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Tanzania, Factor 11, Malnutrition

Tanzania: Solving Undernutrition

There are many problems that plague our world from terrorism to global warming that gather media attention, but malnutrition is a serious problem that is often overlooked despite its devastating consequences. As Norman Borlaug once said “Yet food is something that is taken for granted by most world leaders despite the fact that more than half of our of the population of the world goes hungry”-Norman Borlaug

Currently, approximately 7 billion people live on Earth and from this total population, 1.4 billion people are overweight and about 795 million people do not have enough nutrients to live an active lifestyle(WFP). Malnutrition in medical terms is a condition that comes from having more nutrients than needed (overnourished) or not enough nutrients (undernourished) in a diet. Malnutrition usually is referred to as undernutrition (medical-dictionary). For most people in the United States, this is hard to imagine because when they open the refrigerator or the cupboard they have food, or they can go to the grocery store and buy food. In the United States, food is so easy to access that many people take food availability and access for granted. In this world, we waste one third of what we produce, yet almost a billion people are going hungry in the world(cgiar.org). If population and diet trends continue, we will need to produce sixty percent more food by the year 2050 (cgiar.org). Of undernourished people in the world, ninety-eight percent come from developing countries which is why Tanzania is the perfect example to talk about in regards to malnutrition.

Tanzania is an eastern Africa, bordering the Indian Ocean and lies between Kenya and Mozambique. It relies on its agricultural industry, which accounts for forty-five percent of the nation's GDP and is the source of income for three quarters of the Tanzanian working population(The World Factbook). The average farm size is between 0.9 and 3 hectare(Yield Gap), and Tanzania's average house size is 4.9 people(UNFPA). Tanzania covers an area of 947,300 sq km, which consist of 885,800 sq km of land and 61,500 sq km of water (The World Factbook). It is about six times the size of Georgia and larger than twice the size of California. The land is 43.7 percent agricultural(14.3 percent arable land, 2.3 percent permanent crops, and 27.1 percent permanent pasture) 37.3 percent forest, and 19 percent other. The climate ranges from tropical on the coast and temperate in the highlands. The coast consist of plains, the central area is a plateau and there are highlands in the north and south(The World Factbook). Most of the Tanzanian population lives in rural communities, but the country is urbanizing at a rate of thirty-eight percent over the last two decades (The World Factbook). Tanzania's population is very young—forty-three percent of the population is 15 years old or younger (The World Factbook). Life expectancy is about 64.94 in 2014(countryeconmy.com) and the median age is 17.5 years old which has decreased in the last twenty years as a result of HIV/AIDS and other diseases. The ethnic makeup of the population is ninety-nine percent African and one percent other. The sex ratio at birth is 1.03 male/female, but the total population is 0.99 male/female (The World Factbook). Eighty percent of the population has access to some kind of health care facilities, and immunization rates for infants are high. However, high medical costs and under-qualified doctors contribute to poorer service and low recovery rates. While basic sanitation is routinely practiced in both rural and urban communities, clean water problems persists, especially in rural communities. Tanzania also has a high poverty rate of forty percent in the rural population and twenty-five percent in urban areas(The World Factbook).

Reasons that people cannot earn a living wage include low education (few secondary schools), poor or unavailable job training, diseases and malnutrition, overpopulation, and privatization. Also, jobs previously done by hand are being replaced by technology. However, according to

the 2011 census, ninety-four percent of children between the ages 7-13 are in primary school (The World Factbook). This is a dramatic increase from fifty-nine percent in 2000, which is most likely due to the reduction of school fees. The literacy rate in 2010 was 74.56 for people ages 15-24, which is down from 81.75 percent in 1988 (The World Factbook).

The normal diet for most people in Tanzania consists mostly of grains (rice, corn and sorghum), starchy roots (cassava), and pulses (beans). Consumption of animal products and fruits and vegetables is low, so micro-nutrient deficiencies are common. The dietary energy supply meets the average energy requirements needed for the population. The diversification index is extremely low because starch foods make up three quarter of Tanzania's total energy supplies. The major plant crops grown in the country are corn(maize), sorghum, millet, cassava, sweet potatoes, bananas, pulses, paddy, and wheat. Tanzanian cash crops include corn, coffee, cashew nuts, tea, cotton, tobacco, and sisal. Rural households receive on average 22 percent of their income from livestock production. Poor households often have no livestock or a few small animals like goats or sheep while wealthier households have greater amounts of livestock and larger animals such as cattle.(Tanzania Invest)

Malnutrition—my topic of interest—affects agricultural productivity because malnourished workers have less energy, which then limits their productivity and weakens their immune systems. If people cannot work, overall work production slows, causing decreased income. Malnutrition may decrease family income, making it even harder to grow or purchase nutritious food. In addition to energy loss, stunted growth—delayed or stopped development of brain and body—may occur. This makes it harder for individuals to learn, obtain work, and get out of poverty. Also, malnourished women usually have babies with low birth weights, prolonging the cycle of malnutrition (Elder et al). Malnutrition affects forty-two percent of children under the age of five in Tanzania; this rate is slowly decreasing but it is staying constant. The rate was only two percentage points lower than it was five years ago. But this is not just a problem for Tanzania, in Sub-Saharan Africa twenty-five percent of the population is undernourished (WFP).

About one-third of children ages 6-59 months are iron and vitamin A deficient, while sixty-nine percent are anemic and over 18 million Tanzanians do not consume large amounts of iodized salt. About one-third of women age 15-49 years old are deficient in iron, vitamin A, and iodine. Two-fifths of women are anemic, and one in ten women are undernourished. Every day, approximately 130 children die from malnutrition. Improving nutrition would decrease mortality rates, increase productivity, and improve the economy and lives. Other barriers to accessing food markets and nutritious food needed to combat malnutrition include: lack of roads, limited food diversity, increasing food costs, and low incomes. Some other factors that affect food availability include climate volatility, disease, population growth, and energy and water scarcity.(UNICEF)

Tanzania's agriculture—thanks in part to the country's fertile lands, diverse climate, and natural water—plays a key role in helping decrease poverty. However, only twenty-four percent of 44 million hectares of land are being used, according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO). These areas are being mainly cultivated by smallholder farmers whose average farm sizes is between 0.9 and 3.0 hectares. These farmers use rustic methods, such as harvesting by hand or scythe, with only ten percent of the arable land cultivated by tractor. The main obstacles that hinder agricultural development include: poor access and low use of improved seeds and fertilizers, limited investment in new technologies and mechanization, limited access to finances, unreliability of rainfall in some of the regions, and limited use of available water for irrigation (Tanzania Invest).

Disease increases malnutrition by keeping people from working in the fields, which means less variety and lower amounts of food that can be grown. Population growth could also affect food availability because more people would need more food, and this leads to a higher amount of malnutrition. Also, as farmers turn to technology in order to increase production, greater energy sources will need to be found to make technology sustainable. Climate volatility and water scarcity will also need to be addressed to assure the availability of adequate, nutritious food and to decrease malnutrition. Also not using smart agricultural practices can lead to land not being cultivated which also can affect food availability. It is said that by the year 2050, three percent of Africa's land will no longer to grow corn (maize), will transition to crops and livestock, and eventually just to livestock.

On July 19, 2016, I interviewed Fr. Paul Fagan who lives in the NKololo area of the District of Bariadi, Simiya region, Tanzania for most of the year. Fr. Paul is a Roman Catholic missionary priest from southwest Wisconsin, and he visits his hometown of Prairie du Chien, Wisconsin in the summer. According to Fr. Paul many of the people in his community now eat white corn instead of yellow corn because the white corn is prettier even though the yellow corn has more nutritional value. Rural farmers travel by bicycle once a week (usually on Mondays) to bring food into town. Most of the food the local people consume is grown by themselves or picked wild from the land. Small fish from Lake Tanganyika are also harvested and eaten. However, other staples like sugar must be brought in from the coast by wholesalers who distributed the goods to small stores in villages. According to Fr. Paul, wholesalers with trucks are able to haul things for other people and have greater financial success. The people of Tanzania eat more rice now than previously, and they have developed small rice fields. They use streams to irrigate tomatoes and onions. Other crops have to rely on rain water. Climate change has affected this area severely; rain comes less often, and at times, very strong storms flood the area. Fr. Paul said that during times of drought and famine, people, even if they have enough food to feed themselves, will try to get much as they can from relief efforts. Another huge problem that limits people from having gardens and growing more food is the lack of fences. Livestock run wild eating plants and ruining gardens. Traditionally, people believe that putting up fences is being unfriendly to neighbors. Some people have shallow wells, but only the wealthy have deep wells due to the granite rock that is under the soil. This means that there is limited amounts of water available for drinking and irrigation. Cattle are a sign of status and large areas of land are used to graze them. Fr. Paul did note that the population is young and education along with developing greater access to water for food production and better medical care is crucial to helping the population combat malnutrition. I think to end undernourishment scientists, nutritionist and local and national government leaders have to find a way to end the cycle that causes malnutrition so it cannot continue to the next generation. I think local community intervention programs and treatment centers should be used instead of having individuals travel to larger cities where they could develop sickness from contaminated water, food, and other diseases. Missionaries from other countries or the Tanzanian government could set up and run these treatment centers.

A program that is helping to combat malnutrition in Tanzania is the Roads To Life Tanzania. It is an American nonprofit organization that serves the people of the Nkololo, Tanzania. The organization supports the ongoing charitable work begun in 1960 by Father Paul Fagan. The mission of Roads to Life Tanzania is to provide health care, educate young people, and develop and maintain infrastructure with the help of the local people. The organization has build roads and is continuing work to build a hospital. This is to expand the Songambe Health Center which includes maternity and inpatient wards, a laboratory and a blood transfusion center. In 2015-2016, they constructed walkways between buildings and built an operating suite building with two operating rooms and a surgical medical ward. One is fully equipped, the other one will be equipped when they have enough money donated for the equipment. In the future, their goals include building a mother/child health clinic, an ICU, a ten-room administration building, and a ward with private rooms. Having adequate medical

care and facilities are crucial for the health and well-being of the people in this region and to overcoming disease and malnutrition. The organization also sponsors children to go to school. Plus Fr. Paul helps people in the area raise food in gardens(Roads To Life Tanzania, Inc.).

The Roads to Life Tanzania program helps decrease malnutrition in many ways starting with the roads that make it easier to trade and to distribute food and other items. Educated people have greater professional opportunities and higher wages. The hospital helps treat malnutrition and diseases that can keep people from working and helps to increase incomes. Since all these things need to be built, it also creates jobs. Overall, this program assists the economy and gives people more food variety and decreases malnutrition. The gardens also help because there is less food waste since the produce does not have to be transported or processed. In Sub Saharan-Africa more than seventy percent of food is wasted before being consumed(cgiar.org).

I also think a product called Ready-to-Use Therapeutic Food (RUTF) could help fight malnutrition. RUTF is most commonly used in the rehabilitation stage of malnutrition, but it can also be use at home and it doesn't need added water to make it ready for consumption. RUTF is made from foods that are high in energy, lipid base and used to treat severely acute malnutrition. The product, which is based on peanut butter mixed with dried skimmed milk and vitamins and minerals, can be consumed directly by children ages six months to five years old and provides enough nutrients intake for complete recovery. RUTF provides the appropriate amount of energy, fat, protein vitamins, minerals with the mix containing twenty vitamins and minerals. By stopping malnutrition in this young age group it helps to prevent development and physical problems when the children are older. The RUTF can be stored for three to four months without refrigeration, even at tropical temperatures. Local production of RUTF paste is already under way in several countries including Congo, Ethiopia, Malawi and Niger.(US AID)

My recommendation for families in rural Tanzania is to grow and consume a variety of nutritious foods that contain protein, vitamins, and carbohydrates and to consume less white corn. They could apply for assistance programs like Heifer International which is a program where people can donate money to give an animal or animals to a family, seek medical help when needed especially RUTF for children, and look for ways to increase their education even if it is just learning newer technology or skills. Families should also talk to their elected representatives about the struggles they face.

Communities should encourage families to coral cattle, goats and other animals to allow more gardens and diversified food production. They could also develop community gardens and work together to develop roads and medical clinics. They should have plans to combat the effects of changing weather conditions.

The national government should offer grants to help with rural infrastructure, water collection systems and better wells. The government could also offer grants for farmers to growing different types of crops and offer scholarships to secondary schools or sponsor people willing to learn about food production, nutrition and medical care who could work in the rural communities. The government should also lower the price of non-processed foods or offer food assistance to the poorest people. However, the cost of these programs could be expensive and hard to implement.

Organizations should raise money for programs like Roads to Life Tanzania or Heifer International, or for programs to help the poorest people or pay for health care, and RUTF. Organizations, like 4-H, should raise animals and plants to help people and decrease malnutrition. Finally, all of us should think before we take huge portions or waste food. As Mahatma Gandhi once said, "Be the change you want to see in the world."

References:

World Food Programme, Hunger Statistics retrieved from <https://www.wfp.org/hunger/stats>

Tanzania Agriculture, (March 2016) TanzaniaInvest.com, Retrieved from <http://www.tanzaniainvest.com/agriculture>

Cochrane, Nancy and D'Souza, Anna, (February 2015), Measuring Access to Food in Tanzania: A Food Basket Approach, Retrieved from http://www.ers.usda.gov/media/1784070/eib135_summary.pdf

Elder, Leslie, and Tanimichi Hober, Yuri, (10-1-2012), Linking Child Malnutrition to Agriculture, Retrieved from <http://blogs.worldbank.org/health/linking-child-malnutrition-to-agriculture>
Nutt, Elizabeth, Education in Tanzania: 19 Important Facts (July 23, 2014) Retrieved from <http://borgenproject.org/education-tanzania-10-important-facts/>

Africa: Tanzania, (n.d) World Factbook, Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/tz.html>

Tanzania, (n.d.) Unicef, Retrieved from <http://www.unicef.org/tanzania/nutrition.html>

Rugumanmu, Costancia Peter, (April 14, 2014), Empowering smallholder rice farmers in Tanzania to increase productivity for promoting food security in Eastern and Southern Africa, Retrieved from, <http://agricultureandfoodsecurity.biomedcentral.com/articles/10.1186/2048-7010-3-7>
DOI: 10.1186/2048-7010-3-7

The Role of Livestock Data in Rural Africa: The Tanzanian Case Study, (October 3, 2013) Retrieved from <http://www.worldbank.org/en/news/feature/2013/10/03/the-role-of-livestock-data-in-rural-africa-a-tanzanian-case-study>

Kinabo, Joyce (2008), Tanzania Nutrition Profile – Nutrition and Consumer Protection Division, FAO, Retrieved from <ftp://ftp.fao.org/ag/agn/nutrition/ncp/tza.pdf>

United Republic of Tanzania (2012) Food Security Portal,

Retrieved from <http://www.foodsecurityportal.org/tanzania>

Fagan, Rev. Paul, interview, July 19, 2016

Roads to Life Tanzania, (2016) website, Retrieved from <http://roadstolifetanzania.org/>

Retrieved from <http://medical-dictionary.thefreedictionary.com/malnutrition>

Retrieved from <https://ccaafs.cgiar.org/bigfacts/#theme=food-security>

US AID, retrieved from <https://www.usaid.gov/what-we-do/agriculture-and-food-security/food-assistance/resources/reedy-use-therapeutic-food>

Retrieved from <http://www.yieldgap.org/tanzania>

More people move to urban areas as Tanzanian population gallops, Retrieved from <http://tanzania.unfpa.org/news/more-people-move-urban-areas-tanzanian-population-gallops>

Retrieved from www.countryeconmy.com