

Shraddha Batra, Student Participant
Valley Southwoods Freshman High School
West Des Moines, Iowa

A Persisting Hope for Education and Agricultural Extension Programs for Farmers in Ethiopia

According to the Food and Agriculture Organization, rising prices due to the latest global food security crisis have "plunged an additional 75 million people below the hunger threshold, bringing the estimated number of undernourished people worldwide to 923 million in 2007." The devastating impact of this emergency on citizens of the least developed countries, most of them in Africa, have reversed the gains toward achieving the UN Millennium Development Goal of halving the proportion of hungry people worldwide by 2015. There is an exigent need to establish large-scale operations that alleviate intensifying food insecurity in the long term, through investments in not only distribution of food supplies to the most vulnerable, but also in programs to support small farmers in improving agricultural productivity. Increasing farmers' access to education and improved agricultural technologies will empower them to improve crop yields, which will not only allow for economic growth and reduction of poverty, but also the alleviation of hunger and its associated detriments to human welfare.

First, it is critical to consider the multitude of factors that cause and reinforce the state of hunger and malnutrition before expounding upon solutions. According to the United States Agency for International Development (USAID), "Ethiopia remains one of the most famine-prone countries in the world with more than half of the population living on less than US\$1 per day." Frequent droughts and the increasingly sparse amount of arable land have severely limited farmers' crop production. The recent high food prices have exacerbated the condition of food scarcity that is affecting the 78 million citizens of Ethiopia, which is the second-most populated country in Africa (World Bank). Other factors leading to smaller crop yields and overall food insecurity include government instability, conflicts with neighboring nations, insufficient infrastructure, lack of farmers' access to proper agricultural technology, and the debilitating effects of disease such as HIV/AIDS compounded with hunger and malnutrition on a majority of the populace. Education of and extension of agricultural research and technologies to small farmers, however, provide a sustainable means to address the crisis, for they can empower low-income farmers to improve crop production and take an active role in minimizing the effects of the factors that are intensifying their state of poverty and hunger.

Understanding the cultural and economical aspect of Ethiopia is essential to be aware of, to understand the barriers that are preventing a country or area from becoming secure before just presenting solutions. By learning about a classic family in Ethiopia, one is able to understand the reality of those in Africa, and how resolutions will leave a greater impact in that area.

There are typically large families in the country of Ethiopia. According to the USAID, there are approximately six people in one family. Women traditionally take leadership in most families by fulfilling the household duties, and working in farms with other women because Ethiopia's economy relies greatly on agriculture. Women usually get married at a very young age; this is one of the reasons as to why there are larger families in Ethiopia. Because women have such a significant role in families, it is very difficult for them to receive education. According to the United Nations, 584 million women in the world are illiterate, and 114 million children do not even receive a basic education. This fact not only illustrates how many people are illiterate in this world, but rather that education is very crucial.

Low income families make up the vast majority of the population in Ethiopia. There are a multitude of factors contributing to this cause. The brutal droughts throughout they year are the main cause for difficulty and turmoil in Ethiopia. Ethiopia is predominantly reliant on its agricultural products, but when harsh weather conditions arise, families do not earn an ample amount of money to live.

According to Michael Buerk, a BBC news correspondent, the average annual income in Ethiopia in 2004 was only \$108. This significantly affects the Ethiopian economy, making it harder for it to advance in every aspect.

A typical subsistence family in Ethiopia is comprised of farmers. According to the CIA Factbook, 80% of the population in Ethiopia is all farmers. Agriculture is one of the most significant factors that define this African country. With half of Ethiopia's population under the poverty line, agriculture is the way of life for those in Ethiopia. Thus, although small scale farmers are the poorest in Africa, they are an essential component to Ethiopia. Both men and women work closely with agricultural processes, while women also manage the household chores and take full responsibility for their children. Ethiopia is greatly known for its exports in coffee and agricultural exports, and this poverty-stricken country could not survive without these. In 2006, it exported coffee valuing approximately \$350 million (CIA Factbook). As it can be seen, coffee plays a vital export for Ethiopia. Other products produced include cereals, pulses, qat, cotton, sugarcane, potatoes, and cut flowers (CIA Factbook). Although Ethiopia may appear to be exporting a variety of agricultural products, food is still very scarce for these small-scale farmers. According to the United Nations, more than 40% of Africans do not receive a sufficient amount of food everyday. This finding illustrates the terrifying state of malnutrition in Africa, where countless people suffer from hunger-related diseases.

Generating agricultural products for the world is a tedious task, as it is very time consuming. A farmer must be able to differentiate between which methods are best for producing agricultural items to support countries. Ethiopia carries a story with a multitude of complications. Ethiopia is home to more than 45% of the population in its highlands (IFPRI). When population levels are at so extreme, significant problems can occur. Such agricultural problems include deforestation, land degradation, and soil erosion. These problematic issues can occur from improper crop production. As a direct effect, the threat of hunger immediately increases, resulting in people eating less everyday. Another problem in the agricultural practices aspect is that Ethiopia's topography ranges greatly in terms of landforms. Most small-scale farmers do their farming on very fragile land that is not completely uniform. This is one of the leading causes for the problems of farming in Africa. As a result of this practice, the process of soil degradation becomes present. This makes it unbearable and difficult for African families to live without enough food. Another factor contributing to the poor methods of agriculture in Ethiopia is the land use itself. Only 10 percent of the land used for farming is arable (CIA Factbook). This finding explains how the work of the farmers does not equal to the end product. Farmers work arduous hours throughout the day, but their concluding product is not helping them equivalently in the end. Agricultural extension programs are a crucial solution to help solve this instability crisis. Through these programs, farmers are able to increase crop productivity. Land degradation and the declining soil fertility have both contributed to the decrease in food production per capita in the last 25 years (United Nations). According to the Food and Agriculture Organization of the United Nations (FAO), "Over 11 million hectares of land are farmed in Ethiopia but less than 200,000 hectares are irrigated." The rising prices of proper fertilizers and seeds place a burden on farmers to use for farming. Fertilizer itself can cost approximately two to six times more for African farmers, thus greatly affecting both the quantity and quality of the crops produced (United Nations). A long term solution must be presented to reverse these problems. Ethiopia's agricultural practices are not only making it difficult to grow livestock and agricultural products, but are also one of the leading causes to the food insecurity in the Horn of Africa.

Droughts and farming are two interrelated factors that significantly influence Ethiopia's hope of sustainable development. Ethiopia's climate is known to be the most major obstacles to overcome in order to save the lives of millions everyday. Droughts are no stranger to the farmers here, arriving quite often throughout the years, thus afflicting farmers greatly. One of the direct effects of the droughts in Ethiopia is a famine. A famine is able to strike even in rural areas, but could potentially affect approximately 10 to 12 million people just in Ethiopia. Even a small shortage of food can impact numerous lives. According

to the United States Agency for International Development (USAID), of the 11 million people (in 2005-2006) in need of food assistance, 2 million were just in areas that were affected by a drought. Droughts not only bring misfortune upon the people, but also greatly impact animals and crops. Numerous animals die due to lack of water, and a large number of crops become of no use anymore. Farmers in rural areas must incur drastic difficulties, resulting in all people eating less.

Ethiopia can succinctly be described by its agricultural way of life. There are a multitude of complications and misfortunes that are not only affecting people's families, but are also preventing Ethiopia from becoming a food secure nation. Droughts, deforestation, arable land, soil erosion, and land degradation are all factors that are ensuring Ethiopia's food insecurity. Only through agricultural extension programs and education can solutions to these issues be addressed to farmers themselves. Farmers are unaware of how to apply the numerous alternative tools to their crops when farming. With technological tools, crops can be produced more efficiently, thus more lives will be saved and more people will receive proper food. Only through agricultural education can farmers learn how to use these beneficial technological tools. Through education, farmers can acquire skills in growing alternative crops that can potentially increase agricultural productivity, that suit certain weather conditions. With agricultural extension programs, information about sustainable development can be addressed to farmers. Proper seeds and fertilizers must be given to farmers to help save their crops from the deadly droughts in Ethiopia. As it can be seen, education and agricultural extension programs are imperative in order to reverse the effects of poverty and hunger.

However, there are a wide range of factors that serve as barriers for development in Ethiopia other than poor agricultural practices. Such factors include wide spreading diseases, civil conflicts between other countries such as Eritrea, and a weak government. These factors play major roles in the Ethiopian society and economy; all factors are interrelated and link together to cause the food insecurity in Ethiopia.

Every 30 seconds, an African child dies of the deadly disease, malaria. The immediate result of this is 300 to 500 million people become infected from this fatal parasite disease (United Nations). This finding describes how the East African society is exceedingly infected with a pandemic of diseases. Of all the diseases found in Ethiopia, HIV/AIDS is the most widely known. Approximately 95% of all people living with this disease are found in developing countries (FAO). HIV/AIDS is not just a health issue in the developing world; it greatly affects countries dependent on agriculture. It is becoming increasingly difficult for farmers to cultivate their land and grow a variety of crops while most workers are dying everyday. There are 1.5 million people living with HIV/AIDS just in Ethiopia (CIA Factbook). HIV/AIDS is another barrier responsible for Ethiopia's insecurity, and there must be solutions presented to save Ethiopia's agricultural economy. There are a variety of other diseases creating threats to rural development. These major infectious diseases include tuberculosis, water-borne diseases, diarrhea, hepatitis, and other food related diseases. Only one fifth of Ethiopia's rural population has sufficient access to safe water. For the rest of the 2.6 billion people in Africa, there is no choice other than to go without. Water-borne and food-related diseases increase the mortality rate in large populations in Africa. Without agricultural education, what will come of future generations? When educated, parents are able to teach their children of the fatal outcomes of such diseases. According to the United Nations, educated mothers immunize their children 50% more often than illiterate mothers do. With Ethiopia having such an enormous population, those 50% of immunized children can save the lives of millions everyday. When health, HIV/AIDS, and education are linked together, there is potential for a revolutionary change in Africa.

The Eritrean-Ethiopian War from 1998 to 2000 has brought great turmoil for these countries in the Horn of Africa. The great dispute between both regions began from the time when Eritrea was a part of Ethiopia. Eritrea had fought for 30 years to gain independence from Ethiopia. Despite fighting a long,

harsh war, there still was no lasting effect of peace between the two countries. There were soon great disputes about currency and trade issues, and neither country would compromise. By 1998, there were more disputes about borders between countries. Because Eritrea had become an independent nation, Ethiopia no longer bordered the Red Sea. This left Ethiopia going through Eritrea to reach the Red Sea. As problems escalated between the two countries, the Eritrean-Ethiopian War erupted. The war recently ended by the end of May 2000. The war left a significant impact in both countries. The infrastructure in Eritrea and Ethiopia was destroyed, and Ethiopia was in a large debt due to spending massive amounts of money on the military during the war. As a result of the war, famine broke out, thus increasing the population living in poverty and malnutrition. The government in Ethiopia became weaker over time after the war. The civil conflict between the two regions still continues today even after 10 years, which will create a rippling effect through both countries, and can potentially damage Ethiopia's economy and future development. This civil conflict serves as another barrier for Ethiopia.

There are numerous solutions for increasing agricultural sustainability in Ethiopia. The Sasakawa Africa Association presents long term solutions to improve agricultural technologies. Ryoicho Sasakawa, the chairman of the Nippon Foundation, worked closely with Dr. Norman Borlaug, an agricultural scientist, to determine whether research products could help to expand African food production in order to eliminate the rising issue of famines. As a result of their findings, numerous agricultural programs could be produced, thus providing aid to countries in Africa. Certain crop production demonstrations can help numerous farmers learn of beneficial techniques for producing staple foods such as maize to help Ethiopia become food secure. Working with agents, farmers are able to create a structured foundation for growing crops in a safe, productive way. This not only increases the productivity rate, but also serves as a communication between other farmers in the region to use these techniques in their own farms. Proper soil productivity is crucial for producing rich crops. Green manure crops are alternatives to regular fertilizers in which they cut plants and include vegetation inside the soil, thus farmers do not have to use a large amounts of fertilizer. Regular fertilizers can cost from two to six times more for farmers, but green manure crops present an alternative to expensive fertilizers. One of the most effective solutions for increasing agricultural sustainability is the process of minimum-tillage. With the use of herbicides, weeds are killed and mulch is easily left behind to grow crops. Minimum-tillage eliminates half of the labor required for the planting of agricultural products. The process of weeding is decreased, and erosion is less likely to occur. It is critical that research organizations continue to implement alternative technological tools for farmers in Africa in order to increase agricultural sustainability.

A food secure nation can not exist without sufficient extension programs and education. Ethiopia is plagued with its agricultural misfortunes, and only through agricultural education can these issues be addressed and proper techniques can be given to eradicate hunger and malnutrition. One must look towards long term solutions for leading Ethiopia into an advanced nation. Education and extension programs are the key to breaking the barriers that are preventing Ethiopia from becoming a food secure nation. With the joining of all, there is still hope for a poverty-stricken nation to become a home for educated individuals with access to all necessary resources. One day this hope will no longer be a dream; one day it will become reality.

Bibliography

- "Crop Production Demonstrations." The Sasakawa Africa Association. 16 Sept. 2008
<<http://www.saa-tokyo.org/english/sg2000/crop.shtml>>.
- "Development Progress." Ethiopia. The World Bank. 20 Sept. 2008
<<http://go.worldbank.org/wa1rl12o10>>.
- "Ethiopia: drought-hit farmers receive emergency aid." 10 June 2003. Food and Agriculture Organization of the United Nations. 16 Sept. 2008
<<http://www.fao.org/english/newsroom/news/2003/18548-en.html>>.
- "ETHIOPIA-SOMALIA: Drought, fighting worsens situation of "Ogaden refugees." 12 Aug. 2008. IRIN: UN Office for the Coordination of Humanitarian Affairs. 17 Sept. 2008
<<http://www.irinnews.org/report.aspx?reportid=79775>>.
- "Ethiopia." The World Factbook. Central Intelligence Agency. 12 Sept. 2008
<<http://www.cia.gov/library/publications/the-world-factbook/geos/et.html>>.
- "Facts on Ethiopia, Kenya and Uganda." The International Food Policy Research Institute. 7 Sept. 2008
<http://www.ifpri.org/media/lfl_facts.htm>.
- "Fast Facts: The Faces of Poverty." United Nations Millennium Project. 12 Sept. 2008
<<http://www.unmillenniumproject.org/documents/3-mp-povertyfacts-e.pdf>>.
- "Geography, agriculture and economy." Rural Poverty Portal. International Fund for Agricultural Development. 2 Sept. 2008
<<http://www.ruralpovertyportal.org/english/regions/africa/eth/geography.htm>>.
- HIV/AIDS and Food Security. 2006. Food and Agriculture Organization of the United Nations. 8 Sept. 2008
<<http://www.fao.org/hivaids/>>.
- "Impacts in Sub-Saharan Africa." ICRISAT. 16 Sept. 2008
<<http://www.icrisat.org/achievements/subsaharan.htm>>.
- "President's International Education Initiative Expanded Education for the World's Poorest Children Ethiopia Fact Sheet." 24 Sept. 2007. United States Agency for International Development. 5 Sept. 2008
<http://www.usaid.gov/press/factsheets/2007_fs070924_5.html>.
- "Rural poverty in Ethiopia." Rural Poverty Online. International Fund for Agricultural Development. 12 Sept. 2008
<<http://www.ruralpovertyportal.org/english/regions/africa/eth/index.htm>>.