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Sierra Leone, Factor 11: Malnutrition

Nutrition and Farming Education Programs to Aid in Eradicating Malnutrition in Sierra Leone

Introduction

Norman Borlaug, a renowned food security expert, believed that “Food is the moral right to all born into this world”. Ideologically, this statement should be true; but food security is not a reality for many people in Sierra Leone. For example, due to the lack of sufficient food in 2013, approximately 16% of Sierra Leonean children under the age of five died primarily due to malnutrition (Nutrition Country Profile). While not as prevalent, the rate of malnutrition among adults is also high. The effects of malnutrition can significantly inhibit learning, health status and the productivity of workers thus, adversely impacting their ability to provide for their family. Further, many children suffer from mental disabilities, stunting, wasting, and in some cases, death. These challenges stand in the way of economic growth and development, stagnating progress within families and throughout Sierra Leone’s economy. The agricultural sector makes up over 60% of Sierra Leone’s Gross Domestic Product (GDP) and has remained a subsistence market, with its primary crops, produced by women, being starchy vegetables which do not meet worldwide nutritional standards (Scaling Up Nutrition Movement). Malnutrition must be addressed in order to inspire progress in Sierra Leone. Therefore, the goal should be to significantly reduce malnutrition nationwide. In order to achieve this goal, their agricultural practices must be tailored to meet the needs of Sierra Leonean citizens. This means that farmers in Sierra Leone must produce crops that meet basic nutritional requirements, especially for women and children. Education is key to addressing this issue. It informs every aspect of society from proper agricultural practices to better eating habits and nutrition. One way to improve the education of farmers and agricultural producers is that the Sierra Leone government could engage the telecommunications private sector as well as international donor organizations, to enable the development of local, regional, and nationwide mobile communities that will expand nutrition education. This mobile community would implement farming and nutrition education programs that utilize text messages to relay basic information about farming techniques and nutritional facts. Increased agricultural education would allow families to increase household incomes and provide more nutritious food to each member thereby contributing to the eradication of malnutrition in Sierra Leone.

Typical Sierra Leonean Family

Many Sierra Leonean families lack of a parent or guardian figure, but many of the households who do have a guardian present are headed by women. Parents have fallen victim to the recent civil war in Sierra Leone as well as high maternal mortality rates. Even though approximately 43% of families are left without parents, the family unit is composed of an average of 5.9 people, making it challenging for the head of household to provide nutritious food for each person. (Statistics Sierra Leone). The main component of an average family’s diet is rice, a seasonal crop that is grown primarily on the western coast in the mangrove ecosystem, which faces an environmental threat from toxic waste dumping and urban development. These disturbances of the ecosystem further decrease the country’s food security because smaller crop yields could result, making less food available to citizens, thus worsening malnutrition. (Berisio 4). The population of Sierra Leone also suffers from low education and literacy rates particularly among women. Approximately 2/3 of women and 1/2 of men have no formal education, and only 26% of women and 45% of men are literate (Statistics Sierra Leone). Health care access is limited as well with only 0.02 physicians/1000 people and 0.4 hospital beds/ 1000 people (CIA Factbook). It is also very difficult to access healthcare facilities due to the poor road infrastructure in the country. For some

communities the closest facility is 2 hours away. This situation further contributes to poor maternal and child health.

Farming is the primary occupation of many Sierra Leonean families due to the substantial rural population in Sierra Leone. In 2014, 60.42% of the population lived in a rural area and 80% of the rural population worked in agriculture (Rural Poverty in Sierra Leone). Most families own small farms that are 4.5 acres on average (Rader 36). The main crops that are grown in Sierra Leone are rice, cassava, groundnuts, maize, and sweet potato. Currently 2/3s of the population practices subsistence agriculture with minimal largescale agriculture (Agriculture). There currently is no legislation on the use of genetically modified organisms (GMOs), so they could potentially be in use by some farmers in Sierra Leone, and it is possible GMOs could be widely used in the future to assist in increasing crop yields. Agricultural practices are likely to improve in the future because of new legislation called the National Sustainable Agriculture Development Plan (NSADP) which is intended to increase production and bring economic growth.

While the government is making efforts to reform agricultural practices, food loss is a major challenge that many farmers face that hinders agricultural productivity and contributes to food insecurity. Food loss is described by the Global Food Security Index as, “a measure of post-harvest and pre-consumer food loss as a ratio of the total domestic supply of crops, livestock, and fish commodities, in tonnes”. According to the index, Sierra Leone has a score of 34.1 out of 100 in food loss as compared to the world average which is 5.4 out of 100. Most food loss in Sierra Leone takes place at the production stage, before the product is bought by the consumer, because there is not enough investment from the government as well as farmers in proper food handling, often the product becomes damaged or infested (The Global Food Security Index). Farmers fail to utilize proper farming techniques because, as mentioned earlier, lack of education lies in the way of economic and agricultural achievement, preventing many subsistence farmers from making a living wage. The government is currently implementing farming skills training programs, but the programs are still in infancy and need to be expanded.

Citizens also lack access to food markets and proper nutrition because of the poor road and port infrastructure in Sierra Leone. According to the Global Food Security index, the country currently has a 0 out of 100 rating for port and road infrastructure. This makes it difficult for consumers to purchase the food that they need. The poor infrastructure also inhibits access to healthcare facilities and trading centers (Global Food Security Index). This contributes to poor maternal and child health because there is not sufficient access to food, micronutrient supplements, and medical aid for expecting mothers and children which worsens childhood malnutrition.

The Effects of Malnutrition on Everyday Life

Malnutrition inhibits people from being productive workers which reduces household incomes. Those who are malnourished do not receive all of the basic macro and micro nutrients required for everyday function, and as a result they may have trouble finding work or maintaining their own farms. Malnutrition can also cause mental disabilities which would force families to spend more of their household income to care for a disabled child. These hardships strain already limited household incomes, which prevents families from being able to purchase food that meets their nutritional needs, continuing the cycle of malnutrition.

Currently malnutrition rates are at an alarming level. According to a survey taken by the Ministry of Agriculture in Sierra Leone, in 2014, only 36.4% of children ages 6-23 months consume food that is at or above the minimum acceptable diet. While malnutrition persists in Sierra Leone, the trends are improving. The Ministry of Agriculture has joined with the United Nations’ Scaling Up Nutrition Program to aid mothers and young children in maintaining proper nutritional health, and so far, the

programs have conveyed positive trends. For instance, from 2013 to 2014, the percentage of underweight children under the age of five decreased from 18.7% to 12.9%. The percentage of children who showed signs of wasting and stunting decreased as well and exceeded the target goals set by the program for 2014 (Scaling Up Nutrition Movement).

Even though progress is being made, developing countries are more prone to malnutrition, because they do not have the economic support and agricultural infrastructure to enable their governments from meeting the nutritional needs of the citizens. Within developing countries women are particularly disadvantaged as well due to gender inequality in the workplace. Women might earn less than men, making it harder to support themselves and their family, especially if there is no father figure present. While the environment in developing countries plays a large role in creating the conditions that lead to malnutrition, malnutrition itself does not directly impact the environment.

Effects of Improving Malnutrition

By taking the initiative to address the effects of malnutrition, farmers would be better able to maintain their fields which would improve both the quality of food and household income. A reduction in malnutrition will lead to the development of healthy individuals who are able to feed their families, expand farming to produce income, and support their households. A nourished rural household would be able to diversify crops beyond subsistence, encouraging biodiversity (What are the Environmental Benefits of Organic Agriculture). The quality of food would also increase with diversification of crops which would be better able to meet the nutritional needs of a family. The quality food produced would also provide the opportunity for more women as well as smallholding farmers to sell their crops and earn income.

Major Issues Affecting Malnutrition

The population of Sierra Leone is predicted to almost double by 2060 and as the population increases, it will be difficult to ensure food security (Key Development Forecasts for Sierra Leone). Areas where there already is not enough food will be pressed to combat malnutrition and its associated medical problems. If the population expands, then agriculture must expand with it, but this proves difficult due to climate change, increased urban development, and shifts to a more service-based economy.

Sierra Leone's agriculture is very reliant on climate, so changes in weather patterns due to climate change would create a less predictable growing season. Sierra Leone has already experienced increased flooding, off-season rains, and unexpected droughts which are likely to worsen in the future. Water supply has been impacted the greatest by climate change as river flow has lessened and lakes are starting to dry up (Benjamin). Irregular weather patterns would most significantly affect rice production since rice farming is extremely reliant on water supply. A disruption in the production of staple products such as rice would impede efforts to eradicate malnutrition because food insecurity would increase. Climate change would have the largest impact on successful farming because it would be difficult for farmers to cope with unpredictable growing seasons. The Sierra Leone government must prioritize environmental policies that would assist in reducing the threat of climate change so that food security programs can be successfully implemented.

Recommendations to Address Malnutrition

Farming and nutrition education must be circulated among the population to reduce malnutrition in Sierra Leone. Cell phones can be used to disseminate nutrition information to Sierra Leonean citizens. Traditional programs that disseminate this type of information typically use face to face communications. Face to face communication is often difficult and costly because of the country's rural landscape. Mobile

technology is more cost effective, efficient, and can expand the reach of the information being taught. Despite high poverty rates, 70% of Sierra Leoneans have access to a mobile device. With the realm of technology ever expanding, access will be even more wide spread in the future (Using Technology to Save Lives in Sierra Leone). It is for this reason that nutrition programs must not be implemented traditionally, but technologically.

Information would be sent through text messages and/or emails that would communicate basic nutritional facts to the recipients. Text messages would include information about which crops provide certain micro and macro nutrients as well as meal ideas and basic facts about how to create a balanced meal. The messages would be sent on a regular basis and would be short, easy to understand, and informative. These communications would be targeted to mothers, because they are traditionally the primary caregiver, and in some cases the only guardian figure present. This method would prove effective because the communication is direct with no middle communicator, which eliminates the expense of hiring teachers and concerns about the quality of the education. A potential concern regarding the program is the illiteracy of the recipients, but a similar program has been successfully implemented in Sierra Leone by the Red Cross that helped to advise citizens how to prevent malaria and other diseases. The program was shown effective in a survey that demonstrated that 95% of recipients believe they received valuable information and 90% of the recipients changed a practice in their lives to prevent malaria as a result of the messages. (Using Technology to Save Lives in Sierra Leone). The fact that such a similar program was successful demonstrates that using technology to educate large populations in Sierra Leone is effective.

Making basic nutrition widely known is essential, but in order for families to use the information that the text messages would provide, more food must be made available to citizens. The government currently has a program that teaches smallholding farmers effective farming techniques. This program could be scaled up to help smallholding farmers. The components of the program would help farmers lead a more sustainable way of life as well as provide a steady income for a family bettering their socio-economic status and lessening the effects of poverty.

As part of scaling up the agriculture program, food loss should be addressed. Most food loss in Sierra Leone takes place on the production level, and if more of the produced food were conserved, farmers would have more crops to sell and consume. In the government's current farming education programs, there is not an initiative to address food loss. The focus is primarily placed on planting crops rather than what to do with them after they grow. Without proper training and education, food loss is more likely to occur, so it is essential to address proper agricultural production practices to improve food security.

The scaling up of the farming program could also place emphasis on teaching participants how to plant crops that are biofortified in order to maximize the nutrients that would be available to rural families. Biofortification is when a plant naturally provides a large source of one or more micronutrients. For example, the North American orange sweet potato is an excellent source of vitamin A and beta carotene, which many people in developing countries are deficient in but are essential to sight and infection (Saving lives in Africa with the Humble Sweet Potato). By utilizing biofortified crops, farmers will be able to profit from their them both nutritionally and monetarily.

In order to successfully implement these programs, the plan of action must address, Sustainable Development Goals (SDGs) 1, 2, and 3: no poverty, zero hunger, and good health and wellbeing. Strategies to achieve goal 1 economic development which would support the farming program. Goal 2 would place emphasis on decreasing food insecurity and malnutrition in order to achieve zero hunger. The 3rd goal would assist in providing better healthcare infrastructure that could complement the nutrition education programs, further improving the health and wellbeing of Sierra Leoneans. Public and private sector investments must also be made to improve access to internet and making affordable phones for

those who do not currently have a mobile device. The more access to basic technology the Sierra Leonean population has, the more effective the programs will be.

Effectively implementing the nutrition education program and scaling up the farming education program will require the involvement of both the private and the public sectors as well as local communities. Private cell phone companies would need to act as a medium between those implementing the program and the citizens receiving messages. This would entail increasing internet and cell service. Companies would be incentivized to invest because they would be able to establish more of a market in Sierra Leone, making it profitable for them. The Sierra Leone government along with non-profit organizations would be responsible for developing the curriculum as well as overseeing the progression of the program. International donors would provide funding that would support the facilitation of the programs. In the longer term, the program would be sustained by the government working through local and regional community support groups that could be established. Groups like the Peace Corps could be an important support for monitoring and evaluation of the success of the program as well as providing support to its participants. Families would be responsible for using the knowledge gained from these programs to their advantage through improving their own farms as well as, to the best of their ability, ensuring that they are applying the nutrition information received through the texts. Families would also be responsible to provide the government with feedback about the program that would help sustain it.

Conclusion

Malnutrition is a pressing threat that needs to be actively pursued by all of the stakeholders involved in Sierra Leone. It is a very complex, multifaceted issue that cannot all be addressed in one program, but by providing basic education to the rural population addressing farming techniques and nutrition practices, many facets of the issue can be addressed. If progress is to be made towards the Sustainable Development goals by 2030, malnutrition must be prioritized by international governments, non-profit organizations, and supra-national organizations. More Sierra Leonean citizens knowing how to cultivate and preserve their crops correctly can improve food loss which would increase food security. Using technology as a medium would further extend the reach of the nutrition and farming education programs increasing their impact. Implementing these programs would make significant progress towards eradicating malnutrition in Sierra Leone as well as contribute to progress towards achieving SDGs 1-3. While this is true, there are still many obstacles that lie in the way of efforts to reduce malnutrition. Climate change and population growth currently impede progress towards eradicating malnutrition. Remedies to mitigate the impact of these issues must be integrated into plans for future programs. Technology is likely to grow with the population, maintaining and expanding the reach of the government to continue education virtually until more formal education can be introduced and sustained. An area for further investigation is how malnutrition can be improved for those who are not members of the rural population, but are still malnourished. While the recommended nutrition program could prove useful to urban populations as well, they do not have the land to implement the techniques would be learned in the farming education program. However, the role of technology in the reduction malnutrition for non-landholders should be investigated further. Though it is important to address urban malnutrition, rural populations suffer the most from the effects malnutrition. Improving the agricultural productivity of these rural populations will have the greatest impact on the reduction of urban malnutrition as food supply will increase. Due to the potential return on investment in rural communities, they are the current target of most work towards eradicating malnutrition in the country. The president of Sierra Leone, Earnest Bai Koroma, has said that, “[His] government is committed to accelerating the eradication of hunger and malnutrition” (Scaling Up Nutrition Movement). The commitment of the government in conjunction with support from the international community provides a firm foundation for the establishment of the proposed farming and nutrition education programs, which can be a key component of the government’s strategy to eradicate hunger and malnutrition.

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