

How Tanzania can have food security through educating family farmers
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Food insecurity is a major concern for a large majority of the world population. There are over two billion people in the world who face food insecurity every day. Food insecurity is described as when people live with hunger and fear of starvation. There are many reasons for people having food insecurity. One of the main reasons is the price of food. In one year alone the price of wheat had a 130% increase. In just three months, rice doubled in price in Asian nations. Prices have also increased in cooking oil, fruit, vegetables, dairy, and meat, which has led to violence in many third world countries. Another major problem is that the total population in the world has doubled since 1961. This problem can be overcome because the total amount of cereal crops has tripled in that same amount of time, but the problem is that less than half of the world's grain production is directly eaten by people. More than half of the world's grain production is used for animal feed, industry, bio fuels, etc. These are all issues that need to be conquered if food insecurity can become a thing of the past, but how does this happen? There is a way to end food insecurity that starts at the most basic point of agriculture, which is to educate family farmers about results from agricultural yield and sustainability research and providing access to, and support, for implementing methods from this research to improve their yields and to make their farming more sustainable (Tanzania, The United Republic of; Making a killing from hunger).

In all, there are twenty-two countries where the undernourishment prevalence rate is over 35%, and sixteen of these are in Africa. One of these sixteen is The United Republic of Tanzania, a country that is on the eastern edge of Africa along the Indian Ocean. Tanzania has approximately 41,048,532 people. It is estimated that 27.1% of all of the nation's income comes through agriculture, but 80% of all of the people in Tanzania are employed due to the agriculture in the country. It is a country where 26.9% of the income goes to the wealthiest top 10% of the population, but where the poorest 10% of the nation receive 2.9% of the wealth. To end food insecurity in Tanzania, we first need to understand a typical family and the structure upon which the family is built (Tanzania, The United Republic of; The World Fact Book).

A typical family in Tanzania consists of two parents and an average of five children, which makes the median age in Tanzania less than 18 years of age. The average income of the people of Tanzania is only \$700 dollars per year, or less than \$2 per day. Tanzania is a country that provides free primary school, but where only 5-7% of the people go to secondary school after primary school because they cannot afford the tuition, and fewer people are able to go to a university after their secondary school. The staple foods of the Tanzanian are ugali (a maize meal paste), rice, vegetables, and beans. Beef, fish, chicken, eggs, and tropical fruits are also served, but they are not served regularly enough to provide sufficient nutrition for the Tanzanian population. Another major factor that is needed to be known before food insecurity is ended in Tanzania is to understand an average farm in Tanzania and what the major issues of these farms are (The World Fact Book; Hatua Kwa Hatua).

The average farm size in Tanzania is 1.6 hectare, or about 3.9 acres, but only 4.23% of the 885,800 square kilometers of land in Tanzania is arable. The most common crops grown in Tanzania are coffee, tea, cotton, cashew nuts, tobacco, cloves, maize, wheat, bananas, fruits, and other vegetables. Agricultural practices in Tanzania are very basic. Only 1,840 square kilometers of all the land in Tanzania is irrigated. This leads to many issues like droughts that create unnecessary agriculture because they are trying to produce more yields by farming and tilling more ground, which can lead to soil degradation, instead of producing more yields with the land that they already farm. The farmers in Tanzania do have systems of weed control, systems of erosion control, and systems of re-fertilizing the land, but these systems are pretty primitive. Their system of weed control is simply hoeing or pulling the weeds out. Their system of erosion control is by having a cover of crops on the ground at all times. Their system of re-fertilizing is through manure, and by having a system of intercropping, which is defined as planting a

variety of crops on a piece of land either simultaneously or in rapid succession, yet even these systems have been declining in the last few decades due to the rapid population growth in Tanzania. What needs to happen in Tanzania to get better yields is to promote more modern methods of farming for small rural farms, which includes purchasing more productive seeds and fertilizers and by using chemicals. These modern methods come with some serious problems though (The United Republic of Tanzania).

The first and most serious problem is that the farmers of Tanzania do not know enough about these methods. They all have been using traditional methods that have been passed down from generation to generation, even though these old methods do not produce enough yields to have a sustainable farm (Wells, Cynthia).

Another serious problem is that most farms in Tanzania do not have the technology to use these types of practices. Most farms in Tanzania use only a simple six-inch hand hoe to till their average 1.6 hectare farm. In Tanzania during the 1970's there were over 17,000 hand held tractors, which are tractors that have two wheels and are balanced by a worker walking behind them, but that number has dwindled down to 8,000 tractors due to age. Small farmers would like to purchase these tractors, but they do not have the money to buy them and they cannot borrow any money from the government to buy these tractors because the Tanzanian government has a large debt. Another major issue is that rural farmers cannot afford pesticide, fertilizers, or improved seeds. About 87% of farmers said they were not using chemical fertilizers, 72% were not using chemical pesticides, herbicides and insecticides, while 77% could not afford improved seeds (More People Live in Poverty).

The last major issue is how the yields that the small rural farmers get are traded at market. As stated earlier, less than 7% of the Tanzanian population gets to attend formal secondary school because they cannot afford the tuition that is required to attend the secondary schools. Because of this, the poorest people in Tanzania are less likely to be able to attend secondary school, which are usually the farmers. This is why the small rural farmers usually have not had much formal education after primary school. This leaves the farmers uneducated and forced to take what they can get from the land and from the market because they do not know what a fair price for their yields are. These farmers may not totally understand the markets, so they may be selling their crops for far less than they are worth, which means that they are making enough money to help them survive, but not enough to get them out of poverty or get them to a state where they are no longer in a state of food insecurity. There are also many other topics that need to be discussed to end food insecurity in Tanzania (Hatua Kwa Hatua).

The next topic that needs to be discussed to end food insecurity in Tanzania is how the problems that the small, uneducated rural farmers have affect the income, food availability and cost of food in Tanzania. Uneducated farmers cause their families to have insufficient food supplies and income. The first way that family farmers can cause their families to have insufficient food supplies is by not being able to produce enough food for the land that they farm because they do not know, do not practice, or cannot afford to use new technologies that could dramatically improve their crop production. It is clear this leads to a never-ending circle of food insecurity that is going on today and will go on into the future unless the system improves. The farmers cannot get the newest technologies, like tractors and improved seeds, fertilizers, and chemicals, because they do not have the money and because they cannot borrow money from the government because it is in debt. Because they do not have the newest technologies, the farmers are not getting the full potential out of the land. Because the farmers are not getting the full potential out of the land, they barely have enough to sell at market to survive. Because they cannot sell more at market, they cannot save any money. Because they cannot save any money they cannot get the newest technologies and they cannot afford to educate themselves or their children, etc... Another factor that needs to be understood before food insecurity in Tanzania ends is how severe the problem of uneducated farmers and hunger in general is (East African Business Week).

The first thing that needs to be known when talking about how severe the problem of uneducated farmers is to be reminded of how many people attend secondary school and university in Tanzania, which is where farmers would learn how to produce more productive crops. Most of the people who do receive a secondary education go into fields such as law, medicine, education, or they study to become influential people in their church. Some will become scientists who help in the production of agriculture, but few will return to the fields to become actual farmers. This leaves a very slim population of farms that have any sort of education after primary school. This of course leads to the problems that were discussed earlier, but it just emphasizes what percent of people have the necessary amount of resources to produce the food and income that a family needs to obtain. Approximately 40% of the population lives in areas of Tanzania where the amount of food that is produced depends on how much rain that area gets. Through practices like irrigation, these people would have a way to produce food even when it does not rain enough to produce a valuable crop. Also, about 58% of the people in Tanzania live on less than \$1 a day (Global Service Corps; Hatua Kwa Hatua).

The second major issue of farmers not being able to get the full potential out of their land is that they think that they need to just farm more land, which is leading to deforestation. The farmers are burning away at the savanna so that they can have more farmland to produce more crops, instead of just getting more productive crops out of the land that they already farm. Deforestation is believed to cause many problems throughout the world, one of which being global warming. It is also reducing the amount of area that wild species can inhabit because the savanna is shrinking (The World Fact Book).

The last major issue is about the treatment of women. Women in Tanzania live a very difficult life. Every day they are expected to gather water, which sometimes means walking over ten miles to find a clean water source, cook the meals for the day, clean, and also help on the farm. Living such a busy lifestyle means that these women have no opportunity to be educated. Because they do not have any education they are dependent on their husbands, and if their husbands die they have no source of income. Because of this, especially in the big cities like Dar es Salam, women have been forced into prostitution as a source of income. Another factor that is needed to be known before food insecurity can end in Tanzania is to know how lifestyle of the people of Tanzania (Wells, Cynthia).

Over the last few years the lifestyle of rural and family farmers has not gotten any better in Tanzania. The best way to determine how the lifestyle of people is in a country is to ask the people themselves. A survey carried over the last year by the Research and Analysis Working Group under the National Strategy for Growth and Reduction of Poverty (Mkukuta) found out that 52% of the respondents, mostly in rural areas felt their economic situation has become worse since 2005. Because of this it turns the endless circle of food insecurity into a downward circle that leads to poverty and hunger. This is the worst possible outcome, so now a possible solution needs to be determined. I believe that the best possible way to end food insecurity in Tanzania is through education of family and rural farmers (More People Live in Poverty).

If rural farmers were able to get education it could change the whole dynamic of the country. If small rural farmers were able to get educated about how to get higher productivity for their farms and how to market their crops effectively, then they would be able get higher yields on their crops. The Tanzanian government has seen the importance of agriculture. They have even made their slogan for the year of 2009 "Agriculture First", which in my opinion means that they have a strong commitment toward improving the agricultural system that is set up in Tanzania, but we cannot rely solely on their government because they do not have the economic resources to end food insecurity in Tanzania. I believe that other organizations need to step in and help out this situation (Hatua Kwa Hatua; Wells, Cynthia).

I believe that the first organization that could step in to help end food insecurity in Tanzania is the United Nations. The United Nations is an organization that aims for international law, international

security, economic development, social progress, human rights, and achieving world peace. I believe that they should help end food insecurity all throughout the world because one of their main aims or goals is to enhance economical development, which includes agriculture. I believe that the United Nations could provide some economical resources to this cause, but if they do not feel the need to provide this resource they can help this cause in many other ways. The United Nations is a very influential group throughout the world. I believe that The United Nations could provide the vocal support to start a financial flow to help the rural farmers throughout the world, so in other words they could organize and create a strategy that all developed countries can use to help third world counties. Tanzania would be a perfect country to start this United Nation Programs because they have a lot of need, but they do not have the political or social problems that some African countries have. If The United Nations were to inform the world about the problems that these farmers face, encourage countries to help these farmers by giving financial aid or education opportunities, and just show a general support for this program, I believe that developed countries would be willing to respond (The World Fact Book).

Other groups that need to step in to help food insecurity in Tanzania would be developed countries. I believe that there are enough resources on this planet to help everyone in the world with their problems, especially when these problems are leading to food insecurity. In the United States, for example, the lowest any citizen can get paid for one hour of work is about 362.5% more than the average Tanzanian can make in one day. This is unacceptable. Through a few changes in a country's lifestyle, like cutting back on unneeded luxuries, I believe that the government and citizens of developed countries can contribute enough financial aid to end food insecurity throughout the world. I also believe that developed countries can provide more than just financial aid to farmers. To get this project to work, educators who understand agriculture are going to be needed. I believe that professors from developed countries, along with professors and teachers from Tanzania need to be the people who need to be educating these people. The Tanzania professors may not be able to do this alone because they do not have the resources to teach about the newest developments that are commonly used in developed countries, and professors from developed countries cannot do this alone because they do not understand all of the needs or the background of the average Tanzanian farmer. This is why I believe that both groups of educators need to work on this major issue together. An example of this is how Iowa State University has a relationship with Sokoine University of Agriculture in Morogoro, Tanzania. These groups, working in collaboration, strengthen the overall effort by working together. Iowa State has the research and the technical expertise to improve agriculture in Tanzania, and Sokoine University of Agriculture has the same resources but in their specific local culture (The World Fact Book; Local Support sought for Tanzanian farm venture).

The last organizations that I believe that could help end food insecurity in Tanzania would be religious groups. Religious organizations have the trust of the people throughout the world. They provide a relationship with the people and a relationship with other churches worldwide to start programs to help educate farmers. They can provide people from developed countries to go on "mission trips" to help the people in Tanzania by helping with some of the labor needs and by supplying money for their projects, and they can build and start education centers of their own. In southern Tanzania there is a religious-based program called The Center of Agriculture Development (CAD). This center is made to improve the livelihood and dignity of Tanzanian smallholder farmers through sustainable agriculture. This center's main goal is also education. It, along with the help of Iowa State University, teaches the smallholder farmer about how to grow productive crops, how to get a fair price at market, and how to keep their dignity while doing this. I believe that if these organizations lend the farmers money, the farmers would be able to invest it into new technologies like tractors, improved seeds, fertilizers, and chemicals. If the farmers were able to invest in new technologies, then they would have the resources to improve their crop production. If they could improve their crop production, then it leads to the end of many problems. They would not have to burn down any more rain forests because they get more productivity from their crops. They would be able to get more savings from their productivity. If they get more savings, then they would have the money to educate their children for generations to come, and if there is more productivity, then it

brings more wealth into the rural area of the country. Educating the children, bringing wealth and technology into the rural areas, and stopping the deforestations could possibly send Tanzania into an upward spiral to becoming an up and coming developing country. I also believe that the people of Tanzania would be so grateful that they would be willing to help other countries with their food insecurity needs also. I also have my own opinion on how to increase productivity of small rural and family farms (Local support sought for Tanzania farm venture; Wells, Cynthia).

My recommendations as to how to increase productivity of the small rural farms would be to create a grant with all of the funds that the United Nations, developed countries, and Religious organizations can provide to help stop food insecurity in Tanzania. This money would provide a few main functions. First, the money would go to the farmers so that they can purchase the resources to help improve their yields. Secondly, the money would go to starting schools to educate farmers about agricultural practices, like CAD for example. Lastly, the money would go to a scholarship fund which would be given to the children of farmers to help them become educated in farming practices. I truly believe that if these farmers become educated, then they have the talent and the will power to make Tanzania a country where hunger is no longer a major issue. The Tanzanian government has shown their commitment to educate these rural farmers, and I believe that if they, along with the organizations, were able to turn Tanzania's words into actions, food insecurity will no longer be a problem in Tanzania due to educating the rural farmers and by giving them adequate information and helping them use that information to be more productive farmers.

In all, there are twenty-two countries that have an undernourishment rate of over 35%, and sixteen of these countries are in Africa. Tanzania is one of these countries. I truly believe that if the right steps are taken, Tanzania can be taken off of this list. I know for a fact that these people are eager to get out of poverty because I have experienced their commitment firsthand. I have been to Tanzania and I have seen the conditions of the farms there. They have the potential to be as productive and fruitful as the fields of northwest Iowa. All that those farmers need are some resources and a little bit of guidance. I believe that we could be the people to help them with both of those. All that the people of Tanzania need is a chance, a chance to break away from food insecurity and a chance to become a nation that is stable and does not have to worry about the well being of its people.

Even though Tanzania is a very special place to me because I have been there, I believe that these same concepts can be used all over the world to end world hunger everywhere. If these same programs are implemented all around the world, it could change the needs of the world forever. Education is the key to success. I have been taught that all of my life. All these people need is a chance to have the same education that I have been so privileged to have. Education is the key, and I truly believe that if these programs were to be implemented all over the world, the number of countries that have an undernourishment rate over 35% would go from 22 to 0, and world hunger would be a thing of the past.

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