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Burundi, Factor 11: Malnutrition

Malnutrition in Burundi: Overcoming the Cycle

Four children are sick; their small farm isn't producing enough food, and their family lacks the techniques to improve the situation. This is the case for over two thirds of the families living in Burundi, Africa (Republic of Burundi). The country is 93% populated by smallholder farmers (Encyclopedia of the Nations) who work tirelessly to provide for their families on an average of only one and one quarter acres of land (Humanitarian News and Analysis). Burundians have been farmers all throughout history, but one, more recent, task has marked the country in a negative light: violence. Burundi was controlled by affluent countries until independence was declared in 1962. Following the declaration, the few but powerful Tutsis and the large but weak Hutus, both major ethnic groups of the country, went to war over governmental control. The war reached its most serious point in the mid 1990's when its main intention became genocide and 300,000 people were killed; more yet fled from the country. In 2006, a cease-fire was issued which allowed Burundi's citizens to remain in the country without fear of being killed. However, because of the war, housing and infrastructure were destroyed on family farms. These farms generally lie on the central high plateau, which encompasses much of Burundi's hilly geography, and far from the nearest significant water source, which is Lake Tanganyika on the country's western border (Stanford). The farms produce minimal crops from which farmers must gather enough food to feed their family and sell to make money. A majority of the families live on less than \$1.25 per day ("Burundi", UNICEF) because of the scarcity of crops to sell after consuming what they need. People of Burundi receive minimal education and healthcare. They are farming the way they have always known, but this way is no longer supplying enough food for their families and, as a result, members of the country are malnourished. Malnutrition occurs when people are unable to take in enough or fully utilize the food they eat (Malnutrition). Lack of important nutrients such as iron, vitamin A, zinc, and protein lead to health issues among Burundi's citizens. Doctors are in small supply to resolve these issues. Because of the lack of doctors, and food, Burundi has the largest rate of malnutrition compared to any country in the world (Hunger Map). The citizens of Burundi live in poverty on small farms. They suffer from malnutrition, and changes need to be made to their education and practices in order to better their lives.

The typical Burundian family leads a poor life. Many fathers were killed during the war, leaving only mothers to take care of the farm and family ("Burundi", A to Z World Cultures). Because of this, able children are required to help with chores and raising their younger siblings (Republic of Burundi). Possibly the largest of chores is growing the crops which the family will consume, including bananas, sweet potatoes, cassava, sorghum, millet, corn, peas, plantains, and beans. Creating meals from these is often a laborious task. Families grind sorghum like flour and use it to make pancakes and porridge; they wash, pound, and drain cassava. Families who live near Lake Tanganyika have the privilege to harvest fish for their diet, but apart from the lake region, meat is a novelty. With home responsibilities necessary to maintain the household and limited financial necessities, it is difficult for families to enroll all of their children in educational pursuits that would allow them to be successful in the future. In 2005 the Burundian government announced free education to children ages seven through twelve. Even though school is considered free, families are required to pay for necessary uniforms and books. This cost has become the barrier between sending all of a family's children to school and only one or two. (Republic of Burundi) In fact, only 50 percent of eligible children attend primary school and, of those, only 27 percent finish. The secondary school completion rate is worse yet: 9 percent. Even the children who attend school may not receive adequate education. Throughout the civil war, educational infrastructures and

supplies were destroyed. Also, since the free education announcement, a greater portion of children have been able to attend school, but enough teachers have not been hired to meet the demand. The ratio of children to teachers for primary school has reached an unremarkable 50:1. Without enough supplies or teachers, the efficiency of education is low in Burundi. Currently, 11 percent of young adults are illiterate; this is a large improvement over their parents' generation in which 57 out of 100 people cannot read, ("Burundi", Unicef) but still a disappointing statistic. Few individuals make it through secondary school and attend the country's only university in Bujumbura to pursue advanced careers, which is a likely cause for Burundi's doctor shortage. The country has only one doctor for every 37 thousand people, and nearly no specialists. Families have access to the hospitals, but those who need them most are likely too poor for care. Most of the time, however, skilled medical professionals, normally midwives are present during child birth (Burundi Accountability Profile 2013). The households of Burundi suffer from inadequate diet, education, and access to healthcare. (Stanford)

The farms Burundian families live off of are nothing like the large, bountiful operations present in today's wealthy countries. All of Burundi is slightly smaller than Maryland (Encyclopedia of the Nations), but roughly four million more people call it home (population). Since the population is so large and the land amount so slim, the average farm size is less than half a hectare, or one and one quarter acres (Humanitarian News and Analysis). Rural families depend on this small amount of land for both food and their income. Ones who have enough land to support more agriculture will grow additional foods such as sugarcane, peanuts, and coffee beans along with extra of the previously listed crops to sell at nearby markets. However, since relatively every rural family is below the poverty line, people cannot afford to buy produce from the markets, and little money is made there. Instead, people barter for what they need and make trades. Sheep, goats, and cattle are rare among farms, so they are used as strong bartering tools, most commonly, the use of cattle as currency. Beyond producing agriculture for markets, successful farm families grow coffee beans, the country's largest export making up 80 percent of foreign revenue, to sell to other countries (Stanford). Families who reach this level of production are well off. The possible products of Burundian farms are large in number but the amount of land is still small; so, agricultural practices are what make the difference between a farm supplying too little food to support one family and enough to feed the family plus sell at markets or for foreign exchange. Burundians have been farmers forever, but their practices have not evolved with the advancing world. Andrew Youn, founder of One Acre Fund, found that "the reason they're not succeeding right now is they're still using tools and techniques that literally date to the Bronze Age." (Food for 9 Billion) Farmers lack education on how to grow their crops for the best yield. (Food for 9 Billion) Between small farm size and lack of knowledge on improved agricultural practices, Burundian farms are not supplying the produce necessary to feed a family or sell for adequate income.

High population density, limited land, and outdated agricultural practices are among the largest barriers facing Burundian families today, but they are not the only ones. Others include barriers to improve agricultural productivity, employment at a living wage, and accessing food markets and adequate nutrition. The land which they heavily rely on is not as productive as it is capable of being to support families. Naturally, the soil is rich and arable, but has been over-cultivated year after year without the necessary practices to restore it. Rainfall runoff from Burundi's hilly terrain causes soil erosion on land that could otherwise be used for farming (Humanitarian News and Analysis). Burundi's climate is well suited for agriculture; it offers steady, warm temperatures year-round, and an average sixty inches of rainfall throughout a wet and a dry season (Stanford). However, drought and flooding have persisted in years past leading to meager harvest. In times when agriculture is negatively affected by rainfall, families cannot produce enough food to adequately support themselves. They fall into illness from malnutrition, and they have no products to sell for financial security. Unhealthy individuals have a hard time working because they become weak (Malnutrition). If they cannot work, then chores are not done which further

worsens their situation. Problems arise, still, when agricultural seasons are successful. The array of Burundian crops does not offer enough nutritional value to keep people healthy. Because meat is a delicacy everywhere except near Lake Tanganyika, little protein is consumed. Even if families surpass barriers and produce a bountiful harvest, the crops consumed in the region do not provide enough nutritional value to alone support the health requirements of one family. (Rural Poverty in Burundi)

Malnutrition has a circular connection to food availability and quality. Burundian families eat the food that their resources allow them to harvest from their fields. Malnutrition appears either because food in general is unavailable, or because foods that are necessary for the body's health are inaccessible. Both cases are true for Burundian families. They rely on their farms to provide food for the whole family, but not every year is a success. When a harvest season is exceedingly unproductive, it is not uncommon for one or even two children to die as a result of food shortage (Food for 9 Billion). When a family does not produce enough food, they most likely cannot purchase it at market because they also rely on the harvest as a source of income and without it will have no spending money. Even in the scenario of a good harvest season, the crops do not support the nutritional needs of a family. Vitamin A, iron, zinc, and protein are among the most important nutrients to health, yet bananas, plantains, and cassava offer just three percent or less of one day's needs for all of these nutrients. The best available source of vitamin A comes from the sweet potato, which offers fourteen percent of a daily value. Through combined servings of sorghum flour and white corn, an individual receives only 32% of one day's value of iron, 25% zinc, and 35% protein (Nutritional Values). As a result of low nutritional value in food and food scarcity, the country as a whole is the most malnourished of all countries in the world (Hunger Map). Each deficiency has diseases related to it, and nearly every malnutrition related disease is present in Burundi. The World Health Organization released a report on major nutritional factors in Burundi. They found that 27.9 percent of children and 2.9 percent of women show signs of vitamin A deficiency. Vitamin A mainly affects sight. The children tested show night blindness, and if they do not receive supplements soon, full blindness will set in. Women with symptoms report night blindness during pregnancy. The report found that over half of all children and just under half of pregnant women are anemic, or have low iron counts. This leaves them feeling tired, fatigued, and as if their hearts are racing. Zinc deficiency was not a part of the report, because how to best measure zinc is currently undecided; however, lack of zinc is common in plant based diets like that of Burundians because the best sources are oysters and fish (Caulfield). Lack of zinc affects cellular differentiation as well as growth and development. Another nutritional aspect Burundians struggle with is protein energy malnutrition. Though some protein can be obtained from the Burundian diet, the best suppliers are meats, which are not a part of the Burundian diet. Diseases related to protein malnutrition include kwashiorkor, which is marked by stunted growth, swelling, and a pot belly look, and nutritional marasmus, which causes wasting of the body and a thin, weak look. An outstanding 57.5% of Burundian children are said to be stunted. This is because of nutritional marasmus, but also vitamin A, iron, and zinc deficiencies. All of these diseases and conditions contribute to a degrading of the immune system; this symptom expedites the onset of new diseases and exceeding vulnerability for future infection. Beyond physical growth, malnutrition affects intellectual growth. This impairs the ability of sufferers to reach full academic potential which can significantly reduce earning capabilities. (Caulfield) When people lack intellectual capabilities, the likelihood of them raising a successful farm and providing food for themselves decreases. Also, when the body does not function properly because of nutrition related conditions, performing chores becomes difficult. So, because of malnutrition, farming families are less able to produce a bountiful harvest which will give them the nutrition that they need to overcome their conditions, thus creating the circular connection between malnutrition and food availability and quality. (Burundi:Country Profiles)

Population growth and clean water scarcity are two other major issues affecting malnutrition. The population density of Burundi is the second largest in Africa; it is also among the fastest growing at 3.2% annually. Because the war has ended, people are living longer with no change to the birth rate, and citizens are returning home. Increased population will affect malnutrition because the availability of land

to grow food will decrease from its already miniscule level. Farm sizes will become smaller to suit the number of people, or more Burundians will rely on foreign relief for food and nutrition. It is known that there is a positive connection between food security and farm size. The larger the farm is, the more secure the family is, but with a growing population, the opportunity to own a large farm will not be available in the future. Clean water is a problem in rural Burundi. There is not a lack of water in the country, but there is a lack of means to keep it clean and accessible to every family. Water piping does not provide proper distribution to farm families. Little water infrastructure has been improved since before the country became independent, and much of it was destroyed during the civil war. The existing pipe system was only built to satisfy the water needs of 20% of the population today. Since people do not have enough access to water from clean sources, they draw up at the nearest lake, river, or swamp. This water is not clean and causes them to become sick. For example, In the rural community of Buyengero, there are only 14 pumps to serve twenty thousand inhabitants, and nearby dirty sources that people depend on are drying up. People are being forced to bath and drink from the same source (Humanitarian News and Analysis). In 2006 a cholera epidemic broke out from contaminated water. The disease easily infected people because of their weakened immune systems from already being malnourished (Burundi). Water is essential to life; it makes up three fourths of a body. Forgetting that water is a source of nutrition is easy because of how simple it is, but it's the most vital of all nutrients in the body because of its vast representation. Availability of clean water will decrease along with population increase unless measures are made to ensure that the population has access to clean water. (Home-Rural Poverty Profile)

Burundi's malnutrition problem has seen improvements since the end of the civil war in the past years. However, much needed improvements are yet to be made to insure the country's future success. Necessary improvements include those regarding farming practices and an understanding of nutritious foods which can both be accomplished through education. Burundi's officials need to invest in the hiring of more school teachers, and they should hire only those who also have an understanding of how to develop successful farms. Farming practices should be taught as part of primary school education. People learn best when they are young, and since almost all school attendants will become farmers anyways, they will be learning what is most important for their futures. If children are raised being taught good farming practices to increase yield and preserve land, then they will be able to supply a greater abundance of food for the generations which will rely on them, in turn, reducing malnutrition of that generation and improving physical and intellectual health of the population. Children can also share their skills with their parents to increase productivity at home immediately. Since a large portion of the country does not attend school, it is important to reach education out to them. This is where help from outsiders is needed. Groups of agriculture and nutrition professionals should be sent to travel around the country for the next few years. The professionals will stop in rural communities to educate them on how to get the best yields from their farms, but also how to use their crops for improved nutrition. The agriculture professionals should work hand-and-hand with subsistence farmers teaching them how to space crops, use their tools for the most good, and apply natural fertilizers to obtain the finest production. The nutrition professionals have a lot of teaching to do as well. They should outline the basic nutritional values of foods available to Burundian farmers, and explain how to prepare these foods to receive the most nutrients. Burundians need to learn which crops are the most important to their diets so they can plant the most of them. The professionals can give suggestions about which goods to store so that food is available in times of low productivity. Providing proper education to the country should be the main focus of Burundian government. When the government has done all that it can do, outside professionals should help their global neighbors reach a level of optimal agricultural education. Then, Burundians will be able to satisfy their hunger needs and reduce malnutrition. A healthier country means a more productive country, and a more productive country means one that will be able to make more money, thus making the country's education a sound investment.

Malnutrition develops when people do not have access to enough food, and when available food is not meeting nutritional requirements. Burundi's smallholder farmers do all that they know to do to provide

food and nutrition to their families, but their understanding of successful farming techniques and of nutrition is below where it needs to be for the country's development. As high as the level of malnutrition is now, 73% (Hunger Map), action needs to be taken immediately to prevent even more people from illness. There is a common phrase that goes "give a man a fish, feed him for a day, teach a man to fish, feed him for a lifetime". The same principle can be applied with agricultural productivity to bring food security to Burundi. While food security can be accomplished through sending packaged food to the country, long term health, success, and pride can be accomplished through educating children and farmers. When a farm supplies a lot of nutritious food, the family is protected from becoming malnourished. This is so important because malnutrition is accompanied by many more problems including the inability to reach full academic capability, which decreases earning potential, and weakness of the body, which affects an individual's ability to work on the farm and produce healthy crops for them self and their families. Some Burundians have such serious malnutrition that overcoming their symptoms completely would be a miracle, but they can benefit from farm and nutrition education to improve their health and to help others in their pursuits to raise abundant farms. The main hope is that by educating families on good farm and nutrition practices, the country will be able to produce more crops per acre and consume them in ways that give the best nutrition. Through this, people will be more capable of laborious work and intellectual processes for successful lives

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