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Guatemala, Factor 7: Animal Agriculture

Guatemala: Let Them Eat Fish

Introduction

Driving down Main Street, U.S.A., Americans are bombarded by food. In the average American town, be it large or small, on the main stretch there is at least one restaurant. Many popular venues include McDonald's, Pizza Ranch, Long John Silver's, Subway, and Taco Bell. The average citizen has a plethora of places to eat. These meals aren't expensive to begin with, but if one is a savvy shopper, one can even use coupons or download the daily special onto a smartphone to get a discount. These meals are considered a cheap pleasure, but a few dollars to buy a burger here is considered a small fortune for an indigenous Guatemalan. In a country where the average rural citizen earns less than \$4 per day, a Happy Meal isn't even an option (Cooperative 1). Instead of a burger, Guatemalans are eating the ill-effects of a 36 year civil war (BBC 1). As opposed to a big buffet, Guatemalans are served a heap of poverty. A Guatemalan isn't handed a large order of fries, but receives illiteracy and infant mortality. Malnutrition levels are sky high; the average Guatemalan child isn't eating a foot-long sub sandwich, or even a 6-inch. Instead of traffic at the drive through, this country's citizens have to deal with drug traffic and organized crime. In our thriving, First World country, we don't have to worry about stuffing food into our mouths, we just wonder where we are going to get it next. Americans are obliviously chowing down on Crunchwrap Supremes while down South, it is a fight to be able to have one small tortilla for supper. In the rural areas of Guatemala, just a few bites may be the key to survival.

Life in Guatemala

Life in Guatemala isn't easy. This small nation, about the size of Pennsylvania, (Central 1) has a recent history of civil war, and citizens are still divided by social stratification. The people who are the worst off are the indigenous Mayan people living in remote rural areas (Gonzalez 1). They live in shacks made of salvaged tin or cardboard, heated by small stoves. Sometimes there isn't even a chimney or pipe vent to let out suffocating smoke (Rowe). This often causes respiratory issues (Rowe). Typical farm family size is a minimum of five (two parents and their three or more children) due to high birth rates from lack of birth control. Birth control in this country is a problem because of Catholicism. Indian and poor Ladino (mixed race) women are often treated poorly by their husbands (Gonzalez 9). The indigenous Guatemalan woman is in school for about 1.8 years, and the men only complete four years on average (Cooperative 1). Schools rarely have the necessary books or materials, and teachers almost never have degrees (Cooperative 2). This hinders the ability to earn enough money to pay for basic necessities and healthcare. The average rural family only earns about \$4.00 per day (Cooperative 1). Even though the civil war is over, violence is still very present in Guatemala. This increases the need for good health care. Guatemala's life expectancy is one of the lowest in the modern world (BBC 1), and almost half of the population is under 19 (Central 2). Although there is quality healthcare available in the urban areas, those in rural areas have almost no access to any kind of medical assistance (Gonzalez 11). The majority of rural health care available is provided by small, widely dispersed clinics staffed by under-experienced personnel. Local midwives, who use folk cures in place of modern practices, are the only other option (Gonzalez 11). Diet is also an issue when it comes to health. Malnutrition runs rampant in a typical rural family. The common diet of a Guatemalan family consists of tortillas (with every meal), as well as corn, beans, tamales, and boxboles (squash leaves wrapped around tortillas) (Soberanis 5). Although there is food available, there is not much of it since families usually grow it themselves (Rowe). One half of the children under five in this country are chronically malnourished (Central 6). Not only do children lack proper nutrients and access to food, Guatemala's Global Hunger Index number has increased, not

decreased (von Grebmer 1). This means the need for food assistance in this country is not going away anytime soon, and is actually on the rise.

Typical Farms

Most rural Mayans are farmers because there are no businesses or other employment opportunities in the highlands and rural areas. The common farm size is about one to two acres and is usually broken up into small plots on the hillsides (Rowe). The plots are so small because they are all the families can afford or keep up with. Mayan people usually farm their plots by hand, but on a rare occasion oxen are sometimes used to plow the small fields (Rowe). Crops include the following: sugarcane, bananas, coffee, beans, and corn and the typical livestock produced are: cattle, sheep, pigs, and chickens (Central 6). When the growing season is over and fields are ready to be replanted, the rural people use a “slash and burn” method to clear the fields (Rowe). Rural Mayan farming methods are still very traditional, leaving a huge technological gap between them and modern farm practices.

Setbacks

Mayan families are currently facing many difficulties. When it comes to agricultural productivity, the modern Guatemalan farmer is light-years behind the modern farming methods used in the United States. Mayans have to scrape out a living from small acreages on steep hillsides by hand (Rowe). These hillside plots make it hard to bring in any animals such as oxen to plow the fields, let alone any modern agricultural equipment. However, modern equipment isn't even on a Guatemalan farmer's radar because most of them hardly have tools or resources to farm their plots traditionally (Rowe). If these farmers were given the equipment to increase productivity in order to make a living wage, it would still be next to impossible for them to sell their crops.

Market access is an important problem to solve. Many farmers live miles away from the nearest market (Rowe). When it comes time to sell their crops, they can take only what they can carry from the fields in baskets or buckets (Rowe). Even taking crops home from the fields creates a massive amount of work and several trips. This chore is increased two or three-fold when those who aspire to sell their crops actually do so.

This hurdle of transportation isn't the only reason why these people fail to earn a living wage. Due to the rural environment, there are few opportunities (Rowe). Culturally, women aren't regarded as valuable and therefore an underutilized workforce. There are rarely close towns to find work in, and most jobs are given to whites or Ladinos who are more educated (Gonzales 3). Violence from criminal gangs called “maras” is also a threat to anyone entering the cities, which intimidates many rural people seeking work (Reporters 3). One thing Mayans have an advantage on is food access. Since Mayans grow their own food to eat or sell, during the growing season there is food to eat...temporarily.

However, due to the hilly terrain, only limited crops can be grown on the hillsides (Rowe). Although Mayans have access to vegetables, they lack protein. Lack of access to a variety of nutrients is one of the causes of malnutrition in children (Central 6). Even if there is an excess of food to eat, one of the biggest setbacks Mayans encounter is storage of food during the dry season. The Mayans have no way to store their food effectively for the drought during the dry season. The essentially nonexistent storage facilities mean people have no food to eat during the drought when nothing grows. This is when many people begin to starve (Rowe). The dry season also presents another problem: limited water (Edwards 251). The Guatemalan government rations water during the dry season due to the drought conditions it brings (Edwards 251). However, implementation of small scale aquaculture run by women can help contribute to economic growth, poverty alleviation, and local rural development.

Factor #7: Animal Agriculture- Small-scale Aquaculture (SSA) in Guatemala

Small-scale aquaculture, or SSA, is a productive, sustainable means of growing food on less than 100 meters square (Opensource 1). Aquaculture is growing fish for food sustainability. In Guatemala, this system of animal agriculture could sustain several small families or a small village depending on the scale of the system. Rural Mayan people could be constantly supplied with a sustainable source of protein and nutrients, even in the dry season. This could aid in diminishing malnutrition in children as well as adults. If SSAs were implemented into the Guatemalan countryside, not only would the quality of nutrition improve, but also the quality of life.

In the 1980's a small project to implement aquaculture into small, poor, family farms was started in the rural regions of the country (Edwards 251). About 1,000 small ponds were set up on individually owned small farms. The ponds were then stocked with fish and vegetables. They became part of the farm infrastructure. About a decade later, this study was evaluated. Upon inspection, about 50% of the ponds were still in some degree of operation. The other half had difficulty feeding and maintaining the ponds due to lack of resources to keep the ponds in operation (Edwards 251). However, evaluators found that those who did maintain the ponds had the incentive to do so because of the water rationing during the dry season. Prior to the dry season, ponds were filled to capacity with water, which was later used for irrigation and livestock watering (Edwards 251). These ponds are still in existence today, with varying levels of operating ability. If promoted in Guatemala, SSA could grow rapidly. This system of animal agriculture has been increasing in popularity in other countries for the last decade, and new advancements are still being made (Food 1).

Today, aquaculture has become more efficient through improved species selection and modern feeding methods (Food 1). In many other countries, aquaculture is becoming a secondary livelihood for crop farmers (Edwards 227). If aquaculture were reintroduced to Mayan farmers, they could better provide for their families and even make a small profit from selling their fish. Most First-World countries have begun to import fish, and if sold to a wholesaler, these farmers could begin to make a living wage or even feed their neighbors (Edwards 227).

However, there are factors that could inhibit the growth of aquaculture. Guatemala has many natural hazards that could destroy an aquaculture system. In the mountainous highlands there are volcanoes, mudslides, and earthquakes, and on the coast, there are violent tropical storms and hurricanes. Water pollution is a problem throughout the country (Central 2). Access to electricity to run pond filters is an issue. People outside towns and villages usually have no electrical power (Rowe). However, by introducing hardy tilapia and up-scaling pre-existing projects, food security in Guatemala could be improved.

Solutions: How Aquaculture Could Improve Food Security In Rural Guatemala

Aquaculture in Guatemala could be implemented by taking the following steps:

- Educate government policy makers and officials on the benefits and advantages of aquaculture
- Update outdated or aged methods to modern ones (tilapia, pellet food)
- Educate the people on the importance of SSAs to society
- Promote community ownership for SSAs
- Empower women's access and control of resources for aquaculture production

To successfully incorporate aquaculture into the farms of Guatemala, the case study made in 1980 could easily be scaled up. The study installed more than 1,000 small ponds onto Guatemalan farms, which were stocked with fish and floating vegetable patches. After teams installed the ponds, farmers were left to their own devices. A decade later, about half of the ponds were still in some degree of use (Edwards 251). If the ponds from the 1980 study were repaired and modernized and installed on more farms, there could be efficient, sustainable food production on a regular basis for the Mayan people of Guatemala. The

ponds not in use would have to be restocked with hardy tilapia and possibly repaired, but this could be done with low costs because most of the materials are already in place. Tilapia cultivation is most important at the community level because of pressing nutritional needs (Food 1). Access to modern pellet food for production efficiency would be ideal, but farmers can sustain their ponds through natural wastes if need be.

The first steps toward sustainable SSAs in rural Guatemala would have to be made by the government. If the government does not back the project, or even know about sustainable aquaculture and what it could do for the country, the project will not succeed. This means government leaders, representatives, and policy makers will have to be educated about the need for aquaculture in remote areas. This is a crucial step in solving the problems the country faces when it comes to food sustainability. Once the government understands the importance of the project to society, the road for financial support of the project will have been paved. Policies can be put in place and promoted by officials; grants can be written, and there will be access to funding through the grants and possibly sponsorships. If there is enough support and success, the national economy may benefit from the integration of aquaculture into modern markets. However, if people are not educated about the importance of aquaculture and what it could do for the economy and their communities, then the country will not benefit. One of the reasons agriculture in the United States has been so successful is because of university extension programs in each state to educate and introduce the populous to new methods and technology. By having a government-run demonstration training and a production fish farming center, the government will fulfill the role of aquaculture promotion (Food 1). All it takes is one successful farm to be an example for the whole country.

Education is one of the most important elements of the project's success; an extension service or aquaculture center for the local people would ensure greater chances of achievement. A learning center or extension program would allow ordinary people to have hands-on access to develop, promote, and spread this new technology throughout the entire country. An extension program could also be a gateway to introducing other new agricultural methods in the future. However, once people understand the importance of aquaculture for themselves and their communities, they can begin to run and understand their own systems. Communities can even share a large pond to benefit the whole. By promoting community ownership, everyone can share the resources the pond brings. Aquaculture programs have focused on filling the basic nutrition needs at a family level (Food 2). This can be very important to women with many children or widows who have lost their husbands to drug wars.

Another more powerful way the rural Mayan communities can support the project and promote equality is to empower women. Empowering women by teaching them how to run an aquaculture system allows them to have a productive role in their communities and provide for their multiple children. By increasing women's access to resources and educating them about aquaculture, gender roles can be broken. Men will begin to see the women not as another mouth to feed, but as a partner who helps provide for him and his children. The local women will have a hard skill to offer up and will increase productivity and efficiency during the growing season as well as the rest of the year. Guatemala will move closer not only to food sustainability, but gender equality as well.

Conclusion

Introducing SSAs into small rural farms will not only decrease malnutrition levels, but could also help farmers make a living wage, create gender equality, benefit the national economy, and create food sustainability in a country where Global Hunger Index is rising, not falling. Sustainable aquaculture would open the doors of opportunity that were previously locked to the rural Guatemalans. By aiding the Mayans with aquaculture systems, the world becomes a more equal, reliable, and less hungry place. Although the rural Mayans of Guatemala may not be eating a double-decker cheeseburger, a McRib, or even drinking a Cherry Coke, if aquaculture is introduced into their farms, they may be able to eat a fish sandwich.

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