

Nora Atwater
Highland Park High School
Highland Park, NJ, USA
Madagascar, Food Insecurity

Unprecedented Hunger Crisis in Madagascar: An Insecure Economy and Extreme Drought to Blame

Madagascar, an island nation off the southern coast of Africa, is host to an abundance of natural beauty. A country well-regarded as a vacation spot to many visitors, Madagascar's cries warning the world of their deadly reality have been unheard. The country's natural biodiversity attracts an annual flock of tourists that provide important income, but despite this, the nation of Madagascar is crippled by a hunger crisis. Grappling with the pressure of many weighty factors, Madagascar is one of the poorest countries in the world and malnutrition is far from an infrequent affliction. As a result of some of the most extreme droughts known in the country's history and widespread poverty, the population of Madagascar has been devastated by an interminable hunger crisis. In order to provide relief to a country host to such cultural and ecological value, it is imperative to establish pragmatic solutions to combat Madagascar's hunger crisis in the face of extreme drought and overall poverty.

In a world with an increasingly unpredictable climate, Madagascar has become victim to a hunger crisis heavily induced by severe drought. Although droughts have had a long-standing history in Madagascar, in the last decade the country has experienced one of the most severe droughts globally. Specifically in the south, the drought's impact has completely devastated agriculture. In an article published by the *Guardian*, a doctor from Southern Madagascar explains that as a result of climate change, drought is a constant state in Madagascar diminishing the predictability of seasons that agriculture relies upon (Castillejo, 2021). Without the distinction of seasons and the differing weather conditions provided by them, the country's agriculture has become stunted, if not completely eradicated. As *Time Magazine* describes, global warming and climate change are solely to blame for the state of Madagascar, explaining that as a result, the entirety of previously rich agricultural land has changed, "The southern part of Madagascar, a lush, largely tropical island famous for its biodiversity, has experienced below average rainfall for the past five years" (Baker, 2021). The catastrophic condition has left a large population consuming the limited supply of available food; entire families surviving off foods deficient in necessary nutrients such as, "cactus leaves mixed with ashes, just to not be hungry, to get rid of that empty feeling" (Castillejo, 2021). On average, the typical family in Madagascar lives in a rural area, isolated from outside providers of resources, meaning families operate off of local growing plots that tend to be the most vulnerable in times of drought (*Poverty in Madagascar: 10 Quick Facts*, 2021). In short, the presence of such severe drought has brought forth a dire living situation for the population of Madagascar consequently stripping a once rich agricultural land of all life. The sheer volume of individuals in need of basic necessities has entirely overwhelmed the efforts of relief groups.

Compounded by drought conditions is the systemic issue of poverty. As of May of 2021, more than three-fourths of the population lived in absolute poverty with an average household income of \$1.90, and of these three-fourths, children are the most impoverished with more than 80% of Madagascan children living below the international poverty line (*Poverty in Madagascar: 10 Quick Facts*, 2021). With limited sources of income, the responsibility of providing for the family is shared with children resulting in millions of children being subjected to child labor, threatening their well-being and education. Overall,

the aforementioned financial and living conditions culminate in a multidimensional poverty crisis and widespread food insecurity. An average family in the country endures the stress of absolute poverty and experiences a government too overwhelmed with the severity of an economic crisis to even begin to provide the sufficient aid required to ease their struggles. In years prior, Madagascar's main source of income remained its agricultural market: "Of the nation's \$37.5 billion GDP (PPP), 25% is contributed by the agriculture industry, which is also responsible for 80% of employment on the island" (Beck, 2017). Exports such as sugar cane and rice, as well as the country's specialty vanilla, make up the agricultural market. However, due to the ecological devastation faced by the country, the agricultural industry is not turning out the same substantial numbers. Take for example vanilla--Madagascar being the second largest producer of the plant--which requires an average and moderately-frequent watering of 2 to 3 inches, growing in an environment that is experiencing a constantly lessening amount of rainfall with long periods of no precipitation at all (Grant & Rose, 2021). It is an anxiety-inducing task to conceptualize an economy largely reliant on an industry that requires water that they don't have. Poverty exacerbates the country's hunger crisis and the interrelatedness of poverty with limited agricultural productivity prove to be a self-perpetuating conundrum.

A solution must resonate with its intended demographic to be effective. The ubiquitous character of crisis aid is the general lack of solutions resonant with the native population and culture. The specific living patterns and conditions in Madagascar are manifest in the cultural and economic landscape. Thus, its devastation requires a solution that reflects the heart of the nation: its people. The average age of a Madagascan citizen is 19 years old, ranking Madagascar among the lowest median ages globally. This young population is distributed throughout the different sections of the country where the majority lives in rural areas, with an average density of 123 people per square mile ("Madagascar Population (2022)"). One of Madagascar's viable strengths in adapting to this crisis is the resilience of its community and its historical connection to their dominant trade: agriculture. The best solution encompasses the passion and innovative desires often prevalent in young populations, while also respecting the geoeconomic layout of the nation.

Solving a hunger crisis as complex as the one being experienced in Madagascar demands consideration of the entirety of both their current food insecurity conflict and the perpetuation of poverty. Embedded within the multidimensional causes of Madagascar's hunger crisis is the country's inability to adapt to extreme drought. The majority of farms in Madagascar are operated by families without support systems that provide experience-tested solutions to concerns like combatting water shortages. With agriculture being a largely familial trade, many Madagascan farmers pass the knowledge of farming across generations, which increasingly manifests poorly as the current generation's climate-induced issues have not been faced by the prior. However, resilient farmers have adapted practices throughout the region such as a Madagascan farmer named Mirantsoa Faniry Rakotomalala who explained that her family's agricultural plot was able to thrive during a drought that killed off many neighboring plots by means of adapting their irrigation system. By digging boreholes to store water, crops received a vital water supply for an extended period of time allowing the farm to continue turning out produce relied on by the family for their household food needs as well as income (Gathigah, 2016). An efficacious form of direct irrigation is drip irrigation, a practice where growers attentively water the roots of plants directly, successfully reducing the omnipresent risks of water waste from evaporation and erosion in traditional irrigation. A properly contained irrigation system that exercises drip irrigation commonly saves up to 80% more water than that of conventional irrigation (Tarantino). Simple, accessible, and cost-efficient solutions such as water reservoirs and sustainable irrigation are feasibly accommodating in a nation where agriculture largely consists of family-worked farms. Sustainable agriculture plots are far more secure systems that utilize fewer resources, reassuring that growers maintain a more consistent livelihood.

Enriching the agricultural content of plots, in conjunction with modernized irrigation, is similarly utilized by resourceful farmers in Madagascar. The drought-laden soil insufficiently nurtures the population and produces unsatisfactory results. Utilizing the livestock present in Madagascan agriculture, rotational grazing can stimulate the regrowth of pastures, synchronously strengthening the water absorption ability of soil. Water-abundant soil maintains a more hospitable environment for necessary nutrients, however, it is first necessary to expand the soil's water holding capacity that decreases during consistent years of drought. The implementation of cover crops is additionally beneficial for these farms, subsequently increasing soil fertility and the organic matter present in the soil. A study conducted by the North Central Sustainable Agriculture Research and Education determined that plots that use cover crops are “..14 percent more productive than conventional fields during years of drought” (Tarantino). Fundamental to ensuring the quality of crops and soil during unprecedented droughts, the process of reintroducing and monitoring water absorption promotes the abundance of healthy produce.

Resulting from the current financial affairs of the country's government, these sustainable agriculture initiatives are not promoted to reach infrastructure-isolated communities. Despite this, the popularity of agricultural innovation has grown exponentially as non-government programs such as the Madagascar Flora and Fauna Group (MFG), a domestically based group that has accumulated international support from institutes focused on jointly developing agricultural conservation techniques are forming to fill this need. Through a partnership with a research team from Appalachian State University, MFG's efforts have been incorporated into their community contacts where they share the practices of composting to fix soil infertility and forestry conservation to avoid erosion (“Sustainable Agriculture in Madagascar Has a Worldwide Impact”). Around Madagascar, countless programs with similar initiatives are beginning to network with international institutes researching drought-effective farming. Often these institutes have the trust of donors, whom they entice to fund these programs. At a pivotal moment in the development of these types of programs, the concept of educating rather than condemning is understood to be more effective. Outside research historically favors the side of logistics over actuality, which is a naturally specious understanding formed through foreign lenses disconnected and ignorant of a community's everyday needs. Objectively, the common practice of slash-and-burn agriculture is logistically contestable as it devastates biodiversity, however, in the action of outwardly condemning it, a certain degree of apathy towards the intellectuality of the community's historical agriculture methods. Rather than doing this, the MFG prefers to enter communities to share information on the environmental damages of these practices while offering alternatively sustainable methods that take into account the initial need for reliance on less sustainable methods (resources, time, physical ability, etc.). Newer generations of community-centered education programs prioritize discretion and respect towards historical agriculture practices with the hope of communities adopting sustainable alternatives rather than a list of “don'ts”.

Another of the major concerns is the insufficiency of transportation. As of 2017, the World Bank explained that the lack of road connection in the country caused citizens' inability to access important services such as education, food markets, and electricity (*Madagascar: Some Solutions to Reduce Poverty*, 2017). Without access to these necessary resources, the rural population relies solely on local connections, which oftentimes leaves communities with lower income and education rates adrift. In the same articles, it was reported that as a response to climate and economic failure, the country shifted more heavily into agriculture. By connecting roads throughout the entirety of the rural country, access to education is simpler and a more viable option. A rise of education rates could lead to a diversified career field being available to a larger portion of the population. A stronger distribution of different trades and markets grants more security for an economy accustomed to a minimal number of income-earning assets. Communities with more opportunities to participate in a diversified income would be far more financially

secure, and consequently, more food secure than the current situation endured by Madagascar's population.

Economic reconstruction has long been championed by planning and development teams recently diminished by a prioritized focus on immediate action towards natural disaster relief. Despite this, recent international attention on the Madagascan government's affairs has encouraged an influx of global funds. As of March 2022, the World Bank-an international financial institution for governments-increased its investment in a renewed infrastructure plan for Madagascar. The World Bank has allocated 400 million USD to expand road connectivity throughout the isolated country in the rural South, "The rehabilitation of the RN10 and associated local roads will provide reliable and year-long access to the southern part of the country that is most affected by food insecurity, while the rehabilitation of the RN31 and associated local roads will unlock a key agricultural region in the northwest" ("World Bank Increases Investment in Madagascar's Transport Sector"). The current state of dilapidated roadways devastates the productivity of many citizens, but with prospects of modernized infrastructure, access to urban educational programs, an external job field, and health care is promising. Symbiotically related, economic and social prosperity are regarded as concomitants of a strong environment and national sovereignty. A decreased reliance on foreign aid prompted by the economic benefits of strong infrastructure places the Madagascan government in a better situation to repay overwhelming debt. Prolongedly anticipated by the country's inhabitants: access to higher education and global markets allows a sense of self-sufficiency and mobilization desired by all world citizens. Naturally accompanied by heightened national morale, the stronger economic affairs of a nation renew the overall recuperative ability to counter food insecurity.

In final analysis, Madagascar is a country full of many beauties and ecological depth but one that dually struggles under the gravity of a hunger crisis. Over the past couple of decades, Madagascar has experienced increasingly serious drought seasons stunting the production of the agriculture industry which happens to be the largest industry in the country. As a result, the country's economy is not strong enough to ensure food security across the nation. However, by adopting simple agricultural irrigation systems such as boreholes, creating more flow in the country through roads, and promoting education, Madagascar will be more able to face its hunger crisis. Globally, many nations struggle with hunger crises prompted by things such as climate change and an unstable economy, which have the power to uproot the lives of many. Necessary to aiding these hunger crises is hosting discussions on how these issues can be approached in times when situations only continue to worsen. Despite all hopelessness felt when assessing these problems, solutions that are simple yet effective are found through innovation. Innovation has always been present throughout humankind's ascent of adversity, making it all the more possible to achieve when seeking to solve the hunger crisis in Madagascar.

References

- Baker, A. (2021, July 20). *Madagascar Famine is First Caused Entirely by Climate Change* | Time. TIME. Retrieved January 30, 2022, from <https://time.com/6081919/famine-climate-change-madagascar/>
- Beck, T. (2017, December 13). *An Overview of Madagascar's Economy >> globalEDGE: Your source for Global Business Knowledge*. globalEDGE. Retrieved January 30, 2022, from <https://globaledege.msu.edu/blog/post/54526/an-overview-of-madagascars-economy>
- Castillejo, E. (2021, November 1). *S. Madagascar on the verge of climate change-induced famine: How to help*. ABC News. Retrieved January 30, 2022, from <https://abcnews.go.com/International/madagascar-verge-climate-change-induced-famine/story?id=80857410>
- Gathigah, M. (2016, August 5). *Climate-Smart Agriculture for Drought-Stricken Madagascar - Madagascar*. ReliefWeb. Retrieved February 5, 2022, from <https://reliefweb.int/report/madagascar/climate-smart-agriculture-drought-stricken-madagascar>
- Grant, B. L., & Rose, J. (2021, June 22). *Growing Vanilla Orchids: Tips For Vanilla Orchid Care*. Gardening Know How. Retrieved January 30, 2022, from <https://www.gardeningknowhow.com/ornamental/flowers/orchids/grow-vanilla-orchid.htm>
- Madagascar Population (2022)*. (n.d.). Worldometer. Retrieved August 24, 2022, from <https://www.worldometers.info/world-population/madagascar-population/>
- Madagascar: Some Solutions to Reduce Poverty*. (2017, March 21). World Bank Group. Retrieved February 5, 2022, from <https://www.worldbank.org/en/news/press-release/2017/03/21/poverty-in-madagascar-recent-findings>
- Poverty in Madagascar: 10 Quick Facts*. (2020, May 21). The Borgen Project. Retrieved January 30, 2022, from <https://borgenproject.org/10-facts-about-poverty-in-madagascar/>

Sustainable Agriculture in Madagascar Has a Worldwide Impact. (2017, December 30). The Borgen Project. Retrieved August 24, 2022, from

<https://borgenproject.org/sustainable-agriculture-in-madagascar/>

Tarantino, D. (2014, August 15). *10 Ways Farmers Are Saving Water.* CUESA. Retrieved August 24, 2022, from <https://cuesa.org/article/10-ways-farmers-are-saving-water>