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### Malnutrition: A Problem with A Multifaceted Solution

Malnutrition, by definition, is “*faulty nutrition due to inadequate or unbalanced intake of nutrients or their impaired assimilation or utilization.*” (Merriam Webster Dictionary). In layman’s terms, it is what happens to the body when it is unable to attain the food and nutrients that it needs, which can lead to fatal results. This problem is one with global reach, affecting every country in one way or another. Of these countries, one of the most affected is Guinea, a small LDC (Less Developed Country) with a population of 12.72 million people located in Sub-Saharan Africa and bordering the North Atlantic Ocean. Like many other Sub-Saharan African countries, Guinea is one of the most malnourished countries in the world, having a death rate due to malnutrition of 15.72%. This percentage, while high, still fails to take into account those who aren’t dead but still suffer from and/or contract diseases because of malnutrition as well as the large amount of undocumented deaths. When looking at Guinea’s data as well as articles written about the country, it becomes apparent that malnutrition in Guinea stems from many other problems; poverty, climate change, the lack of availability of arable land, the lack of means to an education, as well as the inability to attain clean drinking water. Malnutrition, in itself, is rooted in and stems from many different things, which is why to solve it as a whole, it would be foolish to look for one, immediate solution, but, instead admirable and useful to recognize and work towards finding solutions to the things that are causing it in order to achieve permanent and lasting results.

In many countries, the rural population is more susceptible to poverty. This can be seen in Guinea, which has a rural poverty percentage of 63%, leaving the majority of the country in poverty, since only 36% of the population reside in urban areas, with the remaining 64% residing rurally. Poverty is linked to malnutrition because with it comes the inability to afford needed food and supplies. The majority of Guinea’s population practices subsistence agriculture, which is the practice of farming enough food for a person and their family. The goal of subsistence agriculture is to produce an output that allows for survival rather than commercial reasons. The inability to afford necessary farm equipment greatly impacts how much of a harvest a family will reap, thus affecting their meals, diets, and nutrition. Furthermore, poverty also negatively affects their ability to purchase food from external sources such as markets or other farms. These

factors put together are partially responsible for the small daily intake of food for the average Guinea inhabitant-that being one meal a day. This number, if they are able to farm enough to

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attain it, is only a mere 1/3 of what is suggested for the average number of daily meals (Harvard.edu). The consequences of a person being malnourished in this way could result in stunted development, both mentally and physically, as well as fatal results.

In order to combat malnutrition in Guinea, it is imperative that the issue and effects of poverty in the country be addressed. A common fix to this problem is, often times, the utilization of charities. While this is a start and a good way to raise money, it is not a long-term resolution to the problem at hand. Many times, said charities will not use the money donated to them ethically and, instead, use it for purposes of self-interest. This causes only a small sum of money to be put towards the actual cause. Furthermore, in the event that the charity that received donations is legitimate and uses the funds ethically, its reach can only go so far, leaving many people still in need. Finally, for those who are able to receive aid, the money is only able to offer temporary support and relief. What people need in order to achieve lasting relief is to become self sufficient as well as have the ability to obtain a reliable, steady source of income and consistent cash flow. This can only be achieved through jobs.

While the unemployment rate of Guinea is not particularly high (3.6% and it is believed that an unemployment rate of 5% or lower is respectable), what could be causing impoverishment is the lack of fair pay. Fair pay, or fair wage, is *a wage that is reasonable for the type of work done* (Merriam Webster Dictionary). Guinea does not have a set minimum wage, allowing for employers to compensate however they deem fit. Because of the lack of a set minimum wage, most workers in Africa get paid an average of one-two US dollars a day. In order to establish a fair minimum wage in Guinea, it is important to help the people take a stand and lobby with their government. This can be done through recruiting volunteers to help them with the formation of an organization like NELP (the National Employment Law Project), which advocates for fair minimum wage and worker's rights. With the formation of an NGO (nongovernment organization) in Guinea, people would then be able to bring the violation of their human rights as well as mistreatment to the attention of the UN, since Guinea's government is somewhat corrupt and may not take action unless pushed by not only internal unrest, but also strong, influential, external forces. As of 2019, Guinea has been ranked 130 out of 190 in a corruption perception index by Transparency International, a global coalition against corruption. To shine more light on the state of their government, they received a score of 29 out of 100 on their CPI (corruption perception index) - a score of 0 to 39 being in the range of highly corrupt. This is why it is important that we help the people of Guinea to not only protest amongst themselves, but also establish an NGO that way they can be globally represented by an organization that puts the people's interest first and is untainted by governmental corruption. The establishment of a minimum wage would not only decrease poverty levels by increasing the people's pay, but also benefit Guinea's economy by facilitating cash flow. Altogether, this

would give the people of Guinea the ability to buy needed farm supplies as well as food from external sources and, in doing so, combat the rising issue of malnutrition. Another way to provide new jobs, as well as combat malnutrition, is to work to increase the amount of arable land available.

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The amount of arable land available has been decreasing in Guinea over the years, which leads to more problems with their ability to produce food since they have less and less land on which to farm. A major cause of this decrease is the act of overgrazing, which is a prominent issue in Guinea. To overgraze is *to allow animals to graze (an area, such as a pasture) to the point of damaging vegetational coverage* (Merriam Webster Dictionary). This is often caused by the lack of water, which is a prevalent issue in Guinea, as well as the overstocking of animals by farmers. Overgrazing can lead to soil erosion, the absence of nutrients in the soil, and eventually desertification, turning what was once farm land into infertile land. As a way to combat this issue as well as provide fair paying jobs to a large amount of the population, humanitarian organizations, like One tree Planted-an organization that works to prevent deforestation by planting trees- as well as NGO's that should be established in Guinea, as mentioned previously, can hire locals to plant organisms in the soil that will help return its nutrients and make it fertile again. It is important when planting these organisms, however, that they are chosen to be able to survive and flourish in the Guinean environment. This would be a plant such as clover, which is not high maintenance and spreads efficiently. Money to fund this project and get it started could be raised through, humanitarian sponsors, donations, and crowd sourcing.

Another, equally effective way to stop the decrease of arable land as well as prevent overgrazing and malnutrition is to address the issue of climate change and sustainability, something that the current, conventional method of farming and harvesting has negatively affected. Over the last 40 years, Climate change has caused the loss of 1/3<sup>rd</sup> of the world's arable land due to desertification, soil erosion, and pollution. This number is expected to rise in the years to follow if nothing is done to stop it. A way to combat this problem is to begin the use of sustainable agriculture, which does not negatively affect the environment nearly as much as conventional agriculture. However, sustainable agriculture, while good for the environment, is also costly and unable to utilize as much land as conventional agriculture, which leads to a lower crop yield. Further affecting the crop yield, it also relies heavily on natural occurrences rather than manmade ones, making it more precise and difficult. Not only this, but it also forgoes the use of chemicals and pesticides to keep insects, parasites, and disease away, leaving the crop vulnerable, and also does not use GMO's, which can, once again, result in a smaller crop yield. Altogether, sustainable agriculture results in a harvest that is 25% less than that of conventional agriculture, creating a higher price for having to purchase special, pricier equipment, with a lower gain and profit from what it yields. This not only poses an immediate problem for the farmers of Guinea if this form of agriculture were widely used in their country, but also a problem that will continue to grow as the years go on and their population increases. Our

population is expected to go from 7.7 billion (as of 2019) to 9.7 billion by 2050 (The United Nations). A bigger population requires more food than is already being produced, which is why switching to sustainable agriculture without a way to account for its short coming would be detrimental to Guinea, a country that already struggles with hunger and malnutrition. The issues of climate change and environmental impact as well as the need for a greater food supply creates a difficult problem. On one hand, there is the need for sustainable agriculture in order to stop the affects of climate change and damage that conventional agriculture has done to our arable land,

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but this could result in the inability to provide the food and nutrients needed for a growing population. On the other hand, there is the need for a higher crop yield and the benefits and cost effectiveness of conventional agriculture that, if continued, will also result in the inability to provide for our growing population. This problem that seems like a double ended sword can actually be solved by investing in the education of Guinea and its future generations.

Education in Guinea is only free and compulsory from the ages of 7 to 13, making it nearly impossible for people to achieve higher education due to the cost as well as high poverty levels, as previously stated. Even with the kids who fall in the age range of those with access to free schooling, the majority still do not complete the bare minimum of basic education, leading to uneducated children who will become uneducated and unproductive adults and perpetuate the symptoms of poverty. It has been recorded that the amount of people who graduate with a high school diploma in Guinea is only 30.58% of the population, and the literacy rate of the entire population is only 29.5%. On average, kids get about 6 years of school before they drop out, which coincides within 6 years of free education. As a way to promote education and encourage kids to go to school, as well as solve the production and cost problems of sustainable agriculture, a program should be founded to further their education, alleviating the issue of cost, as well as help with the study and development of sustainable agriculture. This program would allow students who have completed their mandated years of school to qualify to have a fully paid high school and college education in agriculture, sustainable farming, and bio-engineering and technology. The selected students would need to meet certain requirements in order to participate in the program and must continue to adhere to those standards to stay in the program. In order to fund this program, countries around the world as well as charitable foundations like the AJACF (AJA charitable foundation), well known humanitarians and celebrities could donate and actively raise money for it. NGO's founded that have achieved representation with the UN could also work to advocate for the funding of the project. Overtime, the program could also expand to reach people all over the world in LDC's, not just Guinea. Even though at first this program would be costly without yielding many results, eventually the research done could contribute greatly to sustainable agriculture and help increase the crop yield in an environmentally conscious way. This would not only help the environment and reduce the amount of arable land lost, but it would also produce more food and allow there to be more available to the growing population. This research could result in the discovery of new agricultural technology and even ways to engineer organisms and pesticides in a

non-environmentally threatening way. As previously stated, the fight against malnutrition is not a short and easy one, but rather one that requires dedication in order to see lasting results.

Finally, malnutrition is not only food related, but also relies on the availability and sanitation of water. In Guinea, many people struggle with access to clean drinking water. In order to combat this problem, donations should be made to UNICEF to continue their work in Guinea. Over the past couple of years, they have been working with other organizations such as the AJACF to find cost effective ways to provide clean water within walking distance. On average in LDC's, women and young girls have to walk 3.7 miles to get water, which is not only unsafe, but still usually contaminated and disease ridden. UNICEF, along with their affiliates, have found a cost-effective solution to this problem; augers. An auger is a device that can be used to manually drill wells in areas that trucks and other machinery cannot reach. Not only

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does this method provide cleaner water to more villages, but it also provides more jobs, which helps with the economy and poverty issue. Local people are employed to set up the augers, and this has already provided more than 130 jobs and given people work experience and opportunities. Access to clean water is a human right, and the lack of it should be treated as an infringement. Because of this, more funding should be put into the organization to allow the setup of more augers in not only Guinea, but also all around the world.

Malnutrition is a global problem that will only continue to increase if nothing is done about it. With the increasing population, the changing climate, poverty levels, and decrease in arable land available, it is clear that there is no one solution to the problem and that it will take time and effort to achieve desirable and lasting results. In order to fight against hunger, we need to address the issue of poverty and provide jobs so that people are able to afford food, put money into the research of sustainable farming and environmentally friendly bio-engineering and technology, and find a way to provide safe drinking water to populations. Even though at first the solutions and methods to end malnutrition and hunger may appear costly and futile, it is important to remember that we are planting seeds to a better and brighter future, and that seeds take time to grow and develop before harvest can be reaped.

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