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Ethiopia, Insects

Ethiopia

My name is Zala and I am from one of the many food insecure countries of Africa. I currently live with my two parents and four other siblings. Since we live in the rural, agriculture based part of Ethiopia, traditional gender roles are strongly in place. My father works to make a living by plowing and harvesting to trade goods and produce products. Men working similar jobs and tasks receive less than one United States dollar for a full day of hard work. Women, like my mother, take care of the household chores like cooking meals, cleaning the house, and raising the children. With such little pay coming home from my father's job, preparing meals that fill our stomachs and truly nourish us has become a lot harder for my mother. Around 30% of Ethiopians live in poverty, and my family is no exception (CIA). Poverty, meaning extremely poor (CIA). Rural areas like the one where we live struggle with lack of access to education, lack of arable land, and high risk of deadly diseases. Additionally, due to the distance between us and the city, health care is virtually non-existent. Even if healthcare was available, we wouldn't be able to afford it. Ethiopia does technically have free healthcare for all, but this often is not true for those living in poverty (CIA). Our main struggle in getting nutritious food is our limited income.

Let's start by thinking about Ethiopia from the perspective of Zala, more advanced, urban areas in Ethiopia have the luxury of local markets and other various places to trade goods. Families living in rural areas have little access to communities of other farmers and ranchers. They have to grow what they eat as opposed to purchasing it, as even getting to a market would be miles and miles on foot. This largely limits the opportunities for rural citizens to have access to diverse foods. Ethiopia lacks the amounts of arable land seen in countries like the United States. Only 15.2% of land in the entire country is arable and adequate for farming (CIA). Arable, meaning limited rainfall, or previous damage to the soil. In recent years since 2019, crops have been destroyed in large numbers at the fault of a small historic insect, locusts. Locust swarms have been extremely damaging to crops in Ethiopia and many other Eastern African countries, due (Bloomberg).

Recent massive locust swarms in Africa began in February 2019 and lasted for months. The locust swarms terrorized many Eastern African countries and ate every crop they passed. It only takes thirty seconds for a swarm to clear out an entire field of crops (Concern USA). Countless at risk countries are preparing for round two as the swarm season approaches. More developed countries are preparing better for the upcoming swarms through government funding. But countries like Ethiopia and Somalia are less prepared, as an additional one million Ethiopians are at risk of going hungry. Before the swarms, in 2018, an estimated 7.8 million people were going hungry in a normal year. So what are these locust swarms?

Business Standard defines this issue as "locusts form enormous swarms that spread across regions, devouring crops, and leaving serious agricultural damage in their wake" (Business Standard). Locusts are members of the grasshopper family and can breed very rapidly. This allows them to quickly multiply and continue to wreak havoc on the affected countries. It is estimated that around eight million locusts are in a single swarm. (Concern Worldwide) In 2020, Ethiopians went about treating this problem by spraying insecticides, thereby attempting to kill as many locusts as possible. (Bloomberg) These efforts have not been effective in killing large amounts of these locusts. Regardless of their attempts, locusts are still eating up all of the ripe crops being grown. Additionally, countries like Ethiopia do not have the means to cover large areas of land with this aerial spray. The Ethiopian government did not effectively distribute preventative measures to help all parts of the country. The FAO outlines that the swarms can destroy crops that could feed 2,500 people for an entire year (Gebre). Preparing for this year's invasion, the Ethiopian

Government has called for immediate action (Hebblethwaite). This action is most likely the distribution of an ineffective insecticide. According to the Ethiopian Ministry of Agriculture, the country only has five planes and two drones to survey and spray the entire country (Gebre). Since the Ethiopian government could not effectively distribute the pesticide, I propose the government stop the use of pesticides ensuring that the locusts are not poisoned and thereby safe to eat. In efforts to curb the food insecurity the locust swarms will cause, I propose eating the locusts opposed to poisoning them. I suggest they use the funds that had been allocated towards pesticides, be used for a government funded education program. This program will encourage adding locusts to the Ethiopian diet, by removing any personal taboo or resistance.

Back in 2010 when a locust storm hit Australia, John Elder, writer for the Sydney Morning Herald persuaded Australians to eat locusts by saying “You'll not only save money, you'll save the nation. Eat locusts before they eat everything else.” While in Ethiopia it may not be an issue of saving money, it could definitely save lives, malnourished lives. The practice of eating insects is called entomophagy and it has long been practiced in many African nations. (DW) The origins of this practice date back all the way to the Biblical times. A whopping 80% of nations continue this practice and eat insects regularly (DW). In fact, insects are one of their main food sources (DW). Insects as food is considered a delicacy in nations like Somalia, and countries in South and Central America. Eating insects offers many nutritional benefits. Locusts are surprisingly high in protein, zinc, and iron. When comparing one hundred grams of meat from cattle and locusts, locusts bring in only 6 less grams of protein than the beef. In an area where raising livestock is more difficult due to a lack of land, locusts offer a beneficial replacement. During a swarm, locusts are plentiful and extremely easy to come by, easier than raising livestock. Locusts are an immediate source and don't require months for the animal to be raised. The addition of locusts into the diet of Ethiopians would provide an excellent source of protein and other nutrients like calcium (DW).

Locusts nymphs can be harvested easily by digging a trench at least 40 cm deep in their migration path. These deep trenches should have vertical walls. The nymphs will fall in the trenches and can then be harvested. Adult locusts can be caught using hands, buckets or even sacks. Locusts can be prepared in various ways such as boiling or frying or preserving them by salting and drying them in the sun.

With the introduction of insect protein, the question of religious aspects comes up. Would the religions of Ethiopia approve of eating insects? Ethiopia is filled with various religions such as Christianity, Islam, and traditional beliefs (CIA). While there is little documentation on the traditional beliefs, we can derive conclusions on the topic of eating locusts from the religions of Islam and Christianity. Ninety percent of Ethiopians are Christian or Muslim. Christianity condones the eating of insects but Islam is where the topic of locusts becomes divided (Fatawa). Some Muslim elders believe that the locust should not be slaughtered for the purpose of consumption, but if the locusts are found dead then they are fine to eat (Fatawa). Another view says it is necessary to slaughter the insects before eating them (Fatawa). There are a few ways the locust can be slaughtered for the practice to be approved, it must result in immediate death no matter the method (Fatawa). These methods include but are not limited to, cutting off their heads, poking it with a needle, or throwing them into hot water or fire (Fatawa). With both religions in one way or another approving of the practice, eating locusts in the country of Ethiopia, is a go!

Not only would eating insects contribute to the lessening of food insecurity, but also allow for a new untapped business venture that could provide much needed income. The idea of using insects to make various protein options has been done before and been successful. In the country of Burkina Faso, located in West Africa, a company entitled FasoPro, has turned the abundant caterpillars into various edible products (Ekesi, Niassy). Similarly the Food and Agricultural Organization funded a project in the Democratic Republic of Congo (Ekesi, Niassy). Through this project farmers were taught how to domesticate palm grubs for the purpose of human consumption (Ekesi, Niassy). Israel has also been hit by large locust swarms (BBC). An Israeli chef, Moshe Basson, owns a restaurant with the sole purpose of

creating dishes derived from ancient Biblical foods (BBC). He even has said that “people will pay a fortune” for his locust dishes and that there is “a big interest” in the dishes (BBC). With these projects and endeavors, local people were able to harvest insects for consumption as well as sell their harvest to provide an unprecedented income. Given the success of insects for food business ventures in other places on the African continent, there is reason to believe the same could be possible in Ethiopia.

Eliminating pesticides not only preserves the insect food source but can also be harmful to the health of the plant. Pesticides can damage the plant we are trying to protect (Mapleridge). When the aerial spray is released into the environment they can poison the crops. Due to the widespread use of pesticides, the practice lacks accuracy, meaning pesticides can find themselves in the wrong areas (USGS). Therefore, contaminating crops that are essential to their diet. Contamination of soil, turf and vegetation can all be a result of the use of pesticides. The runoff can also contaminate the limited water sources in the nation (NCBI). Pesticides can enter the water cycle as early as application and once pesticides have entered the cycle, it is extremely difficult to get them out (USGS). Once the pesticides are in the atmosphere, they go through the precipitation phase and then can enter rivers, streams, and other freshwater resources (USGS). Streams are one of the most vulnerable of the water sources to pesticide infiltration because both urban and rural farming areas can flow pesticide particles into the streams that go directly to potable water resources (USGS). In the United States pesticides have a rather positive perception due to the laws limiting and protecting their use, but in Ethiopia those laws are limited. Technically Ethiopia does have legislation pertaining to pesticide use, but they are not enforced at any level from federal to district (Mengistie). In Ethiopia today, when smaller farms use pesticides, there is often substantial misuse of the pesticides (Mengistie). Whether it be abuse or simply overuse, this usage results in chronic health problems and infiltrates the drinking water and produce (Mengistie). In 2016, Ethiopia was believed to have the largest build up of obsolete pesticides in Africa (Mengistie). There were an estimated fifteen hundred tons of obsolete pesticides. One of the main issues with pesticides in Ethiopia is that the legislation lacks a clause pertaining to in depth studies of the pesticides actually being used (Mengistie). A detailed risk assessment is lacking, therefore there is no one checking the chemicals in the pesticides to see not only how they will affect plant health but also human health and water resources (Mengistie). Not only does it destroy the present plants but also the future plants that could be planted in the area. Additionally, insecticides poison pollinators as well which threatens current and future crop production (Agcenture). Effects of pesticides could remove vital floral parts, allowing for changes in reproduction (Xerces). Pesticides can also displace and force pollinators to relocate due to loss of habitat (Xerces). So, stop the poison pesticides and start grubbing!

It is important to understand that the locust swarms are a seasonal event. When the country is not in the season of swarms, what should they eat? Other native insects that are plentiful in the region are indeed edible. Insects like grasshoppers, termites, and caterpillars are other available food sources (Science Direct). All of these options are high in protein like the locust (Science Direct). Termites are plentiful in the tropical and subtropical regions of Ethiopia. Wooden structures in this area are at high risk of termite damage; to kill two birds with one stone, Ethiopians could add termites to their diet to reduce termite damage to their structures. Termites are a rich source of protein, fat, zinc and iron (Science Direct). To improve infant health, lipids from termites can even be used in infant formula (Kinyuru). The consumption of insects could be a year round solution to solving food insecurity in Ethiopia by providing necessary protein sources.

Mark Lakeman, a leader in the development of sustainable communities said, “Most problems are simply missed opportunities. The flip side of every problem is a solution” (QuoteHD). In the case of the locust swarms, this quote has never been more true. In a country where people go hungry every single day, locusts swarms seem to simply exacerbate the problem. However, the problem is a missed opportunity for a solution to food insecurity. The people of Ethiopia can turn the famine into a feast by eating the cause of

the famine. Hopefully by turning this problem into a solution, Zala and her family, along with other food insecure people will find some relief.

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