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Guatemala, Malnutrition

Guatemala: Approach to Ensure Food Security

"On a warm spring day in Guatemala, a mother splashed her daughter with some water from a plastic tub. She handed the baby to her mother-in-law, who placed socks onto her granddaughter's feet. Looking into her granddaughter's eyes, she was reminded of her own daughter who died years ago. She was eight years old and weighed a mere thirty-seven pounds. She was in need of great nutritional assistance. With her granddaughter in her arms, she made her way up a dirt path to the village nurse. She was seeking a better life for her grandchild" (Strochlic). This story is one of many that showcases the food insecurity crisis in Guatemala. According to the World Food Programme, "46.5% of children under 5 are stunted," and parents are forced to migrate to keep their children alive ("Guatemala: World Food Programme."). There are multiple factors contributing to this food insecurity calamity. In order to address these various factors, one must consider daily life in Guatemala.

The average population size in Guatemala is a little over 16.3 million people ("Guatemala: World Food Programme."). "Around 52% of the population is urban while the remaining 48% is rural" ("Urban Population"). Guatemala has a representative democratic republic form of government, which means the President is the head of both the state and government under their Constitution (Pariona). "The average farm size in Guatemala is around 0.6 hectares" (about 1.5 football fields) ("Home: Food and Agriculture Organization of the United Nations."). "The total land area in Guatemala is 109,000 square kilometers; around 36% of that land is cultivated to export: bananas, sugar, coffee, and palm oil." The deforested land contributes to the increased carbon footprint. "The average family size is around six people per household with an average annual salary of $1,619 in U.S. dollars" (Average Household; *Guatemala Minimum Wage*). More than half of Guatemalans live below the poverty line of only $2 per day. The majority of the workforce is in agriculture. Unfortunately, the crops are seasonal and therefore work is seasonal. Many people on the farms work for only $3-4 per day during harvests. During the off-season, these farmers are typically unemployed. Coupled with this is the fact that majority of the population has poor access to education making it very difficult to find access to alternative employment. The overall health and cognitive status of the children is stunted due to malnutrition making the probability of prosperous future generations low. Many of the current living adults have suffered stunted growth and brain development issues as a result of malnutrition making it difficult for them to succeed in other industries (Philipp, Jennifer, et al.).

A typical diet consists of corn, beans, meat and tortillas. Corn is the most affordable and is used often to make tortillas. Families cook their food using wood stoves that do not have proper ventilation causing various health hazards. Most people do not have internet access. Half of the population has inadequate housing many of whom have dirt floors ("About Guatemala."). Food prices are relatively similar to those in the U.S.; however, considering the average annual salary, many cannot afford these prices ("Cost of Living"). The rural indigenous population is disproportionally affected by poverty, lack of education, and malnutrition. The remaining population works in areas such as energy, healthcare, banking, and information technology with a median salary of approximately $1400 per month ("Average Salary").

Despite being the most populous country in Central America, Guatemala's poverty rate is extremely high. "According to the World Bank, 59.3% of the population lives below the poverty line" and "23% of people live in extreme poverty" (Project, Borgen. "Current Poverty"). Poverty is extremely prevalent, and is estimated to have increased from "47.8 percent of the population in 2019 to 52.4 percent in 2020" ("Overview."). Contributing to this trend, the top five percent of the country owns more than 85 percent of the wealth in Guatemala ("Speaking about Historical Causes"). These wealth inequities leave most of the rural indigenous population with no way to improve their living conditions. "More than two million children in Guatemala are not attending school; the majority of these are indigenous girls living in rural areas," and "the majority of young indigenous females stay in school for an average of 1.8 years." "They often leave school early to help support their families, take care of their siblings, or get married" (Project, Borgen. "Girls' Education). Additionally, "illiteracy rates among indigenous adults reach as high as 33%" ("Why Guatemala?"). The lack of education among the indigenous peoples of Guatemala contribute to the growing poverty rate. Most of the land owned is by the government and more wealthy individuals. Those born into poverty have no reasonable means of escape.

As one can see there is a clear discrepancy in access to education, health, wealth and nutrition throughout Guatemala. We as Americans see Guatemalans trying to migrate to this country due to these inequities. Instead of creating migrants, we should be putting more pressure on their government and land owners to create more equitable wages, access to education and sustainable access to nutrition for the people of Guatemala. In today's America, business is expected to follow the principles of the American people. Movements such as ESG in business where we are environmentally friendly, socially responsible and equitable in governance demands that partners in trade act accordingly as well. The United States Government should pass regulations that fortify these principles and provide a framework for companies doing business in Guatemala to reinforce these principles. One way to do this is by mandating a small tax on imports that would be directed at efforts to educate the impoverished population. Subsidies for food access to children would also benefit the future population moving forward. Mandatory profit sharing by internet providers to build better infrastructure and access for underprivileged children would also allow improved outcomes for children. Community centers in each rural community could be established to provide a focal point of access. Educational materials, internet access and food banks could be established at these community centers with donations being more attractive to corporations by being tax deductible.

Additionally, it would be beneficial for universities, schools, and businesses to contribute to solving this world food hunger crisis by hosting an event such as an off-season football game. For example, a Gators versus Seminoles game would drive much profit. Profits made at the game could go to the World Food Bank. This game could be held on June 7th, World Food Safety Day ("World Food"). Volunteers could be college or high school students who are passionate about world hunger and are looking for service opportunities. They could run the concessions, help with maintenance and ticket sales, and organize speakers. A campus Food Safety Club could be established to organize such an event. Guest speakers, such as famous alumni of the universities and college athletes, could be asked to speak briefly about the importance of food security and how nutrition has impacted their performance and success. Former athletes, such as Tim Tebow, would help promote this event and drive ticket sales simultaneously using their foundations to help promote this cause. Businesses could also pitch in by contributing funds or volunteers, and in return have their logo or brand name on reusable cups, team related T-shirts, and other gear that could be distributed or sold at this event. Additionally, local schools could promote the event. Contributions from businesses, schools and individuals, could make the event financially successful with all proceeds going towards helping impoverished Guatemala establish community centers and alleviate the nutritionally insecure. The funds generated from this event would be managed by the U.S. Congress to

ensure they would be properly managed. By helping other countries like Guatemala, the U.S. will be able to work with Guatemala to solve food insecurity in our own country as well. The U.S. would be able to learn what processes are best to adopt and evaluate their effectiveness on the food insecure populations.

Social awareness of food insecurity is lacking. It is up to us to promote this topic to help our global citizens who are suffering from food insecurity. Educating and promoting our own population and creating an awareness day in the schools would help sustain this movement. Given the recent baby formula shortages across our own country, we too need to create redundancy in our system to provide security for all.

Introducing farming technologies and techniques such as crop rotation, intercropping, water harvesting and reforestation will help create a sustainable soil environment for future crops and will diversify the people's food sources. These techniques help with food security because if one crop fails the others may survive to harvest. Bringing in animals that complement small farms, such as chickens, may help the land and provide a food source for the Guatemalans. Creating areas around the farm with fruit trees can also provide a source of food. Planting these trees can also contribute to soil preservation and provide some protection from storms and wind (Greentumble, et al.).

Crop rotation can be implemented by mapping out equal plots of land to grow specific crops and rotating that order based on production rates. Intercropping would also help Guatemalan farmers make use of their land. They could implement intercropping by planting complementary crops in close proximity to one another. Water harvesting could be used by collecting rainwater that falls from rooftops in tanks. This harvested water could be used to better crops or for human use. By harvesting this water, Guatemalans would reduce the risks of floods or soil erosion that could detriment their crops ("Water Conservation: Rainwater Harvesting").

Technologies such as GPS systems, robots, moisture and temperature sensors, and aerial images that are often used in the modern world to perform many of the suggested procedures can be very expensive. However, they have a variety of benefits including: higher crop productivity, less resource use, less detriments to ecosystems, less fertilizer runoff into waterways, and increased farming safety ("Agriculture Technology").

Because farming technology provides a range of benefits, it would be prudent to allocate funds towards the establishment of these technologies. Part of the funds generated from donations and events described earlier should be set aside so that technologies can help farmers in Guatemala. One relatively inexpensive, yet extremely useful technology is the aeroponic system. It can be made for less than one hundred U.S. dollars for a simple model. It does not require a large amount of resources. In fact, when using aeroponics there is no need for soil. Instead, a mist, filled with nutrients, is carried by the air to the plants' roots. Seeds are planted in foam pieces that hold the roots in place. Then, the seeds are put into pots. The use of this system allows plants to have more space, and it allows for them to be exposed to higher levels of oxygen. With an increase in plant growth, food production increases, therefore, food insecurity will decrease. The aeroponic system is also a very sustainable and eco-friendly practice. Aeroponic systems "use 95 percent less irrigation than plants grown in soil. And since the nutrients are held in the water, they get recycled, too." Aeroponic systems are designed to help produce large quantities of plants in small

areas of space. Since the average farm size in Guatemala is relatively small, aeroponics is a plausible farming technology for that country. While other technologies may help with the techniques explained prior, aeroponic systems would help launch production rates for local farmers at a relatively low expense (Barth).

Guatemala is an impoverished nation where much of the population is lacking proper nutrition. As a morally responsible society, it is up to us to help create bridges for people who are in need. With the help of government, business, volunteers, and other service organizations; we can promote and provide food security to those in need. As the world's population increases, the demands of a sustainable food supply is of paramount. Our farmers and the global agriculture system will need the support of an aware population to promote food security for all people.

Consistency is extremely important. The implementations that were suggested such as hosting an off-season football game and introducing new farming technologies and techniques cannot be one time implementations. They must be consistent. In order to eliminate food insecurity, we must actively work together to combat driving factors that keep individuals, like those in Guatemala, malnourished. Events like off-season football games enhance social awareness of the food insecurity crisis, and they provide an encouraging foundation for people to share their knowledge and experiences. They allow for people to think about how to combat food insecurity in unconventional ways by learning from others, and they provide the funding necessary to implement people's suggestions. Additionally, farming techniques should be used on a regular basis to allow individuals to have access to an adequate food supply.

Overall, there are some important elements to solving food insecurity that must be addressed to help those in Guatemala. It starts with social awareness. People must become aware of the food insecurity crisis. Whether we host an off-season football game in the United States or create days of awareness in our schools, we must reach people with this issue. We can only solve food insecurity if we work together. We must take what we have learned from these experiences and share them with others. People's differing perspectives will enable us to be creative. This creativity will allow for others to share in food security. If Americans can work with Guatemalans to address their food insecurity crisis, it may teach us new ways to improve food security in our own country.

By helping others, we as Americans, will be able to have a better understanding of the issues surrounding us. We will also be able to have a better understanding of how we can help others and ourselves. There is no band aid solution to the food insecurity crisis, we must all work together to combat food insecurity around the globe. Different countries will require various methods to address their food insecure populations. By helping one another, we are able to establish what technologies and techniques can be adapted in our own country and how we can use those techniques to help others.

The food insecurity crisis in Guatemala is only part of the food insecurity crisis around the globe. But if we take small steps to help one another and teach each other, we will likely find that we have the potential to eliminate food insecurity throughout the world.

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