

SIT Graduate Institute/SIT Study Abroad

SIT Digital Collections

Independent Study Project (ISP) Collection

SIT Study Abroad

Spring 2020

Climate Change and Migration in Madagascar: Investigating the impacts on people, ecosystems, and natural resources

Eloise Parish Mueller
SIT Study Abroad

Follow this and additional works at: https://digitalcollections.sit.edu/isp_collection



Part of the [African Studies Commons](#), [Climate Commons](#), [Environmental Indicators and Impact Assessment Commons](#), [Environmental Policy Commons](#), [Environmental Studies Commons](#), [Migration Studies Commons](#), and the [Place and Environment Commons](#)

Recommended Citation

Mueller, Eloise Parish, "Climate Change and Migration in Madagascar: Investigating the impacts on people, ecosystems, and natural resources" (2020). *Independent Study Project (ISP) Collection*. 3370. https://digitalcollections.sit.edu/isp_collection/3370

This Unpublished Paper is brought to you for free and open access by the SIT Study Abroad at SIT Digital Collections. It has been accepted for inclusion in Independent Study Project (ISP) Collection by an authorized administrator of SIT Digital Collections. For more information, please contact digitalcollections@sit.edu.

Climate Change and Migration in Madagascar: Investigating the impacts on people, ecosystems, and natural resources



Image Source: <https://www.theguardian.com/world/2016/oct/21/madagascar-drought-catastrophe-looms-as-850000-go-hungry-says-un>

Eloise Parish Mueller

University of Oregon

Advisor: Rindra Ramanakirahina

Academic Director: Andolalao Rakotoarison

Madagascar Biodiversity and Natural Resource Management

SIT Study Abroad, Spring 2020

Table of Contents:

Acknowledgements.....	3
Introduction.....	4
Methods.....	5
Results.....	7
Discussion.....	11
Conclusion.....	13
Works Cited.....	14

Acknowledgements:

I would like to thank all of those who contributed to “DEFIS, ENJEUX ET POLITIQUES : MIGRATION, ENVIRONNEMENT ET CHANGEMENTS CLIMATIQUES A MADAGASCAR,” the Organisation Internationale Pour Les Migrations paper which was my primary source in this project, and which provides an incredibly thorough and thoughtful introduction to and reflection on a difficult and multi-faceted topic and area of consideration. I would also like to thank the authors of my other sources, whose work enabled me to study this area of great interest and concern for me despite the challenge of no longer being in Madagascar during the ISP period due to the COVID 19 pandemic. Finally I would like to thank all of the amazing people in Antananarivo who made my study abroad experience joyful and meaningful, from my generous and supportive host family, to the Malagasy students we had the honor of studying with, to, last but definitely not least, the program center staff and faculty (Ando, Rindra, Alida, Lalaina, Sehenon, Lita, and Tantely) for inspiring and taking care of us every day during our stay. Ando’s incredible effort and care during the outbreak of a global emergency is what ensured that we got home safely and in good health, and her compassion and patience (both during the program and as we completed our credit requirements at home) made a very difficult situation much more bearable. I couldn’t have asked for a better Academic Director. Misaotra betsaka!!

Introduction:

In Madagascar, as in much of the world, there are distinct connections between climatic changes and events and human migration and displacement. Human caused climate change influences the movements of people both directly (through creating unlivable conditions in specific areas) and indirectly (through its impact on social and economic conditions, agriculture etc.) These impacts can come from sudden events and natural disasters, which in Madagascar most notably include cyclones and storms, floods, and landslides, and from more intermediate to long term conditions and changes, such as drought, land degradation, elevation of sea levels, coastal erosion, salinity of soils and intrusion of seawater in estuaries (Ranaivoson et al. 2018).

Between 1983 and 2018 in Madagascar, 46 major natural disasters affected 11 million people and caused around one billion USD in damage. These disasters often result in rapid displacement of populations, usually in the short term. It is projected that by the year 2055 there will be an increase of 1.1 to 2.6 degrees celsius of average temperatures in the country as compared to 1961 to 1990, with disproportionately high increases in the southwest and central regions in comparison to other parts of the island. Other mid century climate change projections for Madagascar include reduced rainfall from July to September on the east coast, longer drought and a later start to the rainy season, and a constricted period of rainfall with increased intensity of precipitation (Ranaivoson et al. 2018).

Due to the focus of the available literature, this paper will mostly investigate the relationship between the outcomes of internal migrations in Madagascar in which drought is a driver or factor of influence. Migration within southern Madagascar as a method of adaptation to drought is not a new phenomenon and has historically been a part of the lives of many people

living in that area of the island (Ranaivoson et al. 2018), however increasing length and extremity of droughts due to climate change, combined with other factors, has an impact on migration within and out of the southern part of the island, and will likely continue to be more and more of a driver as the consequences of the climate crisis become more extreme.

The principle objective of this study was to determine the impacts of migration caused or influenced by climate change on people and ecosystems in Madagascar. The specific objectives were **1.) to investigate the impacts of internal migration in Madagascar, particularly movements of people which are related to climate change, on migrants, established communities and ecosystems in regions they relocate to, and natural resources and 2.) to investigate possible solutions to social and environmental challenges resulting from migration in the country.** While researching, I came to more fully appreciate the complexities of the relationships between climate, migration, and environmental and social conditions, and the necessity of acknowledging the lack of consistent bilateral cause and effect relationships between these areas. Therefore, I feel it is important to clarify at the beginning that not all of the migrations discussed in this paper can clearly be defined as being “caused by” climate change, however climate change does have an influence on and a relationship with the conditions (environmental, economic, social, governmental) that influence an individual’s or family’s decision about whether or not to relocate and over what spatial and time scales.

Methods:

Due to the extenuating circumstances of the 2020 COVID-19 pandemic, I completed this research project at home in the United States, so all of the research was conducted through reading and analyzing published academic sources on the topic. In order to illuminate how the

primary data in these papers was produced, the following is a brief summary of the methods used in the two main references I consulted.

Ranaivoson et al., the authors of the 2018 paper “Defis, Enjeux et Politiques: Migration, Environnement, et Changements Climatiques À Madagascar” used a literature review and case studies at two sites (Kirindy, in the Menabe region, and Marovoay, in the Boeny region). The case studies included interviews with key spokespeople, guided interviews with focus groups, and household surveys. Their process was to consult with the local authorities, and then conduct focus group discussions on migration, environment, climate, and social situation with participants who were suggested by the President of the Fokontany and paid for their time (Ranaivoson et al. 2018).

Harioly Nirina’s 2018 study used a literature review, interviews with experts and local officials, and household surveys. The surveys were conducted in communities of origin for migrants (in the districts of Tsihombe and Bekily), and in destination communities (Antananarivo, Mahajanga, Toliara and rural communities in the Ambato- Boeny district), and concerned people’s perceptions about climate change, rain pattern, drought, relations between migrants and non migrants, access to infrastructure and services, food supply and access, and natural disaster risk (and in the communities of origin also questions on the practical organization of migration). Interviews with local officials (including deputy mayors and managers of protected natural areas) were conducted where household level surveys weren’t possible, to gather the same manner of information (Harioly Nirina 2018).

Results:

With respect to the objectives of this paper, I will present the findings of my research in four parts: the impacts of migration on migrants, the impacts on indigenous or longstanding communities in the regions they relocate to, the impacts on environment and natural resources, and potential and proposed solutions to negative impacts on stakeholders and ecosystems in each of the above categories.

Part 1: Migrants

Internal migration in Madagascar can present economic and agricultural opportunity for migrants, and can sometimes be a necessary adaptation and even survival mechanism (in Harioly Nirina's 2018 study, participants stated jobs, food and water access, and survival as reasons why migration improved life or was necessary). Migrants frequently relocate for jobs and economic opportunity in destination communities with industries connected to international markets, often in the agricultural sector. This higher degree of economic development and more modernized financial systems, including increased access to tools such as micro finance, banks, and mobile money can offer increased opportunity for some, but can also also create a system of increased economic stratification, where competition drives some to succeed and others to lose out. Access to land for agriculture and zebu grazing and natural resources like wood are also benefits some migrants reap. In addition, many send money back to their communities of origin, helping to improve the lives of family members there (Ranaivoson et al. 2018).

However, there are also significant challenges and problems faced by internal migrants in Madagascar. While relations with established communities in destination regions can be

harmonious, there are instances of land and social conflicts. There is also the issue of land rights and ownership. There is a complicated colonial legacy around land ownership in parts of rural Madagascar, including agricultural territory that was titled to foreigners who left the country after the transition to independence from France or died, without having heirs left in Madagascar (United States, USAID 2019). This contributes to uncertainty about land rights for those living and working on certain land, especially migrants who settle there, which is a source of instability for them (Ranaivoson et al. 2018). Migrants in the north are frequently targeted by zebu thieves, and in certain cases, such as the example of Tandroy migrants in the Boeny region, lack representation in communal councils in destination communities, thus missing out on benefits from local investments such as wells and schools (Ranaivoson et al. 2018).

Part 2: Non-migrant members of destination communities

An influx of migrants can have a positive impact on economic development and workforce availability in destination communities, expanding the potential for globalized trade and financial systems (although, as mentioned previously, such economic development tends to have winners and losers and not all reap the benefits). In some cases, ancient bonds and alliances exist between those native to a region and ethnic groups who migrate there, such as the connection between the Betsileo and Sakalava people, however in other instances social conflict and tensions do sometimes arise between locals and migrant communities, as one might expect in a situation where an increasing number of people are relying on the same stock of infrastructural and environmental resources (Ranaivoson et al. 2018). The impact of migration on

natural resources and land use (which will be discussed below) also has a direct effect on non-migrant and native communities.

Part 3: Environment and Natural Resources

Deforestation, both in clearing and burning for agriculture and in harvesting of wood for charcoal production, is the biggest negative environmental impact of migration in Madagascar. In the Kirindy-Ambadira Forest Complex (in the Menabe region), 24.6% of forest cover was lost between 1973 and 2010 (Zinner et al 2013), and was even more dramatic between 2010 and 2016, according to satellite derived data presented in Ranaivoson et al. 2018. This is in conjunction with rising rates of migration to the area and use and clearing of the forest by migrant communities. 30% of migrants in the area collect firewood to sell, with an average of 40 sacks per month (Ranaivoson et al. 2018).

In Marovoay (Boeny region), there has also been significant and accelerating loss of forest in recent decades, and issues with some migrants from the south burning forest at night, and the lack of resources and capacity on the part of the authorities to prevent it. The area is faced with other environmental and infrastructure issues too, some of which are linked to climate change impacts. Degradation of irrigation systems, salinization of soils, and reduced fresh water availability (in relation to precipitation), can create conflicts over water usage and access and drive people to clear more of the forest for farming as agricultural production on already open lands shrinks (Ranaivoson et al. 2018). While these issues are not all the result of migration to the area, they can increase the chances of conflict within a growing population, and exacerbate the issue of deforestation.

Near Andranovory in the Atsimo-Andrefana region, deforestation at a rate of 25 km sq per year has threatened the survival of a section of forest, exactly in the zone where a settlement of Antandroy migrants was established (Harioly Nirina 2018).

Part 4: Solutions

In their work, Ranaivoson et al. propose many potential solutions and next steps in addressing issues which arise with internal migration and displacement in Madagascar. One proposal they have is the establishment of pilot programs in both the origin communities of migrants and destination locations. In the origin communities, the authors propose an emphasis on development assistance and resources so that those who do not actually want to migrate but have been forced to in order to get by would instead have opportunities to meet their needs at home and would not need to relocate. This could include helping people establish more prosperous and sustainable livelihoods (examples given being diversified crop production, valorization of forest resources like essential oils and fodder, and sustainable goat rearing) and investment in social services. Earlier in the paper, the authors discuss the neglect of southern regions by the central government and a lack of consideration for people's needs and social systems there, which is likely a factor in the absence of sufficient development efforts currently (Ranaivoson et al. 2018).

In destination communities, impactful programs could focus on relieving population pressures on natural resource and human infrastructure and services supplies, by expanding water, health care and education access, and promoting and educating about sustainable

livelihoods. The stabilization of environmental conditions is also critical to long term welfare for the population (Ranaivoson et al. 2018).

The authors also propose several higher level, national scale initiatives and reforms in relation to migration, climate change and the environment. These include an ongoing observational group monitoring migratory fluxes in the country and positive and negative impacts, the decentralization of administrative systems around land ownership and bringing back certain property rights based on use and occupation, the updating of the legal framework around migration, and improving enforcement of environmental laws and regulation. They also propose local structured dialogues around migration and the environment.

Discussion:

As mentioned in the introduction, a challenge in researching for and constructing this paper was that the impacts, drivers, and nature of migration in Madagascar are interwoven with multiple complicated systems (economic, social, environmental) and establishing direct causal relationships between global climate change and specific human migrations (for the purpose of then deducing the specific impact of those migrations on people and the environment) is not always clear cut. The impacts of global climate change on the island, specifically those related to drought and changes in precipitation and heat patterns and levels, compound and interact with social and economic conditions to influence the necessity or incentive for people to relocate to a new region. While financial and employment considerations may be one of the top direct drivers of migration right now, considering the forecast of increasing rates and impacts of climate

change direct inhospitable environmental conditions will likely grow as a driver of human movements in the coming decades.

While there can be significant and concerning negative environmental impacts of people relocating to and settling in new regions, especially in the area of deforestation, there is also potential for economic development for both migrant and non-migrant communities in those areas. It may be easy to vilify migration in terms of the strain it can place on natural resources and ecosystems, but it is important to also consider the positive impacts on some migrants who are better able to meet their own and their families' needs in a new location, and can even send resources back home to help their communities of origin.

Ranaivoson et al. propose multiple promising approaches to addressing some of the pressing issues associated with migration in Madagascar, however there is not significant discussion of where funding for these initiatives would come from. Funding a permanent study group on the connection between climate change, internal migration, and environmental and human impact, increasing enforcement of environmental laws and regulations, and investing in development and education in origin and destination communities would require significant economic resources, and expecting this level of financial support from the public budget of a developing country is not particularly practical or just. While NGOs (national and international) are already working in some of these areas (particularly around development and education) to fully address the problems more investment will likely be needed.

A major part of international discussions around climate change has been the need for wealthier, “developed” countries to provide financial support for sustainable economic

development and climate adaptation and resilience in developing and more vulnerable nations. Given that migration in Madagascar is and will increasingly be linked to climate adaptation, it seems logical that a source of funding for some of the projects to address its impacts could be climate finance contributions from other countries, potentially through established international multilateral collaboratives such as the Green Climate Fund and the Global Environmental Facility.

The topic of the interconnections between climate change, migration, and environmental and social impacts in Madagascar is expansive and complex, and this paper is only able to touch on a small portion of the issues involved. Further related research around the following topics would be valuable to better understanding the problems and possibilities present: studying migration in Madagascar specifically as a result of sudden natural disasters such as cyclones and flooding and the outcomes and impacts of these displacements, investigating further solutions to issues that arise as a result of migration, and exploring possibilities for funding of solutions and projects to address these issues. Additional research and understanding of the impacts of climate change in Madagascar on a larger scale is also needed.

Conclusion:

Migration in Madagascar is a form of adaptation to environmental, economic, and social conditions and changes, and is influenced and exacerbated by climate change. Internal displacement of people can help individuals meet their needs and support economic development, but can also have serious environmental consequences and create tensions due to limited natural resources and social services. Creating an environmentally sustainable and just

path forward will likely require significant investment and educational and development initiatives, either on the part of the government, NGOs, international organizations or foreign nations, or some combination of all such groups.

Works Cited:

Harioly Nirina Marie Osé. “Les Enjeux De La Migration « liée à La sécheresse » Dans La Région ANDROY, Sud De MADAGASCAR.” *l’Université de Liège*, 2018.

Ranaivoson, S., et al. “DEFIS, ENJEUX ET POLITIQUES : MIGRATION, ENVIRONNEMENT ET CHANGEMENTS CLIMATIQUES A MADAGASCAR.” *DEFIS, ENJEUX ET POLITIQUES : MIGRATION, ENVIRONNEMENT ET CHANGEMENTS CLIMATIQUES A MADAGASCAR*, Organisation Internationale Pour Les Migrations (OIM), 2018.

United States, USAID. MADAGASCAR—LAND TENURE AND PROPERTY RIGHTS PROFILE, Land Links, 2019.

Zinner, Dietmar, et al. “Analysis of Deforestation Patterns in the Central Menabe, Madagascar, between 1973 and 2010.” *Regional Environmental Change*, vol. 14, no. 1, 2013, pp. 157–166., doi:10.1007/s10113-013-0475-x.

