainable Agriculture

Education: The Key Towards Sustainable Agriculture in Ethiopia

Located in the Horn of Africa, Ethiopia is the 10th largest country in Africa. Ethiopia's history of political turmoil and violence has greatly affected the productivity of the country as a whole. In 1885, Italy invaded Ethiopia for the first time, causing a shift from regional disputes to the international realm. Conflicts with Italy continued until 1941, when British forces combined with Ethiopian resistance forces expelled the Italians, reinstating Haile Selassie to his throne. In 1974, he was overthrown by a military junta which promised to return the land to the people claiming, "land to the tiller of the soil (BBC News)." In 1976, this new government, called Derg, started killing anyone suspected of opposing their rule. This resulted in a period called The Red Terror, in which over 500,000 people were brutally murdered. In 1991 Derg was overthrown from control and replaced by the Ethiopian People's Revolutionary Democratic Front, the same political party that continues to hold power in Ethiopia today (Red Terror). According to *The New York Times*, "Politicians from the ruling party have campaigned on a record of economic growth. The economy, according to government statistics, grew 10 percent annually over the past decade. The government has also touted construction of large-scale projects like the Grand Ethiopian Renaissance Dam, which could more than triple electricity generation, and assistance to farmers that helped poverty rates fall from 44 to 30 percent between 2000 and 2011, according to the World Bank (Ruling Party)." Even with growth in Ethiopia's economy, border disputes with Eritrea, Gambella, and Somalia have been ongoing since the 1990's and have resulted in Ethiopia hosting the largest number of refugees in all of Africa (BBC News).

Ethiopia's economy is dependent on subsistence agriculture. Due to recent droughts, crops have been poor. Of the 96 million people inhabiting Ethiopia, 39% live below the poverty line and 29.2% of children under 5 are underweight, proving that hunger is an issue in the country. Over 85% of Ethiopia's population lives in rural areas, which contributes to the difficulty of distributing medical and social services (The World Factbook). Almost half of Ethiopia's population can barely afford the minimum basic food requirements. 89% of the population lives on under two dollars a day and 46% live on under a dollar a day. Ethiopia exports coffee and continues to import manufactured goods just as the country did over 50 years ago. Recently, however, export capacities have been decreasing substantially, creating higher debt levels. With exports decreasing, imports are increasing. The growing imbalance between the two has led Ethiopia to search for financial help. Ethiopia has reached the point where functioning is only possible with external assistance. The country's poor economic decisions are leaving less and less room for agricultural productivity development. Economic decisions are also restricting household income along with employment opportunities (Poverty in Ethiopia). Smallholder farms dominate Ethiopian agriculture and produce 90% of the country's grain. Smallholder farms cultivate less than one hectare, and the 7 million farm families combined cultivate around 6 million hectares (Farmer Circumstances). To sell at the local market, farmers typically grow root vegetables, teff (a grain-producing grass), millet, maize, wheat, sorghum and beans. In the central and southern Oromia regions, Ethiopia's top export; coffee, is grown as a cash crop. Ethiopia has many rivers and lakes, but despite that, only 4% of the land is irrigated. Ethiopia's farming methods are fairly basic and would greatly benefit from greater investments in their agriculture. With some of the most fertile soil in East Africa, yields would greatly benefit from better irrigation, fertilizer, and seed advancements (Climate & Agriculture).

In Ethiopia, family ties are strong. It is common for households to include extended family members and most households generally hold up to six people. Families are very close-knit and in times of crisis the

family takes over. In the United States, divorce rates are high, and single parents tend to struggle in isolation. In Ethiopia, family takes full responsibility for all its members (Ethiopian Cultural Profile).

The Ethiopian diet consists mainly of millet, sorghum, and plantains. In the mountainous regions of Ethiopia, enset, a plantain-like plant is a staple for their diet. Animal proteins are available, however, religion restricts meat in the diet for most. A large number of Muslims and Ethiopian Eastern Orthodox Christians observe dietary restrictions, by not consuming pork or by eating a vegetarian diet. Their diet is often high in fiber, but low in dairy products and low in fat (Adoption Nutrition).

Education in Ethiopia is generally poor. Children normally start school at age five. They receive six years of elementary, two years of junior elementary, and four years of senior secondary. An average class is filled with sixty-five students and few school supplies are available. Most schools don't have any form of plumbing. School is not required under law, and since supplies are low, only the fortunate get an education. In rural areas, most children receive little to no education. Rural families need their children to do chores and to help contribute to the household income (Education in Ethiopia).

With over four-fifths of Ethiopia's population living in rural areas, health care is often difficult to reach. The World Health Organization has found that there are just over 1,800 doctors practicing in Ethiopia, which is less than one doctor per ten thousand people (Poverty & Healthcare). Proper sanitation is a problem among Ethiopia's people. Only 10% of the population has access to proper sanitation, meaning diarrheal diseases and cholera are a constant hazard. The current life expectancy is fifty-four at birth, but with current HIV rates it is expected to drop to around forty-six. Up to 80% of diseases are preventable, which exhibits how poor their health care system is (The Health System).

For rural Ethiopian families, their crop production heavily affects both food intake and income. Families depend on their crops to survive. They use a majority of their profits from crops to buy more food (Poverty in Ethiopia). In fact, the amount one consumes is often dependent on one's own production of food. Women and children tend to suffer more from poverty and hunger than men. This is partially due to the heavy workloads and having to carry heavy burdens. Food share in rural areas has increased by 7% and in urban areas food share decreased by 3%, leading to the conclusion that people in rural areas are currently facing greater food insecurity (Poverty in Ethiopia).

Sustainable agriculture promotes farming practices that are environmentally sound, profitable, and benefit the human public (What is Sustainable Agriculture?). Ethiopia is currently not supporting their agriculture as much as they should. The land is very fertile in the majority of the country, but their agriculture isn't very advanced. Advancements in seed genetics, irrigation, and fertilizers could help with some food shortages (Climate & Agriculture). For example, if better yield-producing seeds would be introduced, the public would have more access to food, especially farm families, whose agricultural production greatly affects their diet and nutrition.

The Ethiopian government currently recognizes Ethiopia's poor level of production in the agricultural sector. According to the Ethiopian Highland Reclamation Study (EHRS), 112 million hectares of land are suitable for cultivation (66%). Only 12% of that land is currently being utilized. In addition, 1-2 million tons of soil are lost each year, resulting in further land degradation. 50% of the country's soils have been significantly eroded, while 25% have been seriously eroded. Ethiopia currently has the largest livestock population in Africa, with over 30 million cattle and 42 million sheep and goats. Overgrazing the land makes soil more susceptible to erosion, depleting the overall soil quality. This, along with the cutting of timber for fuel, contributes significantly to the degradation and erosion of the land. Ethiopia has many rivers and lakes, but despite that, only 4% of the land is irrigated. Some parts of the country need irrigation to produce sufficient yield. Land use planning has been discussed, which would allow better integration of crops and restoration of ecological balance.

Agricultural production isn't the only problem. Almost all of the food lost is at the production to retail level. Only a small percent is lost due to consumer waste. This is typical for all Sub-Saharan African countries as well. These African countries lack the infrastructure needed to minimize production waste and create efficient production (FAO Statistics).

The Agricultural Transformation Agency's (ATA) Climate Adaptation & Environmental Sustainability Program is working closely with Ethiopian government organizations, nongovernment organizations, and various research institutions to improve natural resources management, rehabilitate the degraded environment, and improve the livelihood of farmers. One way the ATA is working to improve the situation is by enabling farmers to receive better forecasts. Currently, locally tailored and well-developed forecasts aren't being received at district and farm household levels. The ATA is working with universities and agro-climate meteorology stations, and is training extension agents in efforts to better the situation. Another project currently being discussed is the addition of tree fertilizers to reduce runoff, minimize soil erosion, and improve soil components. Lastly, the implementation of a climate-resilient green economy needs to occur to further benefit the country for years to come (Ethiopian ATA).

The ATA is a great model of a successful organization whose goal is to end hunger through agriculture by addressing the root sources of poverty and hunger in Ethiopia. Another great model is Action Against Hunger. They started working in Ethiopia in 1985 to help communities through drought and food shortages. Action Against Hunger has helped in the most recent crisis as well, helping 463,000 people in 2011 alone. They set up camps providing meals, clean water and medical treatment to families and children. Both of these organizations, which have different ways of approaching the situation, have the same goal: ending hunger and aiding Ethiopians (Action Against Hunger).

Many Americans argue that the United States should make internal problems a priority over international suffering. There is hunger, threats on terrorism, and even a massive debt held by the American government. Should we focus on these first? Hunger causes people to do desperate things. It's survival of the fittest and as humans we will often do anything we can to survive. Hunger and survival are key factors that link into terrorism. Terrorism is one of the biggest threats our country faces. If we could both help another country by decreasing food insecurity which would statistically decrease terrorism, wouldn't that also be solving our internal issues?

By improving Ethiopian agriculture's sustainability, many different effects will arise. The first is food availability. By soil conservation and the introduction of more efficient, green farming methods, farming production will improve. Since farm families generally use most of their income on food products and eat a majority of what they produce, it will drastically affect them positively. Situations won't improve right off the bat. Farmers will need to learn how to treat the land properly and slowly, over time, conditions will improve. This means that soil quality and yields will greatly increase. Smallholder farmers' yields increasing will lead to larger profits, which contributes to the general economy. As a result of better crop production, profits will increase and poverty levels may decrease, boosting the economy. Ethiopia's economy currently relies on other countries. With a rising economy, imports won't be needed in as large quantities. Women in Ethiopia will face less stress and poverty than they currently are experiencing. By educating the Ethiopian public about proper conservation and farming practices, many of the country's people will benefit.

One of the eight Millennium goals is to eradicate extreme hunger and poverty. A short term solution could be for foreign countries to aid in feeding the hungry (UN Millennium Project). In Iowa, Meals From the Heartland packages simple meals to send to people in need throughout the world. This organization could help contribute by shipping meals to people in need in Ethiopia.

Millennium goal number seven is to ensure environmental sustainability (UN Millennium Project). To make this possible the people of Ethiopia need to be taught how to care for the environment. The agricultural sector affects the environment substantially in Ethiopia and should be the first and primary focus. By integrating modern farming methods and environmental practices, a slow change will occur to the environment. Over a period of years, the land will gradually become better, and more appropriate to support the needs of the country and make their food production more independent.

The last Millennium Goal, goal number eight, is to develop a global partnership for development. Ethiopia's economy is currently reliant on imports (UN Millennium Project). With strengthened relationships in foreign trade, Ethiopia may be able to raise their exports and help lower the need for imports. With increased relationships with other countries, Ethiopia may also receive more foreign aid to feed the hungry, implement modern agricultural techniques, and lead families away from poverty.

While developing sustainable agriculture is the goal for Ethiopia, a lot of other factors tie into the issue of hunger. These factors include, but are not limited to: political turmoil, violence, weak economic status, food loss between production and consumption, and a poor education system. The poor education system of Ethiopia must be addressed. If the youth were educated about proper farming practices, progress could be made for future generations to enjoy greater food security. Some of the issues facing the agriculture industry can't be taught, like climate. Weather can be unpredictable, but responses to climate and weather patterns can be controlled. Providing farmers with well-developed future forecasts, and educating them on the best possible reactions will help farmers develop sustainable agriculture. Education helps solve many issues in our society. You can only supply so much help and assistance, but personal growth needs to be made by individuals as well. Ethiopian children aren't required to go to school. This needs to change, even if they can only attend for a few hours a day, several days a week. By getting the youth to school, they can get the proper education to go further in life and be taught proper environmental management. By educating the youth, the same mistakes regarding environmental treatment won't keep recurring. It starts at the government level with making school a requirement for all children. Next, is an expanded curriculum. More rural schools need to teach agricultural practices and management since the country relies so much on its agriculture. Education doesn't stop at the school level. Current farmers need to know how they can work their land in more efficient and green ways as well. The Agricultural Transformation Agency is currently developing programs in Ethiopia to help educate people similar to our County Extension services, but more programs need to be implemented. Through education, particularly agricultural education, many of Ethiopia's food problems can be solved.

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