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Ethiopia: Managing Food Insecurity with Entomophagy

Ethiopia is a land of varying geography full of mountains and plateaus separated by the Great Rift Valley. Though its neighbors call it the “water tower of Africa” because of its wide river systems, Ethiopia is facing a major problem concerning its water supply. For the past twenty years, Ethiopia has seen drought problems that have affected the country’s food security. Because agriculture is one of the country’s key economic products, a drought is a serious threat to the stability of its food security. Failure of the main crops including grains, cereals and pulses poses a threat to farmers and industries relying on grain. Although livestock has become the temporary “replacement” for these times, this method isn’t as effective as livestock require water in order to live. Malnutrition is setting and we see that it is claiming women and children as its victims and many families are facing the striking reality of borderline starvation. Today, according to a measure created by Oxford University, Ethiopia stands as the second poorest country in the world with 90% of its population living in poverty.

Ethiopia’s population, according to the CIA World Fact book, is currently just under ninety-three million. Their life expectancy is 56.56 years, which is twenty-two years younger than the average life expectancy of a person living in the United States. Furthermore, the mortality rate of people in Ethiopia is ten deaths for every thousand people. These drastic statistics have basic explanations. The food crisis, the constant drought, and AIDS are among them. Malnourishment is rampant in Ethiopia and because of poverty, lack of proper medical services, and food insecurity, according to FAO, The Food and Agricultural Organization of the UN, nearly half of the children under of five years of age are malnourished. According to a report from the World Food Bank in 2011, only 36% of children attend school. Because of the drought, many parents have to take their children out of school to help with the chores at home. The increasing food security problem will continue to affect children and their ability to gain an education that will in turn increase the poverty rate in that nation. Because the drought is affecting factors such as food insecurity, healthcare, education, the economy, and the wellbeing of women and children, a solution needs to be found as soon as possible. This paper explains and supports the practice of entomophagy, or simply known as the practice of eating edible insects, as a solution to the food shortage problem currently facing Ethiopia.

Farmers in Ethiopia are currently facing the worst of the blows from the food insecurity issue. Farmers, according to FAO, produce over 90% of the country’s grain. In fact, the seven million farming families in Ethiopia collectively cultivate six million hectares of land each year. Without water the basic diet of grains and pulses becomes difficult to sustain and, as a result, many farmers turn to livestock as an alternate. Though raising livestock may provide immediate income, in the long term, farmers will notice the same devastation they saw with their ground crops as animals rely on water to nourish the grain and grass they depend on. Not only will the customers depending on these farmers for food face problems, but the farmers themselves will too. The average farmer’s family in Ethiopia has seven people. The farmers who are now facing the drought will have their own family to support as well as others.

Health care is also a major problem in Ethiopia that can be traced back to the drought. Due to lack of food and water, malnutrition continues to spread as well as illness calling the basics of the healthcare system for the average rural family into question. However, the options for health care aren’t ideal. As today’s Ethiopian farmer is among the poorest of the poor, there is a clear lack of basic social infrastructure, including healthcare. According to the Center for National Health Development in Ethiopia, the country’s health care system is among the poorest in Sub-Saharan Africa. In addition to this, a main problem facing

the system today is lack of health care facilities available to those living in rural areas. This puts farmers at a further disadvantage; especially those who have children facing malnourishment. However, according to the Yale School of Public medicine, the health care system is slowly improving,

Taken together, the country's wide-ranging approach has resulted in tangible changes on the ground and in improved health for more than 80 million Ethiopians. Ethiopia has, for example, constructed numerous new health centers and clinics and trained personnel to staff them, expanded access to clean water and nutritious food and sharply cut the number of deaths from malaria.

While the health care situation may vary for farmers, education is yet another situation. Education in Ethiopia has indisputably made progress through the years. However, it is still facing problems. According to Education for All (EFA), Ethiopia ranks 126th out of 127 countries and may not reach the goals set by the EFA for 2015. According to statistics from the EFA, in 2009, there was a severe gender gap in adolescent females and males as well as adult literacy rates. In 2009, there were 1,823,000 female dropouts compared to 1,465,000 male dropouts. As a result, adult literacy rates for females were at 18% whereas males literacy rates were at 42%. This major difference demonstrates that the Ethiopia's school dropouts are increasing dramatically. The main problem behind this can be traced to food insecurity. In fact, because of the drought, more children are dropping out of school to help their parents with household chores and maybe on the farm. With the constant food insecurity issues in Ethiopia, this pattern of illiteracy and poverty could continue.

Because of the drought, the economy is facing a downturn. This is because farmers are having trouble to produce enough food and the drought is only going to make the situation worse. According to an article from the Huffington Post, the average income in Ethiopia is \$400. With the drought, and the lack of food production, this will only plunge more families into poverty and malnutrition. According to the FAO, "drought ranks as the single most common cause of severe food shortages, particularly in developing countries, and represents one of the most important natural triggers of malnutrition and famine." Furthermore, according to the World Food Programme, food prices took a climb. However at the beginning of 2012, due to the Meher harvest, the food security issue was stabilized. Still, the Humanitarian Requirements Document from Ethiopia states that nearly 3.2 million people will need assistance due to food insecurity from January to June 2012. The World Food Programme went on to say that this number is likely to increase due to dry conditions and late start to Belg rains. Also, according to Global Information Society Watch, the severe climate change occurring have resulted in, "droughts, floods, heavy rains, strong winds, frost and heat waves." Thus, the situation of the drought and the economy are likely to become worse. Ethiopia has already had a constant record for recurring droughts and the situation still needs to be fixed.

This drought not only affects the daily lives of the poor, but it is also important to look at the effects of this drought on women. Women in Ethiopia are also at a disadvantage due to the drought. According to Audrée Montpetit, Senior Humanitarian Program Quality Advisor of CARE, Ethiopia, due to the drought, women's journey to fetch water for the families has increased from 30 minutes to 3 hours to the destination. This leads to a total of 6 hours for the entire journey. Without food, and energy, many of these women return fatigued and this task becomes increasingly difficult to complete. Furthermore, pregnancy and lack of food or water can lead to more health problems as malnutrition increases. Without the extra nutrition necessary for pregnant women, not only can the mother suffer malnutrition, but the so can the child. In a world where there are 10.9 million children under five who die in developing countries each year, 60% of those deaths are caused by malnutrition (UNICEF). In order to begin to solve this problem, it is imperative to begin looking at the internal situations of these developing countries. If the drought problem in Ethiopia is solved, malnutrition could decrease.

The solution to all of these problems lies in entomophagy. Consuming insects may be the next option to help those suffering from the drought in order to ensure that they can still eat and survive. This could also minimize the amount of malnutrition happening in Ethiopia and perhaps worldwide. Consuming insects, according to the Wall Street Journal, is beneficial for health. Insects are a source of high protein, vitamin B, iron, zinc, and low in fat. Furthermore, according to an article from How Stuff Works, sponsored by the Discovery channel, a few examples are crickets, and caterpillars. For crickets, a hypothetical figure of 100 grams of crickets contains 121 calories. This contains only 49.5 calories from fat. This also contains 12.9 grams of protein, 75.8 milligrams of iron, and 5 grams of carbohydrates. Insects such as caterpillars contain 28 grams of protein in every 100 grams. Another valid point is that brought up by David Gracer who states “I like to point out that lobster and crabs eat trash and feces and dead animals, and grasshopper eat salad” (NPR). These examples demonstrate the nutritional benefits of consuming insects.

Another factor to consider is the practice of entomophagy throughout the world. In 2008, the UN Food and Agriculture Organization estimated that 1,400 species of insects are in the diets of 90 countries in Africa, Latin America and Asia. Furthermore, there are civilizations who have survived off of insects. According to National Geographic, the Nochmani tribe, discovered in 2005 after the tsunami that occurred in the Indian Ocean, has been living off of beetles, worms, spiders, centipedes and locusts. Though they were offered meat such as turkey beef, and pork as aid, these foods were indigestible for the tribe. Still, these people were reported as “well nourished and happy” (National Geographic). Another group of people that has survived off entomophagy is the Aborigines of Australia. These people lived off of insects such as moths, bees, and larvae. This civilization lived on for a long time and some anthropologists have estimated that before 1770, the population was at 300,000. If these groups of people are able to survive off of eating these insects, than applying the same concept to the situation of the drought in Ethiopia will most likely result in a success of survival.

Other factors to consider are the environmental benefits of this practice and the economic benefits. According to an article from NPR news, insects are “efficient feed converters”. 10 pounds of plant feed can serve about seven to eight pounds of crickets whereas 2 pounds of beef are produced from 10 pounds of feed. Another point to mention is from Arnold van Huis, an entomologist at Wageningen University in Belgium. He states in a paper published in 2010 that locusts, crickets and meal worms emit 10 times less methane and 300 times less nitrous oxide than the average livestock. Due to this, it has been suggested that it has the potential to reduce global warming. It has also been suggested that the best way to practice entomophagy is by raising the insects and then consuming them. In Ethiopia, farmers could look to doing this once they are given the correct materials to do so. If the government finds ways to support this practice and begin to spread information about safe kinds of insects to eat, farmers could look to raising their own insects and could begin to commercialize it to produce more income. This alternative could not only feed their own families but other families as well. Thus the financial and economic prospects of this alternative method could also be beneficial to the average rural family in Ethiopia.

This solution could help the Ethiopian population overcome malnutrition and help them to survive during the constant recurring droughts. Growing these insects and harvesting them is also an inexpensive process. This solution of entomophagy can be easily implemented in Ethiopia, if the Ethiopian government and other organizations such as the UN, FAO, and WFP could help in the process of recommending which kinds of insects are safe to consume in Ethiopia. Subsidizing the materials for the average rural family to grow their own insects could also assist in the process. If these organizations give their support toward entomophagy and join the efforts to make it more widespread by 2015, the issue of malnutrition from drought could be solved. This practice could become the new kind of farming for Ethiopia if, it is supported by different government organizations, it could easily become the new kind of crop for rural farmers. It is important for these organizations to bear in mind that the main benefit that will come out of this practice is that the poverty level could be reduced. The average rural family could not

only improve their situation with food security, but they could also improve their situation economically should they choose to commercialize this practice.

It is also critical to recognize that there are clear advantages to implementing the practice of entomophagy in Ethiopia without massive investment. The target of this project should be to keep investments per family below \$100. It should also be a goal that the supplies for the farming of insects should be developed in such a manner that it can be reproduced in Ethiopia. These supplies would include materials such as wooden boxes to farm the insects. Through the production of these supplies, it will create local employment and generate self reliance. In order to properly implement this practice in Ethiopia, a grant of \$10,000 is suggested to be given to an organization in order to develop the exact wooden boxes and materials for these farms, to research the consumable insects, and to research the insects that will thrive in an arid but tropical environment. The main goal of the organization that chooses to research should be to develop an exact blueprint as to how this idea will be implemented. Furthermore, the blueprint should bear in mind the local and cultural implementations of this solution.

In conclusion, if implemented and supported by the government and other organizations, Ethiopia's problem of malnutrition and lack of food security can be improved if the practice of entomophagy is put into place. As malnutrition is an enormous problem for the people of Ethiopia, this solution could help the situation, as these insects are extremely beneficial to health. In addition to this, raising the insects is inexpensive, as it requires little materials. Many of these insects live off of grain and are efficient. If introduced properly to farmers, it is fairly possible that this could improve the situation of the economy if commercialized.

In a country where health is becoming harder to achieve fully because of recurring drought and poverty continues to grow, it's important to find a new solution to help the situation. Though the recurring nature of the drought cannot be solved entirely, there are steps that can be taken to stop the effects it has on the average rural families. If food security is improved through the practice of entomophagy, then malnourishment could decrease. The benefits of insects are so high that the health of people residing in Ethiopia could be improved immensely. If farmers look to entomophagy as a possible new crop and commercialize it, their financial situation could improve and poverty will reduce. Thus the cycle of poverty could also begin to decrease. Furthermore, the environment could benefit from eating insects. As there are so many benefits to the consuming of insects, it is imperative that this solution be supported and implemented in Ethiopia because it can improve the situation of the people suffering from the drought.

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