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Nepal, Malnutrition

Nepal: Food Insecurity and Malnutrition

Nepal, a landlocked country, situated in the Indian subcontinent is commonly referred to as “heaven on earth.” Nepal is a country with a rich and diverse geography. It has a land area of about 143,351 km squared and over 29 million people reside in the country today. Overflowing with natural beauty, it is home to eight of the ten tallest mountains in the world. Regardless of the incredible beauty this country holds, Nepal faces a grave issue. Food insecurity and malnutrition are still an enormous problem for many people in Nepal. A large number of the population goes to bed hungry each night. Along with poverty, the lack of knowledge about hygiene, sanitation, and proper diet is a major factor contributing towards malnutrition in Nepal.

Sanu Maya is the fourth child of Biri Maya Tamang, born months after Nepal’s devastating 2015 earthquake. Tamang and her husband are subsistence farmers, dependent on the maize, millet, and radishes that they grow. The earthquake damaged their mud house in Sisneri, about 25 miles (40km) southwest of Kathmandu. They were still living in a makeshift house when Sanu Maya was born. Because of these hardships, farming became difficult and the family’s diet rapidly deteriorated. In June 2016, a female community health volunteer visited the family as part of a routine government service. One of her tasks was to check children for malnutrition. At 9.7lb (4.4kg), seven-month-old Sanu Maya was undernourished. If she was not treated soon, she would be stunted. The volunteer gave Tamang several months’ worth of energy-dense Ready-to-Use Therapeutic Food packets to feed Sanu Maya and followed up regularly to make sure that Sanu Maya’s health was improving. Now, Sanu Maya is an active and healthy two-year-old weighing more than 23lb (10.4kg). This is the reality of thousands of people in Nepal. Many however, are not as lucky as Sanu Maya (Adhikari, 2018).

A typical urban family in Nepal may have one or two kids, whereas, rural families may have six or more. Joint families are common in the culture; uncles, aunts, and cousins often live together. In rural areas, families live in mud, straw, and brick houses (Nepal: Family, 2017). Agriculture and farming are the most common source of income. Over 70% of the population depends on agricultural productivity (The World Factbook, 2018). The average farm size, per family, is 1.2 acres. On rain-fled uplands, farmers grow maize and millet. However, on low-lying, irrigable land, farmers grow rice and wheat (Devkota, 2015). Lentils and beans are a major part of the daily diet while meat consumption is occasional and expensive (Khadka, N.B, 2001). It is extremely hard to feed and sustain such large families because farmers have virtually no cash income. Farmers sell their crops in order to make money to help sustain their large families. When natural disasters destroy crops, farmers and their family do not get enough food to eat or enough money to buy items necessary to survive.

The most important cause of food insecurity is poverty. Poverty is both the cause and effect of world hunger. Hunger and poverty are global issues with grave consequences. One-fourth of the population of Nepal lives under the national poverty line, and approximately 3.5 million people have difficulty getting nutritious foods (Five Reasons, 2017). Poverty and hunger causes people to not invest in its own community development. It also drains productivity and resources of a nation.

Malnourishment is causing many people to die in rural Nepal. Malnourishment is the lack of nutrients due to not having enough food to eat. Kids in rural Nepal are a victim of rapid malnourishment due to the lack of adequate food and contamination of diseases. As cited by Rising Nepal, “430,000 children under five years of age have been found affected with any type of malnutrition. Of them, 290,000 children are found suffering from rapid malnutrition”(Therisingnepal.org.np, 2018).

According to the World Bank, 15% of Nepal’s population lived below the \$1.90 a day. Many struggle to feed themselves and their families due to the high price of daily produce. According to Oxfam, “Higher food prices have also reduced people’s ability to purchase food”(Oxfam.org, 2018). The economic gap between the rich and the poor is widening. In 2017, Nepal’s GDP per capita was \$2,700. In comparison, the GDP per capita in the US was \$59,000 (The World Factbook, 2018). Problems such as hunger, malnutrition, and diseases affect the poorest societies the most.

Nepal has one of the highest malnutrition rates in the world, and more than half of the deaths are due to insufficient food (UNICEF, 2003). Access to sufficient food is still a huge challenge, even for a country so dominated by agriculture. Kids and adults are severely sick due to the lack of nutrition. According to nutrition expert Sam Paneru, president of the Nepal Youth Foundation, “A big cause of malnutrition is our poor health environment due to the poor hygiene practices, poor sanitation and...poor living conditions” (Five Reasons, 2017). Basic sanitary items such as toilets and water are not easily accessible for many residents in rural Nepal. Because of the insufficiency of essential sanitary products and the lack of knowledge about proper hygiene practices, diseases such as meningitis, typhoid, hepatitis, tuberculosis, malaria, and encephalitis are widespread in Nepal (Nepal: Health, 2017). Less than half of the population has access to safe drinking water, and half of all children under the age of five are underweight. This lack of basic necessities such as food and water contribute to the low life expectancy rate. Nepal’s life expectancy is 71 years, whereas, people in developed countries such as Australia live to be 82 years old(The World Factbook, 2018).

According to the United Nations, “food prices are back on the rise, causing an increase in global poverty for the first time in nearly two decades” (“Poverty - The Hunger Project”, 2018). People are already struggling to survive because of inflation and not being able to afford food. If the prices keep increasing, more and more people are going to die because of hunger. Food, water, and shelter and three quintessential resources for the survival of all human beings. If food is a basic necessity, then why are so many people deprived from nutritious food? A permanent solution must be created for this issue.

Malnutrition and food insecurity are complex issues; however, there is still a lot that can be done to help those that are suffering. Many blame the poor economy, weak governance, and insufficient infrastructure for the overwhelming amount of undernourished Nepali population. After observing the severity of this issue, the Nepal government and many private organizations have launched campaigns to help those who are suffering and are in need of proper healing.

The National Planning Commission is creating a national center for nutrition and monitoring the spending for a better nutrition plan (Five Reasons, 2017). A free nutrition center is also another tangible idea for accomplishing food security. The increased awareness about nutrition, sanitation, and balanced meals would improve the quality of health among individuals. In company with the nutrition center, more pharmacies and an improved health care system should also be created in rural areas. More health care services would result in early diagnosis of diseases, so it can be cured before it does more harm. Many diseases if not treated early, can turn life-threatening. A hospital is extremely important towards the diagnosis and recovery of malnourished patients.

Furthermore, volunteers should go to different villages along with medical students and teach the people in rural areas about well-balanced meals, proper hygiene, and sanitation. More food banks should be created in Kathmandu city, as well as villages so people have more access to food. However, volunteers and aid from community members is only a temporary fix to such a large issue. Biofortification has a tremendous potential to increase yields in developing countries. The future of the world is very dependent on technology, so the use of biotechnology to help those that are starving is an appropriate step towards promoting stability in Nepal.

In addition to providing energy in the form of calories, food also provides many essential vitamins and micronutrients needed to stay healthy. Scientists around the world are researching genetic modification to add these essential nutrients to food. Micronutrients perform a wide range of functions in the body, therefore, chronic micronutrient deficiency is a major cause of disease. Obtaining the necessary micronutrients is not a problem if an individual has access to vegetables, fruits, and dairy products. Many developing nations around the world, such as Nepal, are not so lucky. They cannot afford nor do they have access to a wide variety of nutrient-rich foods.

Majority of the Nepali population rely on cheap staple crops like rice and corn to survive. Rice is a staple food for 90% of Asia (Good as Gold). Even though rice is calorie heavy, it has very low nutrient content. Consuming poor diets of staple foods that lack essential vitamins and minerals has a negative impact on health. Poor health decreases the productivity of the people. It also drains the limited resources of the household. Micronutrients play a large role in growth and development; therefore, the deficiency of these nutrients have severe consequences on the individual (Good as Gold).

Vitamin A deficiency is one of the deadliest malnutrition in the world. It can cause blindness, stunting, and even death (Mayer, 2018). Vitamin A deficiency (VAD) is affecting one-third of children in the world under the age of five and is the leading cause of childhood blindness (Good as Gold). A strategy to eliminate micronutrient deficiencies such as VAD is biofortification. Biofortification is used to increase the nutritional value through genetic modification or selective breeding. Plants are genetically altered in a way that they produce these nutrients without having to add these nutrients after harvesting. Breeding two plants that already contain vitamins and minerals together is called selective breeding. This produces plant strains with increased nutritional value(Good as Gold). It is a one-time investment to develop seeds that fortify themselves. The tissue that is used to grow these plants can be shared around the world. Biofortification is sustainable and it can reach the people living in remote rural areas of Nepal. In addition, it produces a higher number of products in an environmentally friendly way. It is built on staple foods that poor families eat and grow.

In many places around the world, people are growing rice that has been genetically modified to contain beta-carotene, the main source of vitamin A. According to National Public Radio, "A single bowl of this new golden rice can supply 60 percent of a child's daily requirement of vitamin A." Food is limited in developing countries so if they are able to obtain the necessary nutrients with little amount of food, the issue of malnutrition would significantly decrease. Rice is grown in large quantities and it is more easily available to the people. Since the production and consumption of rice are very high in Nepal, it is a good target for biofortification. Nepal's tropical weather also makes the production and development of food easier. This will help provide quintessential nutrients to the malnourished population of Nepal. This method allows farmers to independently grow nutrient-rich food.

The government of Nepal recognized this widespread crisis and contributed \$12 million towards the 2012-2013 nutritional intervention alongside launching its first national nutritional plan (Five Reasons, 2017). The large contribution of money could be used to implement biotechnology within Nepal. Biofortification is a one-time investment, therefore, using the money that the government of Nepal contributed can be a permanent solution to malnutrition. When everyone has enough food to maintain good health, the productivity increases and so does the economy. If the food insecurity and malnutrition rates decrease, it will allow for growth and changes in Nepal's economy.

Another advantage of biofortification is that it will increase the job opportunities in Nepal. The youth of Nepal prefer to go to different countries because of the very limited job opportunities in their own country. Bioengineering will drawback engineers, biologists, and agriculture experts of Nepal. Since two-thirds of the population is between fifteen and thirty-five years old, the youth play an important role in the stability and growth of a nation. The involvement of fresh, young minds could be a great turning point for the country.

The future of the world is heavily dependent on technology. From computers to smartphones, these machines have made life much easier. As technology advances, so does the world. Hence, using biotechnology to alter food will have great impact on human life. This is not an issue that can be resolved by one person; therefore, the community, the people, the government, and the innovative thinkers around the world should be involved. The only way food security can be accomplished is through the dedication and involvement of all individuals. Implementation of these ideas will not only increase the quality of health, it will also cause fewer people to die of hunger and malnourishment.

References

- Adhikari, D. (2018, January 11). How Nepal Managed to Curb Its Stunting Problem. Retrieved March 08, 2018, from <https://www.newsdeeply.com/malnutrition/articles/2018/01/08/how-nepal-managed-to-curb-Its-stunting-problem>
- Devkota, S. P., & Bagale, S. (2015). Primary Education and Dropout in Nepal. *Journal Of Education And Practice*, 6(4), 153-157. Retrieved from <http://web.b.ebscohost.com/ehost/detail/detail?vid=3&sid=eaa93dcf-caeb-4666-aeb5-4db90761cd4c%40sessionmgr104&bdata=JkF1dGhUeXBIPWNvb2tpZSxpcCxdXN0dWlkJmN1c3RpZD1pZmZvaGlvJnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=EJ1083736&db=eric>
- Five reasons malnutrition still kills in Nepal. (2017, September 28). Retrieved March 09, 2018, From <http://www.irinnews.org/report/97046/analysis-five-reasons-malnutrition-still-kills-nepal>
- Good as Gold: Can Golden Rice and Other Biofortified Crops Prevent Malnutrition? (2015, September 09). Retrieved March 09, 2018, from <http://sitn.hms.harvard.edu/flash/2015/good-as-gold-can-golden-rice-and-other-biofortified-crops-prevent-malnutrition/>
- Khadka, N. B. (2001). Vitamin A deficiency, fruit and vegetable consumption, and nutrition education: villagers' perceptions in Nepal. *Australian Journal Of Nutrition & Dietetics*, 58(3), 186-191. Retrieved from http://web.a.ebscohost.com/src_ic/pdfviewer/pdfviewer?vid=5&sid=ea881401-d01c-44e1-8a29-ad7dfce84cef%40sessionmgr4007
- Mayer, C. (2018). The Golden Rice Project. [online] Goldenrice.org. Available at: <http://www.goldenrice.org/> [Accessed 16 Jul. 2018].
- Nepal: Family (2017). CultureGrams Online Edition. ProQuest. Retrieved from https://online.culturegrams.com/world/world_country_sections.php?cid=110&cn=Nepal&sname=Family&snid=11
- Nepal: Health (2017). CultureGrams Online Edition. ProQuest. Retrieved from https://online.culturegrams.com/world/world_country_sections.php?cid=110&cn=Nepal&sname=Health&snid=22
- Oxfam.org. (2018). Millions of rural poor in Nepal could face more hunger as a result of climate change;

situation “deeply worrying” | Oxfam International. [online] Available at: <https://www.oxfam.org/en/pressroom/pressreleases/2009-08-28/millions-rural-poor-nepal-could-face-more-hunger-result-climate> [Accessed 19 Jul. 2018].

Poverty - The Hunger Project. (2018). Retrieved from <http://www.thp.org/issues/poverty/>

Therisingnepal.org.np. (2018). The Rising Nepal: Rapid malnutrition a major problem in Nepal. [online] Available at: <http://therisingnepal.org.np/news/8342> [Accessed 2 Aug. 2018].

The World Factbook: NEPAL. (2018, February 23). Retrieved March 08, 2018, from <https://www.cia.gov/library/publications/resources/the-world-factbook/geos/np.html>

Unicef (2003). Issues Facing Children in Nepal. Retrieved from https://www.unicef.org/infobycountry/nepal_nepal_background.html