Lucas Berard
Grand Rapids High School
Grand Rapids, MN
Papua New Guinea, Malnutrition

Papua New Guinea: Malnutrition, Its Dire Consequences, and How to Fix It

As developing countries continually grow in population, malnutrition grows right along with it. This challenge is especially dangerous among the youth of Papua New Guineans. Malnutrition is a problem in Papua New Guinea that must be fought to strengthen Papua New Guinea's economy and promote health/education by social work, betterment of healthcare, and improved food security.

Papua New Guinea is the second largest Island country behind Australia, and is located in the Southwestern Pacific Ocean. Over thousands of years, Papua New Guinea has become extremely diversified by the settlement of many Melanesians. Since its independence in 1975, it has faced various problems with this diversification. After all, there are around 715 indigenous languages; it is extremely difficult to mold the nation as one when so much is available to represent. Nevertheless, Papua New Guinea has strived to improve its national harmony, and is an economy on the rise.

Papua New Guinea consists of a village majority with around 87% of people living in rural areas. This distance decay can make one culture vary a large sum from the next, so a "typical" Papua New Guinea might not be so common after all. Even so, a family would normally have a patriarchal structure, and live off the land. Typical industrial jobs/office jobs are almost only found in the city due to lack of education outside of the cities socioeconomic ring. Education may occur for a couple of years, but many children must drop out and help with work as the parents see education as becoming fruitless. Approximately one third of Papua New Guinea's GDP comes from the agricultural industry, and the majority of Papua New Guineans work in this industry.

Papua New Guinea may consist of a large agricultural industry, but it still faces a debilitating problem affecting many countries in our modern world: malnutrition. Malnutrition rates are very high in Papua New Guinea with around 45% of children affected, but what is malnutrition? At first glance, this word is typically associated with starvation/hunger. In reality, this disease can affect people who eat the right amount of food. It simply means that they are not getting the right amount of nutrients. Therefore, one would obviously not be getting the correct nutrients if they were starving, but it is not an exclusive disease. Proper nutrition is so important because without it the body has to survive in minimalistic ways by only giving out nutrients to the organs that will keep them alive, resulting in issues such as decline in growth, neurological problems, and a poor immune system. With these inhibitors, it makes it difficult for a society to evolve and improve in its ways resulting in a constant cycle of poor economics. In fact, according to *The Frontier,* approximately 8.45% of the nation's GDP is being lost because of malnutrition.

This topic is so important because if this problem in Papua New Guinea persists, there is a much lower chance that they can succeed in proper education and economic stability. When this condition is prevalent in a large part of a country's youth, goals for the future can be severely restricted, and in Papua New

Guinea malnutrition does affect a large proportion of children. Approximately a third of hospitalized deaths of children under five were linked directly or indirectly to malnutrition. That's a very high percentage, especially considering that these are only hospitalized deaths, and Papua New Guinea has a low doctor to patient ratio making the numbers likely higher, up to 76%. If one is lucky and manages to survive, they are left stunted from the condition which the WHO defines as:

> Stunting in early life -- particularly in the first 1000 days from conception until the age of two - impaired growth has adverse functional consequences on the child. Some of those consequences include poor cognition and educational performance, low adult wages, lost productivity and, when accompanied by excessive weight gain later in childhood, an increased risk of nutrition-related chronic diseases in adult life.

One can see how this condition could be detrimental to a country when around 50% of its youth have it. This problem must be fought so that Papua New Guinea can rise to the true glory it can obtain, and since the effects of malnutrition are most detrimental during childhood years the ideas presented will try to attack the condition predominantly at this age.

Many Papua New Guinea children actually do receive the correct amount of food, but they go through illness afterwards that rips their bodies of the little nutrients they received at that point. This can quickly turn into a cycle as the children's bodies are then not able to fight off yet another illness. To combat this, basic vaccines must be compulsory if at all possible. Due to the way in which society is structured in Papua New Guinea, a large part of the Papua New Guinean population may still not receive vaccines when this is implemented because they are afraid of such activities or because the children are not birthed in hospitals. Still, for anyone it can reach it should be a mandatory action so that it can slowly be implemented to all when it becomes feasible. This will also help develop a positive outlook on vaccines because the children who will begin taking the vaccines first will likely be the rich as they can afford to birth their children in hospitals. This will show other citizens that vaccines are a positive step that is done while moving up the economic ladder if implemented now. The cost of such a program could be relatively low as it can likely be passed on as part of hospital fees when babies are born or billed to insurance carriers. This solution seems to have good long term outcome with low upfront cost.

Some illnesses do not have vaccines, but this does not mean they are not preventable. In fact, much of the reason that malnutrition plays such a large role is because there is a lack of education within rural communities. Drinking water, for example, can oftentimes be contaminated with run off of human feces, and create a perfect place for bacterial spreading that would yet again make children sick and rid them of nutrients simply because they do not know that it is important to defecate far away from their water supply. Many mothers in Papua New Guinea also have no idea how to properly feed their newborns and therefore resort to giving newborns food such as chocolate milk and fish soup because they think it will keep their babies strong. There is obviously a lack of guidance for these mothers on how to properly feed their children, and stay sanitary. Therefore, an educational service must be provided to spread awareness on nutrition and sanitation. This is something we should be able to apply to all in a format where another woman, a social worker of sorts, would come to educate and guide mothers through the first year of child development, nutrition, and sanitation. The “social worker” could give them vitamins to help support the mothers at a low cost and give out contraceptives to prevent families from becoming too large to handle. The living areas could be inspected for improvements in sanitation and the social worker could teach the family what is harmful. If a woman was responsible for a certain area of mothers and routinely came to

make sure they were keeping the children healthy, she could educate the mothers on what is right and wrong and the mothers would listen as they would feel safe with another womanly figure. This would be cost-conscious as they would not need to be actual doctors, and it would even lower the occurrence of hospital visits, making it all the more frugal. Another helpful point of this type of work would be that the "social workers" could be local women that can earn a living through their distribution of education. The program would help educate groups of women that could go out into the workforce and spread their information to mothers all while informing higher up powers what will and will not work within the communities they are assigned. Afterall, they will know the best ways in which to interact with fellow Papua New Guineans, and it is part of human nature to like people that are similar to you. For example, some workers might inform us that contraceptives will not be received well within a certain community due to a reason such as religion, and we can remove/learn of better ways of implementing such a system in that area. If a program is pushed on citizens that goes against their moral code it will cause harm that will be harder to repair than to start off with advice from others in the first place. That is why the program must first communicate with citizens to ensure backlash will not ensue. Even with such safeguards in place for a successful program we must also guarantee money is not funnelled down the drain as Papua New Guinea has high corruption rates. We would need to invest money into higher ups that would make sure these social workers are actually doing their job. We want most of the workers to consist of locals, but higher ranks might need to be from other organisations that can ensure the money being given out is not wasted. It may cost more, but without it money could simply be thrown away. Overall, this would likely be the biggest part of the solution, hence large sums of money might be needed. Nevertheless, the costs would outweigh the benefits, and would still cost less than a similar program would in many other countries as wages are low. A partnership with the government would be helpful, but sums of money for the program stemming from the Papua New Guinea government is unlikely. Money would mainly come from outside sources which is hard, but the right tactics could shine light on current conditions and garner support.

It must be noted that malnutrition seems to be mainly stemming from lack of education of the subject and sickness. Still, agriculture accounts for around 80% of work in Papua New Guinea. We need to make nutritious food something they can produce plenty of. While controversial, promoting the use of GMOs (genetically modified organisms) in Papua New Guinea could help stabilize crop production when times are tough, and create a wider array of nutritious food to stop the epidemic. This becomes even more important when we consider the threats global warming will pose on poor farmers with unpredictable weather and drought that could quickly wipe out their hard work, and farmers in Papua New Guinea have no stability net to fall back on when such tragedies occur due to their already dire conditions. This means the other solutions in this essay could prove pointless unless counter measures that improve crop capabilities are implemented. Papua New Guinea is also an island country so rising water levels will and are displacing many that will now be forced to live off smaller portions of land. Hence why GMOs can be used to help with this shifting of people, and uncontrollable storms. Still, implementation of such a project could be controversial and would need to be strictly regulated. Basic rules of such GMO crop introduction in Papua New Guinea would exclude all GMOs that enable the use of large amounts of pesticides. Luckily, the majority of the time pesticide use decreases with GMO crops. *Alliance for Science*, a nonprofit initiative from Cornell University, states "On average, GE crops have reduced chemical pesticide use by 37% increased crop yields by 22% and increased farmer profits by 68%. GE crops also have reduced CO2 emissions (mostly through enabling no-till farming practices) by 27 billion

kg…" These are all large positives that Papua New Guinea could reap the benefits of. The best part is that many of Papua New Guinea's current crops could easily become GE crops instead, and create a boost in productivity. The hard part is that data on current GMO crop production in Papua New Guinea seems limited/unclear; it does appear as if GE crops have likely infiltrated their way into farming in Papua New Guinea, but intentional implementation seems to not be occurring according to the *Food and Agricultural Organisation of the United Nation*. They do import GMO crops, however. GMOs would have to be subsidized to the Papua New Guinea people to begin with, but with so many workers in the agricultural sector already benefits besides food security are possible, such as growth in agricultural export quantities which could raise citizens out of poverty.

International trade is a perfect way in which to expand a countries wealth, but there are always push and pull factors for consumers when multiple countries all produce the same commodities. For example, if one country produces 10 pounds of carrots, but one can purchase 10 pounds of carrots in one's own country at the same price or cheaper one would likely buy the carrots in one's own country because it is more convenient. A similar problem Papua New Guinea faces is with one of its staple foods: rice. They import around 85% of their rice, yet, research shows that Papua New Guinea can produce its own rice. If Papua New Guinea is able to farm rice for themselves this cuts out transportation costs while supporting the local economy: a win-win situation. Papua New Guinea's department of agriculture and livestock has already begun a process of incentivizing large scale rice farming because they now know that it is economically advantageous to produce rice locally. This program is another step towards ensuring Papua New Guinea can survive market fluctuations, and could also be a segway into helping malnutrition. The program helps incentivize other investors into undertaking the endeavour of rice farming as it is a high risk scenario. When these new rice farms are introduced education on how to properly farm the rice to ensure large yields will likely be brought to the areas where rice is grown as few Papua New Guineans currently produce rice. With this new rice program Papua New Guinea could hire farmers to help educate rice plantations on how to properly farm the rice, and these farmers could jointly help teach rural farmers better farming practices. Rice might not be the most vitamin rich food that will help fight off malnutrition, but many rural farmers produce mainly vegetables that would help fight off deficiencies that cause malnutrition. Education on how to properly farm for rural farmers would help increase yields, and they could really use this education; according to the World Bank, yields are approximately 30 to 50 percent lower than they could be due to lack of resources/education. Support should be given to this rice integration program as it will help alleviate some of the budget that goes to rice importation, and, with the addition of educational tools for rural farmers, the program could encompass a major way to fight off malnutrition at a smaller cost than would be needed if the plan was implemented separately.

These solutions should improve the conditions of Papua New Guinea's malnutrition, and help the GDP take an upturn to a healthy rate. It may be a winding road, but progress must be started as soon as possible to keep the country from falling into other dangerous paths. Malnutrition should be worked on by increasing the availability of food, furtherance in sanitation, and the amelioration of nutritious food instead of "fillers."

Works Cited

"10 Ways to End Malnutrition." Global Citizen, www.globalcitizen.org/en/content/10-ways-to-end-malnutrition/. "5 Ways to End Malnutrition." Global Alliance for Improved Nutrition, 14 Oct. 2014, www.gainhealth.org/knowledge-centre/five-ways-can-help-end-malnutrition-3/. "About Papua New Guinea." UNDP in Papua New Guinea, www.pg.undp.org/content/papua_new_guinea/en/home/countryinfo.html. Chandler, Jo. "'Newborns Were Fed Fish Soup': Papua New Guinea's Malnutrition Crisis | Jo Chandler." The Guardian, Guardian News and Media, 31 July 2018, www.theguardian.com/global-development/2018/jul/31/malnutrition-crisis-papua-new-guinea-children-under-five. Collins, Steve. "Treating Severe Acute Malnutrition Seriously." Archives of Disease in Childhood, BMJ Group, May 2007, www.ncbi.nlm.nih.gov/pmc/articles/PMC2083726/. Goldberg, Mark Leon. "Starving to Death in Papua New Guinea." UN Dispatch, 29 Jan. 2016, www.undispatch.com/starving-to-death-in-papua-new-guinea/. "Nearly 50% of Papua New Guinea's Children Are Malnourished." Global Citizen, www.globalcitizen.org/en/content/papua-new-guinea-children-malnourished/. "Papua New Guinea." UNICEF Papua New Guinea - Media Centre - Children Papua New Guinea, Malnutrition Papua New Guinea, Child Health Papua New Guinea, Nutritional Status in Papua New Guinea, under Five Deaths, Maternal and Child Health, Newborn Care, under Five Mortality, Health Status Papua New Guinea, Child Death, www.unicef.org/png/media_22749.html. "Papua New Guinea | World News." The Guardian, Guardian News and Media, www.theguardian.com/world/papua-new-guinea. Pier. "Papua New Guinean Culture - Core Concepts." Cultural Atlas, culturalatlas.sbs.com.au/papua-new-guinean-culture/1083-core-concepts#1083-core-concepts. "Short Changed: the Cost of Child Undernutrition in Papua New Guinea - Papua New Guinea." ReliefWeb, reliefweb.int/report/papua-new-guinea/short-changed-cost-child-undernutrition-papua-new-guinea. Standish, William, and Richard T. Jackson. "Papua New Guinea." Encyclopædia Britannica, Encyclopædia Britannica, Inc., 1 Feb. 2019, www.britannica.com/place/Papua-New-Guinea. Usaid. "5 Ways USAID Is Helping to End World Hunger." Medium, 2 0 3 0, 16 Oct. 2017, medium.com/usaid-2030/5-ways-usaid-is-helping-to-end-world-hunger-ae3a5e7c9a4a.

Ackerman, Jennifer. "Altered Food, GMOs, Genetically Modified Food - National Geographic." *Altered Food, GMOs, Genetically Modified Food - National Geographic*, 28 Sept. 2016, www.nationalgeographic.com/environment/global-warming/food-how-altered/. *Department of Agriculture and Livestock*. www.agriculture.gov.pg/rice-2/. "Focal Point Information." *Food Safety and Quality: Country Page*, www.fao.org/food/food-safety-quality/gm-foods-platform/browse-information-by/country/country-page/en/?cty=PNG. Nazer, Simon, et al. "The Last Islanders: Rising Sea Levels in Papua New Guinea." *UNICEF East Asia & Pacific*, 21 Mar. 2017, blogs.unicef.org/east-asia-pacific/the-last-islanders/. "New Agriculturist." *New Agriculturist: Country Profile - Papua New Guinea*, new-ag.info/en/country/profile.php?a=2924.