

Abby Hoefler  
Beckman Catholic High School  
Dyersville, IA  
Bangladesh, Factor 11: Malnutrition

### **Bangladesh: Working to End the Hunger**

Bangladesh is a small, third world country, no bigger than the size of Iowa. It is 50,260 square miles and is located in the southern part of Asia, bordering the Bay of Bengal. Bangladesh is one of the most overpopulated countries in the world with a population of 156.6 million people making the population density 3,241 people per square mile (Worldometer, 2016). Many people live in rural areas or in slums on the outskirts of major cities such as Dhaka. This results in most of the civilians of Bangladesh living in poverty. Although Bangladesh is steadily improving as a country every day, there are still many challenging obstacles the country will have to face in order to reach the country's goal. Current Prime Minister, Sheikh Hasina, established the goal of being considered a middle income country by 2021.

The location of Bangladesh presents a problem in itself, due to the country's location on the Delta it is powerless against natural disasters and the land is prone to flooding. Sixty-six percent of the population is rural, making the location even worse because farmers depend on the land to make a living (Amin, 2016). In a country with such rural population, you would not expect high malnutrition rates due to access to crop land; however malnutrition rates in Bangladesh are some of the highest in the world. Every year an estimated 53,000 children die from complications of malnutrition (Tribune, 2016). It is clear that something major needs to happen in this country in order to break the vicious cycle of malnutrition. Many pieces will be required to solve the puzzle of malnutrition in Bangladesh. Biofortification, economic incentives, genetic advances, education, improved access to health services, and farmer cooperatives can be used to alleviate nutrition issues. In addition to these, implementing increased dairy production throughout the country could greatly decrease the number of people affected by malnutrition.

Bangladesh's average household consists of four children, two parents and up to four grandparents. Typically the males are head of the household and are expected to work outside the household to bring the money into the family. Women are not very respected in Bangladesh and are discouraged to go outside after dark without their husbands. Most women are responsible for cooking and cleaning in the house. Often times the children, especially the boys, are responsible for the full care of their grandparents when they are in poor condition because many Bangladeshis cannot afford to pay for medical bills. Many times the parents have to leave for long periods of times to work or try to find a better place for their family to live. In a situation like this the grandparents are expected to take care of the kids and replace the parents while they are gone. Generally under these circumstances the grandparents can't provide for their grandchild, this lack of care often contributes to lack of nutrition in their diet leading to malnutrition.

Bangladesh is one of the most malnourished countries in the world. Almost half of the children suffer from hunger, dizziness, bloated stomachs, and many other side effects of malnutrition. Malnutrition is caused by inadequate nutrition or not getting enough nutrients in their diet. In Bangladesh rice is the most produced crop, so it is the main food in their diet. This is especially true for the people living in poverty; rice is cheap and the only thing they can afford to eat most days. The nutritional value of rice

per cup is 15% carbohydrates and less than 6% iron, vitamin B-6, magnesium, and calcium (USDA, 2016). Eating only rice for days, like the people in Bangladesh often do, forms an inadequate diet which leads to nutrient deprivation in many people. Malnutrition begins a chain of events leading to developmental problems in children and health complications in adults. Brain development and immunity are affected. When people are weakened by malnutrition, they are unable to go to school or work as they could with an appropriate diet. This leads to further issues with income and education which in turn contributes to the cycle found in Bangladesh.

The education in Bangladesh is below international standards. In Bangladesh the adult literacy rate is 58% compared to 84.1% globally ("Bangladesh Education System", 2016). The education of the next generation is improving. In Bangladesh, above 80% of children are receiving primary education and passing. Primary education (grades 1-5) typically starts at age five or six and concludes at age nine or ten. After children complete primary school they are expected to move onto secondary school, which an average student completes when they are seventeen or eighteen years old. However some students switch to different types of schools during their last two years of secondary school, depending on what they are planning on for a career. Two thirds of all school dropouts in Bangladesh are girls. The main reason for girls dropping out more than boys is because of marriage. More than half of all girls under the age of 18 have arranged marriages. In Bangladesh the parents arrange the marriages and feel that their daughters have a better chance of having a good life if they drop out of school and get married as soon as possible, than if they were to stay in school. However, many times their husbands can't afford to feed them when things get tough. This results in malnutrition in the women which often passes on to the next generation when she has children.

Bangladesh's health care is something that has room for a lot of improvement. Currently in Bangladesh there is one doctor per every 3,200 patients. The largest hospital in the country, located in Dhaka, only has 800 beds for 3,000 patients. There are only 400 government hospitals in Bangladesh (Kelly, 2012). The government hospitals are much cheaper than private hospitals, however they are often overcrowded, do not have enough medicine to care for the patients and are not open 24- hours a day. In fact most are only open 12 hours a day. The health care that is provided in the private hospitals is often too expensive for anyone but the wealthy to afford. There are very few hospitals located in slum areas, so this makes it extremely hard for the people living in the slums to reach them, even if they have enough money to pay for their medical bill. Women are especially neglected with health care in slum areas, simply because they are not as respected as men or women of higher class. The lack of health care in Bangladesh results in not being able to properly treat malnutrition.

Agriculture in Bangladesh indirectly and directly employs over half of the people living in the country. Despite this, farming in Bangladesh is still far behind today's modern farm. In Bangladesh the average farmer owns .3 hectare plot and has a main crop of rice. Very little farmers grow other crops such as fruits, fiber crops and pulses. The average farmer typically grows about one fifth of their families' food needs. The majority of farmers have some sort of animal; the most common are cattle, goat, buffalo and poultry. Animals are normally fed brands, unless the farmer has enough land to grow more nutrient filled foods for their animals. Only wealthy farmers can afford tractors, so the cattle and buffalo are used to do the field work. Desperate farmers compromise milk from their dairy cows, so they can be used in the fields. This lack of nutrient rich food also contributes to the high rates of malnutrition in the country.

The biggest problem in expanding the agriculture productivity in Bangladesh is the availability of farm land. Many people in Bangladesh are moving away from areas prone to natural disasters, such as land next to the Bay of Bengal, and moving into areas toward the middle of the country. This often takes up valuable farmland and forces farmers to move closer to the edge of the country, where their crops are much more vulnerable to cyclones and flooding. This land is not reliable enough to grow crops on, however this land has potential to yield forage for animals to graze on. Grazing animals can be used to produce dairy food sources high in protein and calcium. The water is also rising along the Bay of Bengal, which is taking more and more land from farmers every year. Without adequate farmland, farmers cannot grow the needed crops to feed the country properly.

Bangladesh has a relatively low unemployment rate of 4.5% (CPD, 2012), however this number is expected to rise in the next few years. There is a steadily growing population and small growth of economic employment, causing the labor force to outpace the improvement of employment opportunities. If you're a women trying to get a job it is still more difficult than if you were a male; however, in the last ten years female employment has doubled. Shortly before and after harvest time there is a shortage of jobs that results in seasonal hunger across the country.

Malnutrition affects around six million children in Bangladesh. The first 1,000 days of a child's life are the most important. During these 1,000 days the bones and the brain in the human are rapidly developing, making them extremely vulnerable to problems if the child does not get proper nutrition. A child that is malnourished can have physical or mental disabilities. Many also suffer from constant diarrhea and stomach pains. A child who is malnourished also has a much greater risk of dying from common infections, such as a cold, as a result of a weakened immune system.

Almost half of the children in Bangladesh are chronically undernourished. Of the people who suffer from malnutrition 41% are stunted (Sohel, 2016). Stunting is when a child looks to be normal in size, but is much shorter than they should be for their age. Stunting starts even before the child is born. Stunting is a result of weak maternal nutrition, inadequate nutrition and frequent infections. 16% of the children who are malnourished have wasting (Sohel, 2016). Wasting is similar to stunting in the ways of how it's caused however wasting is when the child is not a normal weight for their height. Wasting affects all aspects of a person's health and may often lead to a shortened lifespan. All of this leads to a stressed healthcare system and adults with reoccurring health issues. Developmental problems along with illness lead to complications in finding, keeping, and holding a job. This in turn leads to difficulty for those who suffer malnutrition to support themselves and the families that depend on them.

Although malnutrition rates in Bangladesh are improving it still has some of the highest malnutrition rates in the world. From 1989-2000 the rate was decreasing greatly, mainly because of good crop production. In recent years rates have been steadily slowing and are predicted to continue dropping. The biggest reason why the rates are declining is because of overpopulation. Overpopulation causes a major shortage of food, resulting in malnutrition in many people, especially women and children. Women often suffer the most from malnutrition because they make sure their husband and children are fed before they eat, then they often go unfed for days.

Improving malnutrition rates in Bangladesh would positively impact millions of lives. Children would be able to get much better education in school because they would be able to focus better and enroll sooner. Many children enroll in school late or sometimes they do not enroll at all because they suffer from too many, frequent side effects of malnutrition. Children would not have to retake as many grades because they would not be distracted in school because of constant hunger if malnutrition was decreased. This would have a positive effect on the whole country; jobs would be filled better because the schooling would be improved better to educate children. Bangladesh's overall economy would improve and it is estimated that the Bangladesh would save \$1 billion per year.

Dairy could be used to reduce the high malnutrition rates in Bangladesh, however many Bangladeshis are deprived of any dairy products because they are expensive to buy. Bangladesh farmers produce only 44% of its milk and dairy product needs. This means they import 64% or over 70,000 metric tons of milk and dairy products from surrounding countries. Not only is this much more expensive than if they were to produce their own, it is also dangerous. The biggest dairy product Bangladesh imports is milk powder. This product was banned in Bangladesh for nearly a year in 2013 because of health concerns. In 2013 it was found that imported milk powder had extremely high levels of nitrates. Since 2013 no real progress has been made to make milk powder safer for the consumer.

In Bangladesh there are three animals that are used in dairy production: goats, cattle and buffalo. Dairy cattle produce 90% of total milk in the country while goats produce 8% and buffalo produce 2%. The milk that these three animals produce has similar amounts of protein, iron, sodium and carbohydrates. Goat and buffalo milk has double the amount of vitamin A as cow milk. Goat milk is also higher than cattle milk in vitamin C and calcium. Incorporation of more fresh dairy products into the Bangladesh diet adds key nutrients not available from rice.

Cattle use slightly less feed in comparison to animal size to produce milk than goats do making them the most efficient animals of these three. The average farmer in Bangladesh has three cows ("Dairy industry in Bangladesh: Problems and Prospects", 2016). Through organizations such as Heifer International Bangladeshis, especially those who don't own animals already, could receive dairy animals and continue to grow their herd on their own in the future. This would help with the country's problem of importing over half of its dairy products from different countries and it would also provide fresh milk to many of its citizens.

A major problem with Bangladesh's dairy industry is the amount of milk that gets wasted every year. Many farmers do not produce enough milk to sell it at the local market and others live too far away for them to bring it to the market. If farmers in Bangladesh can learn how to make a simple cheese recipe that consists of heating the milk and adding rice vinegar to acidify the milk, this could greatly help their families in many different ways. The biggest solution it would solve is malnutrition because cheese is high in protein and calcium. It also has vitamin A which is one of the major deficiencies causing malnutrition. Often times the farmer keeps a little bit of extra milk for their family, but it spoils before they can drink it since few farmers have access to refrigeration. Dairy farmers could save a significant amount of the milk that would normally spoil by turning it into cheese. Although most people refrigerate their cheese, it is not necessary and cheese can last more than two weeks without refrigeration, making the shelf life much longer than milk. Cheese would also benefit the farmer when they take it to the local

food market. Most Bangladeshis do not know how to make cheese so it would be a product of high demand at the market. Local groups of farmers could form cooperatives to aid in improving cheese production and the dairy industry in general. Sharing resources for overall community improvement would assist in this process.

Milk Vita is the largest dairy cooperative organization and commercial milk processor in Bangladesh and helps the dairy farmers of their cooperative make their farm more efficient. One of the things Milk Vita does is provides a free vet weekly to their dairy farmers. The organization also provides milk collection facilities that are placed all over the country, close to dairy farmers. Unfortunately there is a big downfall to Milk Vita. The farmer has to buy a stock of Milk Vita in order to be helped by the cooperative. This causes a major problem because many of the farmers living in poverty cannot afford to buy stock and are the ones that need the most help managing their farm. A solution would be to strengthen Milk Vita by aiding farmers in stock purchase or setting up similar cooperatives without the buy in requirement with funding from aid agencies.

If the Bangladesh people truly want their country to overcome malnutrition within their country their government will have to take a hard look at its dairy industry. The government should start funding Milk Vita so it is at no cost to the farmers living in poverty. This could greatly increase milk production for many farmers that are not using the dairy animals to their full potential because of their lack of knowledge about the animals and the industry. The government should also start decreasing the imports of powdered milk. If the Imports of powdered milk are decreased, milk would be worth more; therefore, encouraging local Dairy Farmers to expand their herd and to produce more milk to be sold at market. Decreasing milk powder imports would create much healthier citizens because fresh milk and cheese can be more nutrient filled than powdered milk.

Improving availability and use of crop land will also improve malnutrition by making better and more nutritional crops available to the population of Bangladesh. Land not able to be used for dependable crop production could be grazed and used for dairy operations. Many pieces of the puzzle have to come together to solve the nutritional needs of this struggling population and create a picture of health for Bangladesh's future. One of those pieces is dairy industry improvement.

If the people of Bangladesh consume more dairy products it could help reduce malnutrition rates and save the lives of millions of people every year. However, it is going to take a lot of work to implement dairy products in the lives of the people of Bangladesh. Many people do not know much about nutrition and are not sure why they can't break the cycle of malnutrition in their country. By giving farmers better opportunities to produce more milk and make their own cheese they can grow independently and help the country reach its goal of being considered a middle income country by 2021. The Bangladesh government has all the power to provide opportunities to the people, especially the farmers of Bangladesh. The best thing the government could do is fund more dairy cooperatives like Milk Vita. Through Bangladesh's government, dairy farmers in Bangladesh and dairy cooperatives, Bangladesh can change for the better and save the lives of millions. Malnutrition is a huge problem in our world and it is time for people to step up and make a difference to end global hunger.

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