

Quinn Collins  
Greenwich Central High School  
Greenwich, NY  
Ethiopia, Malnutrition  
**Finding a Sustainable Solution-Malnutrition in Ethiopia**

Nutrient dense and available food are necessary requirements to live and support a healthy lifestyle. In underdeveloped areas of the world, many individuals struggle to provide food for themselves or their families as a result of extreme poverty or other external factors including conflict or environmental pressures. In the Federal Democratic Republic of Ethiopia, more commonly known as Ethiopia, widespread poverty and the impacts of environmental disasters such as drought and eroded soil, food insecurity and the availability of healthy and filling foods is a major problem for a large portion of the population (“The World Factbook: Ethiopia”, 2018). Many Ethiopians suffer the brunt of malnutrition, a condition where the body’s intake of energy and nutrients operates at an imbalance. In Ethiopia, many individuals suffer from a deficiency, rather than an abundance of, many vital micronutrients, leading to the stunting of growth and an increased susceptibility to other diseases and health problems ravaging the developing world (“What is Malnutrition?”, 2017). In order to prevent the suffering, food insecurity, and health damage that millions of Ethiopians face as a result of malnutrition, humanitarian aid agencies and organizations need to provide relief and invoke major change in the Ethiopian government and support systems that increase the availability of nutrient dense foods in Ethiopia as well as educate the population and governmental officials of efficient and sustainable agriculture.

Ethiopia is a primarily rural country in Eastern Africa, and much of the nation’s economy and the lifestyle of many of the individuals and families living in Ethiopia revolves around agriculture. More than 80% of the Ethiopian population resides in rural areas. As of July 2018, the population of Ethiopia was exceeding 108 million people, with a staggering birth rate of 3.6%, distorting the country’s population pyramid to account for many young children. The Ethiopian government functions under a Federal Parliamentary Republic that has 9 ethnically based regional states and operates under a civil law legal system (“The World Factbook: Ethiopia”, 2018). Under a Federal Parliamentary Republic, a prime minister whom is chosen by parliaments at the state and national levels heads the country (Murse, 2018). Ethiopia faces major pressures from both the environment and the intense levels of poverty nationwide, with nearly 30% of people living below the poverty line and an unemployment rate of 17.5%. The majority of Ethiopians in the 52.82 million strong workforce are employed in agriculture, and 36.3% of Ethiopian land is used for agricultural cultivation. Compared to the average farm size in the United States of 175.6 hectares (“Agriculture 101.”) the average size of an Ethiopian farm is miniscule, clocking in at 0.78 of a hectare (“Fao.org.”). For an area so focused on food cultivation, the availability of that food is extremely low. Most Ethiopians obtain their food through a reliance on local agriculture, which is increasingly threatened by drought, flash floods, and extreme poverty (Cogan, Alyssa, and Digital Content Team, 2018). Ethiopia exports coffee, sesame, khat, and livestock to make up for a large portion of the economy, but prosperity is limited (“The World Factbook: Ethiopia”, 2018). The average family size in Ethiopia is 4.6 people (United Nations, 2017), making it very difficult for the average Ethiopian to support their families and provide enough nutrient dense food and overall opportunity for their children. As of 2015, less than half of the Ethiopian population knew how to read and write, with less than 5% of Ethiopia’s Gross Domestic Product spent on education. Although the gender gap in education for Ethiopian children is bettering, males still have a higher literacy rate than their female counterparts and many poverty-stricken families have difficulty providing their children with an education that could help them potentially advance in socioeconomic status. Ethiopia faces extremely poor public works services, with 42.7% of the nation not experiencing improved water access and 72% of the population without improved sanitation, increasing disease vulnerability (“The World Factbook: Ethiopia”, 2018). Healthcare, although also improving, is difficult for the average Ethiopian family to provide, as many Ethiopian doctors are moving to developed countries to practice and advance their education (“Part 2: Barriers”).

In Ethiopia, malnutrition is a major barrier that a large demographic faces, especially due to unavailability of enough nutrient dense food to support the human body. Malnutrition is a far reaching and widespread problem in Ethiopia, especially for growing children and expectant mothers. 38% of all children in Ethiopia faced documented effects of chronic malnutrition, including stunted growth. Additionally 22% of Ethiopian women in the reproductive stages of their lives experience malnutrition, increasing the probability of these women to bear children born already struggling to develop in a normal and healthy manner (“Ethiopia: Nutrition Profile”, 2018). The typical Ethiopian diet is high in fiber and low in fat and dairy proteins, consisting of large amounts of sorghum, millet, and plantains, as animal proteins are scarcely available to many Ethiopians (“Ethiopia.”). Due to the fact that malnutrition and food insecurity are well known limiting factors in Ethiopia, many humanitarian organizations such as UNICEF have pitched in to help. Although these organizations have contributed to a drop in the stunting of growth in Ethiopian youth from 58% in 2000 to 38% in 2016, malnutrition has continued to contribute to 28% of childhood deaths nationwide. UNICEF has lobbied for policies regarding nutrition support and has helped to make nutrition deliverance systems and education more widespread throughout the country (“Nutrition.”). USAID has developed and instilled programs in Ethiopia such as the Feed the Future Growth through Nutrition campaign which focuses on providing nutrients in the first 1000 days of a child’s life and the Feed the Future Ethiopia Value Chain Activity that promoted the availability of nutrient dense foods such as chickpeas, livestock, dairy, and poultry (“Ethiopia: Nutrition Profile”, 2018). However, millions of Ethiopians do not have access to the correct amount of nutritious foods and healthcare, allowing this trend to continue despite help. Malnutrition is much more prevalent in the rural areas of Ethiopia than in urban areas, with the ethnic region of Amhara reaching the highest percentage of childhood growth stunting. The more educated the mother, the less of a chance the child has to experience malnutrition and growth stunting, as 42% of children born to mothers with no formal education experience documented effects of malnutrition (“Ethiopia: Nutrition Profile”, 2018). Access to clean and safe water and sanitation facilities is correlated to malnutrition in Ethiopia. If the body is malnourished, the body is more susceptible to diseases and illnesses brought about by unsafe drinking water and poor sanitation such as cholera (Silva, and Patricia, 2005). The 2015-2016 El Nino caused drought and poor rain seasons, making agriculture and soil quality more difficult, adding to food insecurity and unavailability of nutrient dense foods (“Ethiopia: Nutrition Profile”, 2018). Malnutrition is a severe problem in Ethiopia, and hits those without the resources to assist themselves the hardest. Large populations of women and children are suffering without enough food to sustain themselves and their families, adding to the economic and social issues that Ethiopia continues to face.

In order to combat malnutrition and to save the lives of millions of Ethiopians being affected by it, developed nations must provide support and relief to both the Ethiopian people suffering from malnutrition and food insecurity accompanying it, and to the Ethiopian government to provide long term stability and solutions for combating malnutrition. Organizations such as UNICEF and USAID, run by the United Nations and the United States, that have the funding and manpower to help Ethiopians find a sustainable and widely available way to provide nutrient dense foods need to take initiative. Ethiopia is one of the twelve selected countries by USAID to initiate the various “Feed the Future” campaigns, which seeks to address a wide range of food security based problems in Africa, from increasing land use for agriculture to providing agriculture related jobs that stimulate the economy to providing improved healthcare for newborns and expectant mothers (“Ethiopia: Nutrition Profile”, 2018). If these humanitarian agencies can provide the Ethiopian government with the capability to instill long term change in food availability for Ethiopians, as well as direct relief for those suffering the most from food insecurity and malnutrition, the effects of malnutrition will continue to decrease. The aid that humanitarian agencies have already provided to Ethiopia has allowed growth stunting numbers to decrease among children (“Nutrition.”), showing that the help these organizations are providing is helping.

The Ethiopian government has done an insufficient job of assisting its struggling citizens, which makes the need for foreign aid or help from nonprofits the best option given the current status of the Ethiopian government. Although the Ethiopian government is less corrupt than surrounding countries, facilitation payments and bribes are widespread to keep leased land and obtain contracts from the Ethiopian government. Anti-Corruption law is in place such as the Revised Federal Ethics and Anti-corruption Commission Establishment Proclamation and the Revised Anti-Corruption Law, which make active and passive bribery, bribing a foreign official, and money laundering illegal, but the laws are loosely enforced (“Ethiopia Corruption Report”). If developed nations with a stable governing body such as the United States could send delegates and officials to Ethiopia to work with the government to end corruption, both nations could be at the benefit. Ethiopia could learn how to operate in a manner that provides a positive sense of power and can target issues such as poverty and malnutrition instead of making the abuse of power even worse, while the developed nation benefits by creating a relationship with Ethiopia through giving and goodwill and creating possible economic opportunities in the meantime. Additionally, helping to promote long term stability in the Ethiopian government can eliminate a slew of future problems regarding abuse of power, and can also create a model government for similar and surrounding developing nations. Additionally, the lack of transparency in the Ethiopian government along with declining access to natural resources, and education or understanding on Ethiopian land policy has caused high levels of corruption and bribery within the Ethiopian land administration. There is no private ownership of land in Ethiopia, and land must be leased by the state with a permit that can last 99 years. However, many large businesses and corporations lease this land, and contribute to the corruption through bribes and gifting officials. Additionally, many officials engage in forging land leases to themselves, but few have been charged and punished for the crime (“Ethiopia Corruption Report”). If the corruption specifically in the land administration sector of the Ethiopian government was decreased or stopped, there would be many more options for lower class citizens and communities to obtain land to farm crops to sustain themselves and obtain sufficient vitamins and nutrients. If developed nations helped to legally better the Ethiopian government by ending corruption and enforcing land related laws, nonprofit organizations could help poor communities obtain a land permit and create an area of communal farmland. If more than just the communities needs were met, the crops cultivated could be sold by the community members for money to be spent on other helpful assets such as improved housing, healthcare, and education. Ending the leasing of land to large and corrupt organizations and instead making the land available to Ethiopian citizens could diversify the diets of Ethiopians through cultivation of different types of crops while also making nutrient dense food more plentiful and available, therefore decreasing the rates of malnutrition in rural areas. Over time, the process of land leasing could decline or be eradicated indefinitely to promote free trade and land distribution, but the country itself must make major developmental gains domestically by drastically declining poverty rates and making it so everyday Ethiopians could easily purchase land, while also environmentally to make sure the land is feasible to farm and sustainable to cultivate in the long term. If the Ethiopian government was able to make major changes in how land administration was handled and declined the corruption levels, the country could take its malnutrition and poverty problems into its own hands.

Additionally, instilling more efficient agricultural strategies throughout Ethiopian farms will increase the chances of long term food security stability, and lessen the effects of environmental pressures that impact Ethiopia’s arid region. In a study practiced in Ghana, the use of efficient and sustainable agricultural practices is shown to vary significantly depending on income, region, and other demographic factors (Caesar, Agula, et al.). If more rural Ethiopians are educated about sustainable practices such as the use of organic manure and fertilizer, crop rotation, use of legumes, and efficient drainage and irrigation as opposed to over cultivating the land and the use of chemical fertilizers (Caesar, Agula, et al.), long term food security could be boosted, in turn decreasing levels of malnutrition and environmental degradation. Organizations such as UNICEF and USAID that have already made measurable impacts on malnutrition in Ethiopia can lead the charge in this change, and inform the Ethiopian government of the long term

benefits of sustainable agriculture. Additionally, implanting strains of crops such as sorghum and corn that have been genetically modified to provide increased levels of essential nutrients can increase the density of nutrients in everyday staple crops in Ethiopia. A modified strain of African corn can provide levels of beta-carotene 169 times the normal level, vitamin C levels 6 times the normal amount, and folate levels 2 times the normal amount. GM sorghum can provide elevated levels of beta-carotene, iron, zinc, and needed amino acids to Ethiopians otherwise lacking these nutrients (Norero). However, many Ethiopians are opposed to the use of genetically modified organisms, despite scientific backing that GMO crops are just as safe as organic crops (“10 Things”). As of 2018, Ethiopia approved commercial cultivation of GM cotton, and has begun to undergo research and testing on GM maize. The crops are being engineered to include a common soil bacterium used in organic farming, *Bacillus thuringiensis* (Bt), which helps to control insect pests and decrease the amount of pesticides applied in the farming process and vastly improve crop yields. Bt cotton was rigorously tested by Ethiopia’s Ministry of Environment, Forest and Climate (MEFCC) for a period of two years to confirm the crop’s compatibility with the Ethiopian climate and growing conditions. If Bt cotton is approved by Ethiopia’s National Seed Approval Committee, the crop can be used by small farmers (Conrow). This would allow some of Ethiopia’s poorer and struggling farmers to make the choice to cultivate a crop that is specifically tailored to the difficult growing conditions and pests in their respective area. Additionally, approval of a GM crop by trusted organizations that represent Ethiopia’s people could instill an openness to new types of crops and farming among Ethiopian residents, giving Ethiopians the potential to increase their crop yields and profits to earn the money and resources needed to provide for their families. To directly combat malnutrition, MEFCC approved a five year permit to test TELA corn in Ethiopia, a drought and pest resistant strain of corn that is commercially produced in South Africa and has undergone successful trials in Uganda, Tanzania, Mozambique and Kenya. Additionally, Ethiopian researchers are working with the International Institute of Tropical Agriculture (IITA) to develop a genetically engineered strain of enset that can help to combat a bacterial wilt disease that has ravaged the food supply of many Ethiopians. Enset, an Ethiopian variety of banana, is a key crop in the diet of many Ethiopians and is crucial to maintaining Ethiopia’s food supply. Although enset can survive through both heavy drought and nonstop rain, the bacterial drought is threatening the nutrition and food supply of nearly 15 million people worldwide (Conrow). Biotechnology and GM crops can directly combat malnutrition in Ethiopia by enhancing the amount of needed nutrients absorbed by Ethiopian people and promoting higher crop yields with a lessened need for the expenses of pesticides and other chemicals. If the prosperity of an Ethiopian staple crop is returned that has more of a chance of surviving a disease that has ravaged the area for more than 30 years, important nutrients and a piece of Ethiopian culture and tradition are restored and can benefit large amounts of the population.

In order for these environmental and crop based solutions to reach success, humanitarian organizations and the Ethiopian government must make the benefits of these strategies widely known, and even provide incentives or benefits for those who use these practices. These solutions will increase the probability of malnutrition levels decreasing and eventually stabilizing, and will boost the overall security and economy of Ethiopia, but will most directly benefit those living in rural regions of Ethiopia. Ethiopians residing in urban areas face decreased levels of malnutrition, but their food insecurity is impacted by other factors including elevated disease levels from widespread HIV and AIDS (“The World Factbook: Ethiopia”, 2018). Making these strategies and solutions known and implemented will be no means be simple or easy, and have flaws in the economic means of their execution, as a large amount of capital will be needed to provide adequate food and healthcare to millions of people in a land-locked and underdeveloped region. Livestock can also provide essential nutrients through meat and dairy products to those facing malnutrition and food insecurity. However, Ethiopians that practice the Ethiopian Eastern Orthodox Religion restrict pork consumption, and some Ethiopians have become vegetarians (“Ethiopia.”). Therefore, a more plant-based means of providing nutrients may be the solution that provides the most widespread of results.

The majority of organizations such as UNICEF's funding comes from government voluntary funding, and the funding of private organizations, companies, and individuals ("FAQ."). In order to provide funding to help Ethiopians, humanitarian organizations must make the severity and deadly effects of malnutrition widely known to increase awareness and make known the need of science and health professionals to assist Ethiopians. Those who live in developed countries such as the United States must also be aware of the nutrient dense food and safe sanitation and water that they have such easy access to, and realize that every community can help those less fortunate by practicing sustainable agriculture and life practices. If individuals in developed countries increase the use of easy, practical, and environmentally friendly lifestyles and practices, the country as a whole can set the example for not only underdeveloped areas, but also other developed nations. This cannot be imposed by forcing more environmentally friendly alternatives onto individuals in developed nations, but by informing them of the many long term economic and environmental benefits of practices like alternative energy and limiting their waste. Ultimately, individuals in developed nations have the choice to live their lives sustainably, while those in underdeveloped nations need assistance to just live a healthy life and avoid malnutrition and disease. Additionally, creating local fundraising events and raising awareness for pressing issues in developing areas can go a long way with enough support and motivate nonprofits and governmental agencies to consider providing help and assistance. No strategy will be completely effective at stopping the widespread suffering that those who experience malnutrition and food insecurity face, but by becoming educated on issues in developing areas and knowing what they can do to help, everyday people can collectively make a substantial impact.

Although genetically modified crops could provide substantial nutrients to the Ethiopian people, opposition to GMOs is widespread, as well as cultural barriers and a general lack of knowledge about the benefits of GMOs. Malnutrition, especially when experienced from a young age, can result in lifelong health problems, especially in a region with lack of adequate healthcare such as Ethiopia. However, changes can be made through the implementation of sustainable practices that will provide long term security of nutrient dense foods and environmentally friendly results that will allow these methods to continue to prosper. Research in new types of biotechnology and GM crops specifically tailored and made readily available to struggling areas can help to end years of disease and drought and boost yields of healthy, nutrient dense crops. As humanitarian agencies and developed countries continue to spread awareness of the issues surrounding food security that plague developing countries and implement help and aid, numbers of growth stunting and other symptoms of malnutrition will continue to decrease and the overall health of Ethiopians will improve. These countries and agencies need to provide substantial assistance by helping the Ethiopian government and individual Ethiopian communities before Ethiopia gains the resources and stability to handle its own domestic and environmental problems. Change must be made to ensure the health, opportunity, and prosperity of the next generation in Ethiopia, and making sustainable and effective choices are key in ensuring this success.

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