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Madagascar, Factor 11: Malnutrition

Malnutrition in Madagascar

Madagascar is an island that is located off the east coast of Africa in the Indian Ocean. It is the world's fourth largest island with a size of, 587,041 sq km. The country is divided into 6 provinces which are Antananarivo, Antsiranana, Fianarantsoa, Mahajanga, Toamasina, with Antananarivo being the largest province. It has a population of 24.89 million (2016). When Gondwana split up 135 million years ago, it left the Madagascar Antarctica-India landmass separated from the Africa-South America. Madagascar later split from India about 88 million years ago, leaving it to become geographically isolated (Berkeley). Madagascar has been geographically isolated from other countries for approximately 88 million years, so the flora and fauna that can be found there are incredibly unique. The vast majority of Madagascar's flora and fauna are endemic, approximately 75-90%, meaning they can only be found there (Flora & Fauna International). On top of being home to an incredibly unique range of species, Madagascar is also one of the most biodiverse places in the world. To gauge how biodiverse Madagascar is note that, 11000 different endemic plant species have been found here and over the past 10 years, "from 1999 to 2010, scientists discovered 615 new species in Madagascar, including 41 mammals and 61 reptiles" (WWF). In addition to being home to an incredibly unique range of species and one of the most biodiverse places in the world, Madagascar also has a one of a kind landscape with places like the Tsingy de Bemaraha and Nosy Be. Madagascar is known for its extreme biodiversity, incredibly unique flora & fauna, and one of a kind landscape, making it a known and highly sought after place by tourists.

Madagascar is known for its breathtaking natural beauty, but many people do not know about the issues that plague this country. 92% of the country's inhabitants are living on less than \$2 per day and more than half of the children in Madagascar are chronically malnourished (WFP). 64% of the country's population lives in rural areas, while the remaining 36% of the country's population live in cities. The average family in Madagascar lives below the poverty line in a rural area. The TFR is lower in urban areas and higher in rural areas. The average TFR in Madagascar is 4.12, meaning there is approximately 4.12 children born per woman and the average person in Madagascar has 3 siblings. Large families are the norm in Madagascar with the average family size being 6 people. The mean years of schooling for a person in Madagascar is just 6 years. The literacy rate is 64% which is higher than the 59% literacy rate for Sub-Saharan Africa. In Madagascar, women are not expected to go to school, many women in Madagascar are withdrawn from school, marry young and have children. There is a lack of access to healthcare, with just 0.14 physicians per 1000 people which increases the infant mortality rate and the maternal death rate.

Rice and sweet potatoes are the most important foods to families here, and many people grow their own food. Some families do not have enough money to buy food from markets, so they are largely dependent on whatever they are able to grow. Agriculture accounts for 24.8% of Madagascar's GDP, 40% of its export earnings and 70% of its labor force (Agriculturalist). The primary agricultural exports of Madagascar are coffee, vanilla, sugarcane, cloves, cocoa, rice, cassava (manioc, tapioca), beans, bananas,

peanuts and livestock products. Madagascar produces 60% of the world's vanilla supply. The average farm size in Madagascar is 1.6 hectares, the average farm size is a bit low because many farms in Madagascar are subsistence farms, farms where people grow food for themselves and families. Slash and burn agriculture used to be a major agricultural practice of Madagascar, but it led to extreme deforestation and erosion, so it was declared to be an illegal practice. According to wildmadagascar.com, "Despite the penalties, and much to the chagrin of forestry agents, tavy continues to be practiced." Slash and burn farming is referred to as tavy in Madagascar. Agricultural practices in Madagascar vary from group to group, region to region, and season to season because of its diverse knowledge, climate and soil types. Agricultural practices in Madagascar include a variety of things like slash and burn agriculture, shifting cultivation, and livestock grazing. Livestock grazing is largely practiced by groups like the Bara and Sakalava people in the South and West parts of Madagascar, in the South and West many families own zebu cattle (WildMadagascar). 60% of rural families are largely dependent on livestock like the zebu cattle, pigs, sheeps, goats, turkeys, ducks, geese, and chickens. An additional agricultural method is practiced for rice cultivation which is irrigation and drainage canals. A particularly unique agricultural method practiced by the Bostileo people of Madagascar is partaking in a festive trampling, using animals if available, after fertilizing the rice fields which completely takes the place of plowing (WildMadagascar). Food sources in Madagascar are not just limited to land, many people, especially in coastal regions of Madagascar eat fish, like shellfish.

In Madagascar, the agriculture industry has the tendency to keep people locked in a cycle of poverty because many farmers get exploited. 70% of the population has an agricultural job and 92% of the population makes less than \$2 per day. An example of this would be the vanilla industry of Madagascar, which is largely dependent on child labor and a continuing cycle of poverty for small farmers who produce vanilla. An example would be, a Malay woman named Lilane, her son Xodolien and her 14 year old son from on the guardian called, "*Madagascar's £152m vanilla industry soured by child labour and poverty*". Vanilla farming is a very labor intensive process so she needs her sons to help her, Lilane and her sons spend all day tending to the vanilla. Vanilla usually sells for between \$200-\$400 per kilogram, but according to the article, "Lilane gets just £6 (\$7.01) a kilo for the family's vanilla pods from the "collectors", young men on motorbikes who come to the village to buy the pods after each harvest" (Lykke Lind). She is getting far less money than she should be getting from the collectors, but she is not in a position to refuse their business even though she is being exploited because she needs the measly amount of money to provide some kind of food to sustain her family. Lilane desperately wants her children to get out of the vanilla trade and get an education, but because there is a lack of public schools in rural Madagascar and mostly private schools that cost money, Lilane does not have enough money to send her children to school. The exploitation goes even further than not paying the farmers fair prices. "Rajao Jean, president of a local farmers' association, says that when farmers become desperate for food during the long wet months, the same collectors return to offer a "vanilla flower contract" – loans to see them through to harvest" (Lykke Lind). "The collectors fix the price and return after harvest to collect their debt and the high interest it has accrued, buying the pods far below market value" (Lykke Lind). The collectors offer the farmers an unfair contract because they know that the farmers will not be in a position to reject the contract because they need money to buy food or they will be hungry during the wet season. If something goes wrong and farmers cannot produce the promised amount of vanilla, they will fall even deeper into debt. This is something that happens quite often to farmers that specialize in a variety of industries, but most commonly the vanilla industry. The government has passed laws to try to stop

farmers from being exploited, but it is almost impossible to find the “collectors”. Farmers like Lilane remain in poverty. I brought this point up to touch on how exploitation is a barrier to employment at a living wage for farming families and because there is more complicated effects to food insecurity than what people think about. Food insecurity is a huge issue in Madagascar, people must have food to sustain their lives. So, many people have no choice but to put food before everything else, like education, which is necessary to break the cycle of poverty.

Food insecurity in Madagascar is largely caused by natural disasters that drastically decrease agricultural productivity. Madagascar is highly prone to cyclones, droughts, and floods. The negative effects of the natural disasters are enhanced by environmental degradation and climate change. The southern region suffers from constant droughts because of the El Niño weather event (World Food Programme). The world food programme is doing everything in its power to try to tackle the food insecurity caused by these weather events so bad weather events do not leave significant parts of the population without food. A solution to this would be to increase the amount of schools that serve lunches, to ensure that no child goes hungry. World food programme currently provides a daily hot meal for 230,000 children. World food programme says that it intends to work with the government of Madagascar, UNICEF, and the world bank to reach even more children with the school meal programs. Another solution to dealing with climate volatility and its enhancing issue, environmental degradation would be to implement sustainable agriculture practices like crop rotation, rotational grazing, conservation tillage, and using cover plants to reduce soil erosion. Using methods like an agriculture is also a viable option because aquaponic systems do not require use of land. Lastly, teaching local farmers about permaculture techniques which would allow them to better understand the land to learn to restore and work with it. Implementing some permaculture techniques, like mimicking a lands diverse natural system to increase would increase the resilience of the system during a natural disaster.

The factor I chose was Malnutrition because it is the largest effect of food insecurity and it is one of the largest issues affecting the country. Malnutrition is defined as a lack of proper nutrition, caused by not having enough to eat, not eating enough of the right things, or being unable to use the food that one does eat. Malnutrition has had very adverse effects on health. 50% of Madagascar’s children under 5 are malnourished. 47% of kids under the age of 5 in Madagascar suffer from stunting caused by malnutrition. There is acute and chronic malnutrition, acute malnutrition is characterized by not eating enough food and being energy deficient while chronic malnutrition is characterized by a lack of micronutrients, vitamins and minerals that are necessary for growth and the development of the brain(Allison). UNICEF’s chief of nutrition in Madagascar, Simeon Nanama says, “I would say that one is mostly an issue of quantity while the other one is an issue of quality”(Allison). Madagascar ranks fourth in the world for chronic malnutrition. An organization called UNICEF has found a link between chronic malnutrition and mental capacity. UNICEF has found that chronic malnutrition is associated with two to three years' loss of schooling, adults who have suffered from chronic malnutrition in their childhood tend to be less productive than adults who have not suffered from chronic malnutrition. In addition to this, UNICEF found other effects on health and survival, like, increased chances of developing a chronic illnesses. (Allison). Chronic malnutrition even affects the economic well being of the country, the world bank estimated that chronic malnutrition can lead to a loss of 2-3% GDP per capita. Malnourished people are more susceptible to developing anaemia. “One third of women aged between 15-49 and half of children under five suffer from iron deficiency which causes anaemia” (WFP). The

maternal mortality rate in Madagascar is 500 per 100,000, this high mortality rate can be attributed to the high levels of anaemia (WFP). Because of high rates of malnutrition, there is also a high child mortality rate, for every 1000 live births, 62 die before the age of 5. This can be attributed to the fact that malnutrition weakens the immune system, making children more vulnerable to catching infectious diseases like tuberculosis because of the lack of essential vitamins and micronutrients in the diet.

The government of Madagascar, alongside many organizations like the world bank and the world food programme are working on putting an end to malnutrition. The government of Madagascar has a program that gives monthly growth-monitoring sessions for infants and young children up to age 5, and community mobilization and nutrition education for primary caregivers (World Bank). According to the world bank the government of Madagascar is focusing on what else can be done during the first 1000 days of life to reduce stunting and developmental delays. The government of Madagascar wants to strengthen the effectiveness of this program by adding intensive counseling services, lipid based nutritional supplements, and more intensive early childhood stimulation. To reduce the the rates of malnutrition of pregnant women, nursing women, and children under 5 , the World Food Programme is expanding its nutrition program. Many other organizations are doing things to help Madagascar's government fights against malnutrition. I believe that a critical way to fight against hunger is the government implementing national lunch programs to assure that no matter how much food a child has at home, they do not go hungry. The government should make a nutritious lunch program a national requirement for schools, and federally fund them. Communities could play a role in school lunch programs, because in addition to government organizations providing food for the schools, the government and schools could also support local farmers by purchasing food for them. Implementing school lunch programs, would not only help reduce malnutrition, but it would also help increase the amount of families that prioritize sending their children to school because of the nutritious meal guarantee.

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