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Managing the COVID-19 Pandemic in Madagascar: An Analysis of Challenges and Mitigation Measures

Francky M. Rakotoarimanga

College of Arts and Science, Andrews University, Berrien Springs, USA
Email: francki.robinson@gmail.com

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Abstract

COVID-19 contests the strength of institutional risk mitigation actions. 2020 is described as the year of the pandemic that challenged worldwide resilience and mitigation assessment towards the expansion of Coronavirus. Disaster risk management and reduction play a pivotal significance role in shaping a country's development from the micro to the macro level. Its objectives are to reduce hazards, limit exposures, and promote efficient and effective disaster recovery. The purpose of this paper is to assess and analyze the how and why of Madagascar's management of the COVID-19 pandemic within the concept of disaster risk reduction. Madagascar, the fourth largest island in the world, is located on the eastern coast of Africa between the Mozambique Canal on the west and the Indian Ocean on the east, geographically on the coordinates 20˚ South and 47˚ East. COVID-19 caused 1425 deaths and 68,289 individuals, as the World Health Organization reported in 2023 (WHO, 2023a), intensified the country's poverty adversity and amplified the socio-economic hardships within the country. A chosen methodology will address diverse and comprehensive approaches concerning Madagascar's management of the COVID-19 pandemic: literature review, political and economic analysis, qualitative assessment, quantitative analysis, and comparative analysis. In-depth, we refer our approach to international standard disaster risk reduction frameworks, the Health Emergency and Disaster Risk Management Frameworks. Madagascar's institutional risk mitigation had been influenced by a multitude of factors: the political incentive of the government regarding epidemiological management, resource deployment, and the country's cultural environment. Using Geert Hofstede's cultural dimension approach, we will demonstrate how traditional beliefs, civilizations, and social norms hinder the execution of preventive measures. As a result, we have learned how Madagascar's experience in crisis management addressed complexities. Insights

garnered from our analysis can be used as best practices for future disaster management schemes in the grip of difficulties. As a solution, we recommend the adoption of the Minimum Economic Recovery Standards framework with the synergetic evolution of institutional mechanisms and grassroots community development.

Keywords

COVID-19, Disaster Risk Reduction, Geert Hofstede, Political Analysis, Madagascar

1. Introduction

Disaster is an abrupt situation triggered by natural or artificial hazards causing negative impacts resulting in significant damage and loss of livelihood, assets, and properties. Disaster affects the well-functioning of society, devastating people's lives with death, injuries, mental and psychological trauma. "Social Debonding" (Gordon, 2004) expresses the challenges society faces in calamity related to the intensity, pervasiveness, and duration of the disaster. Uncalculated loss first in physical destruction as buildings, infrastructures, and facilities. Second, psychological, and emotional trauma leads people to anxiety, depression, and post-traumatic stress disorder (PTSD), causing long-term chronic issues damaging social functioning. From an economic standpoint, disaster weakens economic production and disrupts industries, leading to inflation and unemployment. For instance, the neoclassic theory described disaster as a market failure (unstable demand and supply function), unexpected inflation, rate depreciation, and diminishing return of capital (Lazzaroni & van Bergeijk, 2014). In the realm of politics, disaster challenges government incentives to prioritize public safety and resource management through political stability and legitimacy outlooks. Political trust and attitude are defined as the government's performance and capacity to implement a consistent political regime amid the calamity (Hetherington & Husser, 2012). Moreover, disaster strains government coordination and collaboration in relationship management, disagreements over responsibilities, and decision-making priorities at different levels, from local to national. In environmental areas, disaster deteriorates the climate and damages the natural ecosystem, leading to other disasters and worsening biodiversity and human life's ecological system. In 2020, the Centre of Research on the Epidemiology of Disaster (CRED) stipulated that worldwide disaster costs were approximately USD 210 billion (CRED, 2021). Due to its devastating turmoil, managing disasters has become a priority. Various approaches and frameworks were built for risk assessment, disaster risk reduction, and sustainable recovery plans. In 1990, the United Nations declared the International Decade for Natural Disaster Reduction (IDNDR) as an actionable framework to reduce risk at any level, limit hazards, and decrease community vulnerability and exposure to additional pe-

rils. Effectively mitigating and reducing disaster risk is vital for a country's development. Inadequate disaster risk reduction priorities exacerbate vulnerabilities to a multitude of threats. Emphasizing how strong disaster risk management and reduction is to ensure the long-term sustainable development of a country. Our paper focuses on disaster risk reduction management within the context of COVID-19 and how Madagascar manages the pandemic and its challenges.

2. Disaster Risk Reduction

Disaster Risk Reduction (DRR) is an inclusive system described as a structured framework characterized by collective principles demanding the ultimate participation of various stakeholders across multiple levels to eradicate, prevent, and reduce risks associated with disasters. Initially, DRR requires implementing policies from theoretical concepts into actionable outcomes. Tragedy is defined by the United Nations Office for Disaster Risk Reduction as "a serious disruption of a community or a society functioning, causing widespread human, material, economic and environmental losses which exceed the ability of the affected community or society to cope using its resources". DRR's objectives are to reduce the impacts of disasters, limit the severity of exposure, and strengthen resilience for a quick recovery. How does the framework operate? Disaster Risk Reduction entails three different processes (see Figure 1).

The first process is disaster risk recognition, where actors analyze and assess hazards' severity and impact. What are the likely possible natural and artificial hazards that will impact the area? What factors contribute to the vulnerability of the concerned site?

The second process is risk assessment, where strategies and policies are proposed from various angles to prevent the likelihood of hazards occurring.

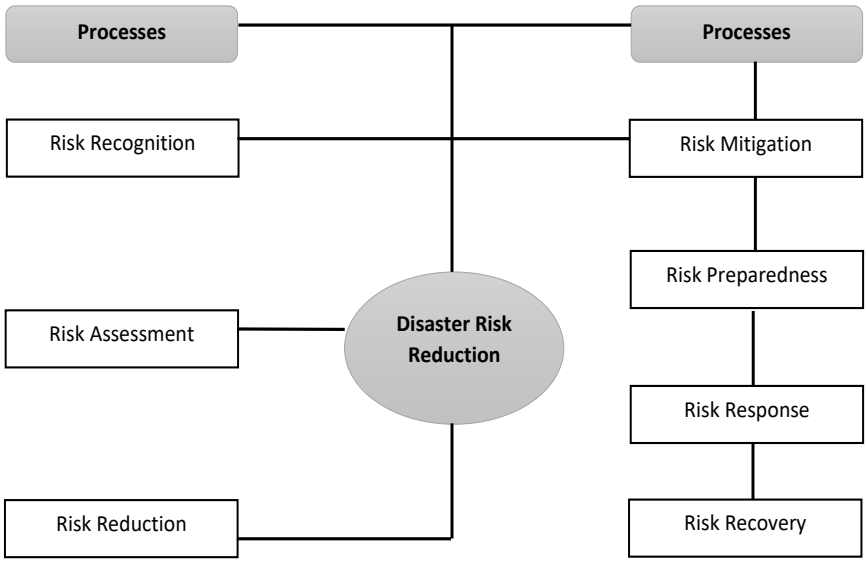

Figure 1. Disaster risk reduction process and phase.

The third process is disaster risk reduction, engaging resources and stakeholders to implement risk mitigation strategies, apply preventive measures, and respond to the disaster.

To successfully achieve disaster risk reduction, there are four distinctive phases: risk mitigation, risk preparedness, risk response, and recovery (see **Figure 1**).

Risk mitigation, the first phase, is the cornerstone of disaster risk management. Aiming to reduce hazards, limit exposures, and minimize their negative impacts. The government is the first responsible for managing risks and reducing their effects. Within its ability to design new policies, allocate resources to reduce the impacts, and implement rules for its execution. The government plays a vital role in the mitigation phase.

Risk preparedness is the second phase, briefly described as planning, organizing, and implementing different measures and standards to reduce risk impacts. Preparedness engages other actors to be ready before disaster strikes and helps stakeholders eliminate the need for last-minute actions.

Risk response, the third phase involves strategy implementation to reduce hazards, alleviate suffering, and support affected communities in any means, such as medical assistance, food and water distribution, providing a safe shelter, managing supply and chain management amid the disaster, and as well preparing for the recovery phases.

Risk recovery is the last phase within the objective to bring back everyday life, restore infrastructure, assist the community in regaining daily routine, and provide support for long-term and sustainable development.

3. Health Emergency and Disaster Risk Management Framework

Our analysis focuses only on the mitigation phases of disaster risk reduction management related to COVID-19 in Madagascar. As a reference, we use the Health Emergency and Disaster Risk Management (Health EDRM) framework to explore and analyze "How did Madagascar manage the pandemic and why?"

To explain the why? We chose the Hofstede culture dimension analysis. The Hofstede cultural dimension is a versatile and complete approach. It covers one country's cultural values, norms, behavior, and belonging.

The Health Emergency and Disaster Risk Management Framework (Health EDRM) was created during the Geneva Health Disaster Management Summit in 2018 by the World Health Organization (WHO) and Member States across the globe. The Health EDRM framework was derived from the Sendai Framework (see **Table 1**), founded in 2015 during the Third United Nations Conference on Disaster Risk Reduction for 2015-2030. Sendai framework solicits the full participation and engagement of different stakeholders to apply disaster risk management "of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological, health and biological hazards and risks" (United Nations General Assembly, 2015).

Table 1. Comparison of the frameworks.

Item	Health EDRM	Sendai Framework
Year of creation	2018	2015
Origin	Heath Disaster Management Summit (Geneva).	Third United Nations Conference on Disaster Risk Reduction (Japan).
Owner	World Health Organization, Member States, International experts, and Organizations.	United Nations, Member States.
Specificity	Health-related risk management and reduction. (Derived from global health principles, best practices, and institutional health risk management strategies).	Covers all sectors, including health (Derived from Hyogo framework monitoring and implementation, global principles and regulations in disaster risk reduction).
Scope	Considering health-related conditions in disaster risk reduction and emergency response.	Considering disaster risk reduction in a broader range, including environmental, technological, health, and biological hazards and risks.
Focus	Disaster risk reduction is related to public health management and protection amid disasters and emergencies such as public health crises, disease outbreaks, and natural diseases.	Disaster risk reduction, which englobes on alleviating loss of life (mortality), economic crisis, and any impact of the disasters on the community.
Main targeted users	National government, public health authorities, healthcare system.	Federal government, local authorities, civil society organizations.
Disaster risk reduction phases	Risk mitigation, risk preparedness, risk response, risk recovery.	Risk mitigation, risk preparedness, risk response, risk recovery.

On the other hand, The Health EDRM framework (see Table 1) aimed to improve public health conditions, strengthen institutional health systems towards disasters, and reduce communities' fragility and vulnerabilities. Versatile in its practicability, the Health EDRM is a comprehensive approach that aims to manage disaster through multiple purposes and factors, considering different dimensions, including policies, structures, institutional development, and stakeholder engagement. Thorough in its capacity and derived from the other best practices applications, the framework focuses on providing Universal Health Coverage before, amid, and after disaster. The Health EDRM entails disaster risk reduction processes: mitigation, preparedness, response, and recovery. An inclusive framework suited for all countries without any exceptions and as required for its multidisciplinary interactions with different stakeholders and agencies (civil society, general population, public, private, and international NGOs). "All countries require multidisciplinary and multisectoral policies, strategies, and related programs to reduce health risks of emergencies and disasters and their associated consequences" (WHO, 2019).

4. COVID-19 Mitigation Processes According to Disaster Risk Reduction Framework

Recently, the SARS-CoV-2 Virus—known as COVID-19, WHO declared on March 11, 2020, has devastated the entire world rapidly. Many aspects have been

stricken, such as the economic, political, and incredibly social. The World Health Organization (WHO, 2023a), as of July 18, 2023, declared that over 4.1 million deaths worldwide have been confirmed caused by COVID-19. The International Monetary Fund (IMF, 2021) outlined in the Economic Outlook report an estimated economic loss of $22 trillion in global output over 2020-2025. COVID-19 significantly impacts almost every aspect of human life; it leads to poverty and alters sustainable development.

Regarding health concerns, Health EDRM emphasizes the importance of institutional risk preparation as the foundation of disaster risk mitigation. In the institutional risk preparation process, first, the government proceeds to the disaster policy appraisal and evaluates whether the existing policies are adequate to mitigate the disaster. Following this appraisal, the government proceeds to resource management by coordinating assets to meet emergency responses efficiently and effectively. Additionally, the government embarked on disaster risk implementation and monitoring to implement disaster risk reduction and adapt changes accordingly. Health EDRM's objective in disaster reduction focuses on reducing hazards and vulnerabilities, decreasing mortality, preventing the spread of the virus, and strengthening the healthcare system. On January 16 and January 20, 2020, Japan and South Korea were confirmed to have the first coronavirus. The two countries took institutional preparation from different angles: "Korean government has taken a proactive and aggressive testing, tracing and treatment approach, while the Japanese government has relied on cautious and self-restrained-based approach." (Jae Moon et al., 2021). South Korea's mitigation approach focuses on reinforcing institutional risk preparation. "Korean citizens were largely satisfied with the government's actions against the virus. A national survey indicated that a majority (74.4%) 3 of citizens were satisfied with the transparent communication and agile response to the problem" (Jae Moon et al., 2021).

Policy appraisal is very crucial in the institutional mitigation context. During the evaluation process, national policies and legislations are assessed if they cover the spectrum of the tragedies in terms of scope, geographical aspect, and stakeholder engagement, "the national policy or strategy on Health EDRM outlines the roles and responsibilities of all public, private and civil society stakeholders, across components of all-hazards" (WHO, 2019). If so, the government is responsible for implementing the existing policies following its national health disaster management and the related budget allocated, "They should be included in national health policies, strategies, and plans, be aligned with national planning and budget cycles, and be mainstreamed in the broad range of national and subnational health programs" (WHO, 2019). If the national health policy is weak, then the second step must be processed: policy formulation by designing a new policy proactively. Health EDRM theory on policy formulation requires a holistic approach by considering all possible scenarios, "People with life-threatening and chronic disease, due to their particular needs, should be included in the design of policies and plans to manage their risks before, during

and after disasters" (United Nations General Assembly, 2015).

Resources management focuses on resource availability, accessibility, and coverage. Health EDRM implies how resources will address the health-related disaster concerning immediate emergency and long-term health needs. Government identifies the adequate resources to respond to the disaster, "national action plans for health security, national disaster risk reduction plans, plans for preparedness, response and recovery and incident management systems." (WHO, 2019: p. 9). Health EDRM accentuates four distinctive resources: financial, human, logistics, and supply chain (medical supplies, healthcare facilities) and information resources. Health EDRM requires resource management based on risk-based, not event-based; resource allocation is carried out following the needs assessment and risk prioritization related to the gravity and severity of the impacts. "To allocate the necessary resources, including finance and logistics, as appropriate at all levels of administration for the development and the implementation of disaster risk reduction strategies, policies, plans, laws and regulations in all relevant sectors" (United Nations General Assembly, 2015).

Disaster risk implementation requires the application of policies and guidelines to mitigate the disaster. Monitoring disaster risk implementation includes reviewing the catastrophe regularly and updating the disaster risk guidelines accordingly when changes occur (monitoring public health surveillance). As Health EDRM operates in a risk-based theory, community value and participation in risk reduction become increasingly valuable (see **Table 2**). It also helps improve risk communication: "The right information gets to the right people at the right time" (WHO, 2019). However, it also prepares authorities for adjustment and reassessment (see **Figure 2**). "To systematically evaluate, record, share and publicly account for disaster losses and understand the economic, social, health, education, environmental and cultural heritage impacts, as appropriate, in the context of event-specific hazard-exposure and vulnerability information" (United Nations General Assembly, 2015).

Table 2. Health EDRM summary of change in approaching disaster.

From	To
Event-based	Risk-based
Reactive	Proactive
Single-Hazard	All-hazard
Hazard-focus	Vulnerability and capacity focus
Single agency	Whole of society
Separate responsibility	Shared responsibility for health systems
Response-focus	Risk management
Planning for Communities	Planning with communities

Source: Health EDRM framework, Summary of change in approach through Health EDRM (WHO, 2019).

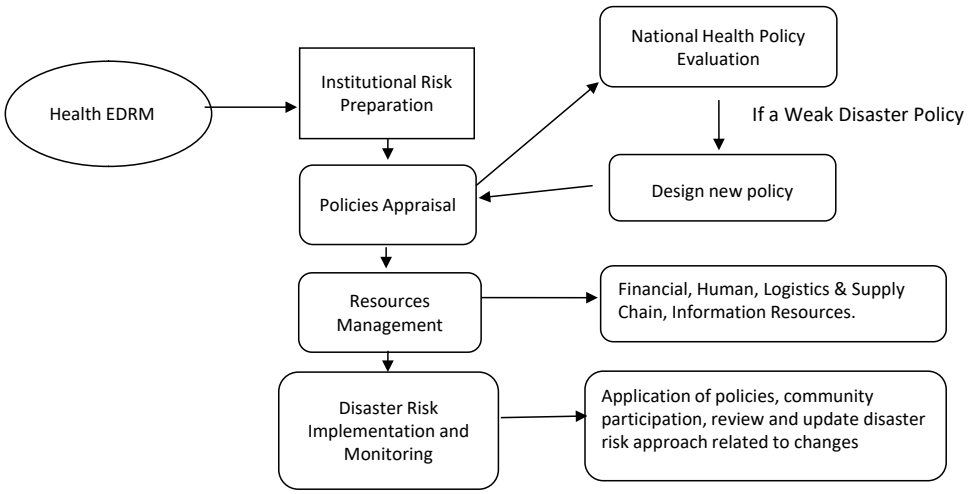

Figure 2. Health EDRM-Risk mitigation approach.

Related to its chronological history, COVID-19, known as the novel coronavirus SARS-COV-2, first originated in December 2019 in Wuhan, China. It was described as a pneumonia case with an identified cause and spread through respiratory contact talk, sneezing, and coughs (WHO, 2020). In January 2020, the Chinese government recognized the virus and informed the WHO about its negative impacts. In February 2020, the virus spread outside China; WHO mandated the outbreak as a Public Health Emergency of International Concern (PHEIC). In March 2020, WHO declared the Coronavirus a pandemic, and different measures were mandated to be implemented for health security. WHO applied the Health EDRM framework risk mitigation (see **Table 2**) approach by sharing knowledge data and information accessibility. For instance, by taking the case of Indonesia and South Korea, we can briefly assess how Health EDRM has been evaluated and implied in mitigating the spread of COVID-19.

In the case of Indonesia, risk governance is strengthened using different policies: "The government issued many policies, which became a public concern in Indonesia." Buick et al. emphasize that policy formulation is the fruit of combining technical knowledge following a complex political approach and social reality (Buick et al., 2016). For example, the Indonesian government designed and implemented the Public Health Emergency and Government Regulation No. 21 of 2020 (Large Scale Social Restrictions, Presidential Decree No. 11 of 2020). During the mitigation process, the Indonesian government implemented social and physical distancing regulations, lockdown approaches, and a social safety net (Roziqin, Mas'udi, & Sihidi, 2021). Coordinating and working across sectors and relevant stakeholders "to promote mutual learning and exchange of good practices and information." (United Nations General Assembly, 2015: p. 18). In Korea, while President Moon showed his strong will in fighting the crisis, (…), the presidential office often works closely with the related agencies in deciding prominent policy positions and policy instruments, (…), the Korean professional bureaucracy has played a critical and autonomous role in handling and im-

plementing various policies." (Jae Moon et al., 2021: p. 656).

5. Madagascar COVID-19 Risk Mitigation Management

How did Madagascar mitigate COVID-19 compared to the Health EDRM framework? Why?

There is much to say concerning Madagascar, but we will briefly describe the country in its geographical, economic, political, and social aspects. Madagascar is the fourth largest island in the world, located on the eastern coast of Africa, between the Mozambique Canal on the west and the Indian Ocean on the east, with 28.983 inhabitants. Madagascar is rich in biodiversity, fauna, and flora; Madagascar has different dialects and diverse cultures due to different origins during the exploration era. The political regime was first a monarchy regime from 1650 to 1896, then colonized by France in 1897 and became independent in 1960 with a democratic political power. Economically speaking, Madagascar's GDP is growing at 4.8%, according to the IMF, and was worth 13.72 billion USD in 2020, with a projected consumer price change of 6.4% (The Republic of Madagascar and the IMF, n.d.).

Madagascar's disaster risk management policies were ineffective (see **Table 3**). In 2015, the United Nations Office for Disaster Risk Reduction (UNISDR) criticized and recommended Madagascar's disaster risk management in the Review of Madagascar on Public Investment Planning and Financing Strategy for Disaster Risk Reduction as inadequate, insufficient, and feeble, exposing the country to vulnerabilities and potential catastrophes. The UNISDR highlighted in their report that "no definite and systemic DRR investment policy exists in Madagascar (…), DRM investment was a negative balance" (UNISDR, 2015).

Table 3. Madagascar—risk mitigation per health EDRM.

COVID-19—Risk Mitigation Analysis			
Risk Mitigation	Health EDRM	Madagascar	Comment
Policy Management	National Health Policy Evaluation Budget consideration Design New Policy	Event-based due to the absence of risk assessment, warning, and identification. (Insufficient policy assessment)	Reactive response and event-based approach
Resources Coordination and Allocation	Resource inventory, Resource Assessment Stockpiling (prevent expiration) Financial Human Logistics & Supply Chain Information Resources	Resource allocation is for risk recovery, not for risk mitigation. Direct Investment on COVID Organics —Amount USD 250,000 just for test. Although adjournment in Personal Protective Equipment distribution	Poor resource management due to insufficient understanding of the disaster and its impacts.
Disaster Risk Implementation and Monitoring	Application of policies Community Participation Review and Update the disaster risk management	Madagascar has implemented new policies: lockdown, mask mandate, and quarantine.	Lack of risk governance and poor disaster monitoring approach.

In the Policy appraisal phase, Health EDRM must evaluate if the existing national policies englobe a health-disaster reduction framework. Policy accountability plays an important role in mitigating the severity of the disaster and reducing its catastrophic impact on people's lives and assets. Madagascar lacks specific details concerning health-related national disaster policies; the National Health Policy framework known as the Health Development Sector Framework for 2015-2019 is insufficient to protect public health security. Insufficient to cover the evolution of health threats and not effectively enough to cover the spectrum of new challenges. The National Health Policy is weak in adapting its resources to unforeseen events and lacks the ability to encompass flexibility in its coverage (geographical, institutional, and financial). Madagascar had several health disasters like bubonic plague, cholera, Ebola, dengue fever, etc.; these pandemics were treated as an event-based approach. In other words, the government formulates new policies and adopts them amid the disaster, not before it. Coronavirus existence was already known on December 18, 2019; Madagascar held a regular council of ministers' session on December 18, 2019 (MCM, 2013); however, no remarks or information were shared addressing the importance of institutional risk mitigation. In addition, the government did not evaluate the efficacy of the existing policies related to health disasters and their consequences. An absence of risk assessment was recognized in the institution's disaster management as the government underestimated the virus's impacts and severity; hence, maintaining public safety was not prioritized. There is a lack of communication inside the government and outside within the stakeholders, as well as insufficient policy performance metrics to assess and evaluate the existing policies. Communication is an efficient tool during a disaster to raise awareness, inform about the risk, and increase risk preparation among different actors (Couldry & Hepp, 2018). Madagascar institutions did not establish a precise communication protocol to address the disaster at the early stage, internally and externally, with all levels of authority, from national to local. Sendai stressed the importance of an early warning system: "Adopt a risk communication policy that supports, as appropriate, early warning systems" (United Nations General Assembly, 2015). Weak risk communication increases first information asymmetry due to different levels of bureaucracy and the interest of each political member (Comfort, 2007). Second, weak risk communication puts the public into an asynchronous dissemination of information stage by receiving different information at different times and stages and engaging actors to react accordingly to their way of understanding (Perry, 2018). Besides, Health EDRM stipulates that communication and information sharing are top priorities in institutional risk preparation. "Real-time access and exchange of information, advice, and opinions are vital so that everyone at risk can make informed decisions and take action to prevent, mitigate, and respond to potential emergencies" (WHO, 2019). Information and communication protocol needs to be started at the government level, where parliaments and heads of government vote policies, implement rules, and monitor their application during council sessions. From December 18,

2019, to January 29, 2020, described as the first discovery of COVID-19, the Madagascar government had 4 Councils. December 8, 2019 was mainly concerned with administrative and rural development projects. On January 8, 2020, the government's center of focus was on property courts and land titles. On January 15, 2020, all effort was related to the presidential development project "Plan for Growth and Transformation." On January 29, 2020, the government introduced the existence of COVID-19 during the ministers' councils, yet no measures nor policies were proposed to prepare for the impact. On the contrary, the WHO followed Health EDRM and Sendai's framework for addressing the communication protocol and sharing information to develop a risk management plan and institutional risk preparation. WHO's best practices to mitigate COVID-19 Timeline were as such: on Dec 18, 2019, the Wuhan Municipal Health Commission discovered Coronavirus; on January 1, 2020, WHO implemented and prepared the Incident Management Support Team in three different levels of organization: headquarters, regional and country level? On January 4, 2020, WHO informed and communicated on social media about the existence of COVID-19. On January 5, 2020, WHO published news on the virus; on January 10, 2020, WHO shared technical guidance and advice on detecting, testing, and managing potential cases. On January 12, 2020, China publicly shared the genetic sequence of COVID-19. On January 13, 2020, COVID-19 was the first case in Thailand; on January 14, 2020, they were informed to limit exposure and took early precautions to limit transmission. On January 20-21-22-23. In 2020, WHO provided information on how to protect public health emergencies of international concern. On January 28, 2020, WHO learned more about China's mitigation and response and shared the information with the international team and government. There is a contrast in institutional risk preparation between the two institutions (WHO and Madagascar) and how they apply Sendai's framework and the Health EDRM in risk mitigation.

Why were Madagascar's institutional risk preparation and risk management policies weak?

They are referring to Hofstede's power distance cultural dimension analysis. Hofstede defined power distance as how society accepts that power in institutions is distributed unequally (Hofstede, 2010). Madagascar presents a considerable power distance, a massive inequality in society's status, and an extensive social gap in the community. Ortwin Renn, in Risk Governance: From Knowledge to Regulatory Action, states that political leaders abstain from sharing risk mitigation with stakeholders to avoid an "egalitarian society" (Renn, 2020). Consequently, authoritative policies are considered and felt to be the proper perspective on addressing hazards: "Under authoritarian rule, (…), ordinary citizens especially predicate successful policies and good governance on their political participation" (Renn, 2020). Large power distance culture faces challenges in decision-making, policy evaluation, policy formulation, policy adoption, and legitimacy. Next, there is a significant gap between the public and the government; policies for disaster reduction are hidden and obscured by the influential power

and participation of certain groups. Since power is centralized among a dominant and powerful group of people, Madagascar's risk mitigation is mainly based on a reactive and risk-based approach. Immediate emergency response comes at a higher cost due to a shortage of resources, insufficient time to mitigate, and inaccessibility of affected areas due to poor infrastructure. As a result, to mitigate the disaster, the government used traditional risk mitigation approaches without other government members and selective stakeholders. "Linking the social and cultural context with risk evaluation, the framework reflects the important role of stakeholder involvement and the need for resolving risk-risk trade-offs." (Renn, 2020). As society accepts unequal power distribution, stakeholders' input is not considered, and public participation in risk management decision-making processes is challenging and complex. Madagascar's political structure is composed of three distinctive branches: an executive party led by the President and Prime Minister as the head of the government, a judiciary party comprising the supreme court and high constitutional, and last, the legislative party consisting of the senate and national assembly. Policies adoption, decision, and application are ensured at the level of three authoritative bodies before implementing policies for the betterment of the country. Since Madagascar presents a large power distance, political leaders and authorities hold significant power and influence over the masses. Political focuses were centered on resources management and distribution, administrative management, electricity, famine, insecurities, and agriculture development issues. Political interests' priorities were more valuable than public safety, violating Article 19 of the Madagascar constitution, "right to health care," and Article 43 stipulating the "necessity of protection of human rights in any means and resilience measures." Communities became more vulnerable as COVID-19 aggravated power distance inequalities. In other words, by investing in an institutional policies framework, risk management should be perceived in the public finance law. Following the global approval and legitimacy of the Sendai Framework in 2015, UNISDR (United Nations Office for Disaster Risk Reduction) collaborated with Madagascar's political leaders to build capacity efforts to increase public investment in disaster risk reduction (UNISDR, 2015). As a result, Madagascar's public investment in disaster risk management in 2015 was at a level of 5.3%, which increased to 7.1% in 2016, decreased to 4.9% in 2017, and declined at the level of 2.4% in 2018 (Finance Law 2015, 2016, 2017, 2018). The decline of the percentage from 7.1% to 2.4% shows the lack of interest and disaster risk mitigation was not the priority. In his anthropological research on hazards and disasters, Oliver says that "disaster transforms political consciousness, shapes individual actions, and strengthens or dissolves institutional power arrangements" (Oliver-Smith, 1996). Social inequality and distance become more legitimate (power distance, Hofstede), allowing the political leader to be seen engaging in institutional arrangements and risk management priorities, transforming political consciousness into an opportunity for new agendas and developing new power relations (Oliver-Smith, 1996).

The second phase concerns resource management. Resource management helps the government understand the disaster's negative impacts and outcomes. Without knowing the severity and the effects of the tragedies, the government will not be able to have adequate resources to prepare for the disaster and recover. Health EDRM stresses that "no one is left behind" (WHO, 2019), achieved through resource assessment, resource planning, and resource allocation. Madagascar understands the coronavirus and its risk but differently, as the country has been exposed to many disasters in the past, such as floods, drought, famine, and cyclones, and is still in complex economic turmoil; GDP is 4.8% growth, according to the IMF, and was worth 13.72 billion USD in 2020 and a projected consumer price change of 6.4% (The Republic of Madagascar and the IMF, n.d.). Moreover, even if the United Nations Office for Disaster Risk Reduction suggested considering disaster resource planning in the national budget, "no definite and systemic DRR investment policy exists in Madagascar (…), DRM investment was a negative balance" (UNISDR, 2015), Madagascar government failed to prioritize to implement a safe disaster resource management including medical supplies and equipment preparation, engaging healthcare facilities preparedness, pharmaceutical and medication availability, human resources and information sharing to the public in terms of risk mitigation awareness. Most of Madagascar's disaster risk management reduction policies were centered on the Presidential program "Plan for Growth and Transformation." Madagascar did not conduct a risk assessment in all dimensions of vulnerability, did not intensify institutional capacity building, or comprehend risk exposures and future impacts on people and assets. On May 27, 2020 (risk preparation delay of 162 days from December 18, 2019), during the council, the Madagascar government assigned lockdown and quarantine policies and already jumped into the recovery process, including scientific research on vaccination and remedies. In theory, the Madagascar government adopted the suppression policy to reduce the virus very early, limit transmission to a shallow level, and allocate resources to recovery without prioritizing resource inventory and preparation during the disaster. The policy management (suppression approach) was centered on an authoritative system; first, all decisions taken were centered from the point of the President. Second, all measures and mitigation measures had to align with the presidential program "Plan for Growth and Transformation" as a method of clientelism and to crack down on political opposition. Third, skipping the risk policies prioritization and imposing, leading the decision on remedies production if not scientifically approved and tested its efficacy.

Why was Madagascar resource management challenging during COVID-19?

Madagascar's resource management challenge can be explained through its high uncertainty avoidance.

According to Hofstede, uncertainty avoidance is the extent to which a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations by providing more excellent career stability, establishing more formal

rules, and not tolerating deviant ideas and behaviors (Hofstede, 2010). "People in such cultures look for structure in their organizations, institutions, and relationships." (Hofstede, 2010). The government policies on the suppression approach reflected how the government took control in decision-making and rules implementation, and on the other side, citizens followed the rules and guidelines. However, the United Nations Development Programme reported in 2018 that Madagascar's Human Development Index was very low, with a value of 0.5 (UNDP, 2018). Facing a stressful life and as societies prefer structure and rules to minimize uncertainty and ambiguity, the government misunderstands the importance of risk mitigation and already jumped into recovery phases to demonstrate a solid and decisive response to the pandemic. With its authoritarian approach, the government can mobilize resources from various sources to meet emergency needs. The government authorized a direct investment in the production of COVID organics based on Artemisia as a remedy (Madagascar Council of Ministers June 24, 2020, parliaments voted 250,000 USD) categorized as the "elite rejuvenation" policies in a time of crisis (Boin, Hart, & McConnell, 2009), "political actors scan their horizons for 'problems' to promote their preferred solutions" (Kingdon, 2003). Besides resource mobilization, an adjournment in distributing personal protective equipment due to bureaucratic processes and lack of coordination at different government levels makes COVID-19 management difficult. In addition, infrastructures were ill-equipped to deal with the spread of the virus. They are, moreover, challenging in strengthening risk governance, causing a lack of resources, personnel, and supplies. Many people lacked access to essential healthcare services, especially in urban areas and overcrowded vulnerable communities with limited access to healthcare services and emergency measures accompanied by poor infrastructure, no road access, weak public security, and no electricity. In addition, Madagascar's resource management mitigation was feeble due to its Masculinity dimension. Hofstede presents masculinity through the extent to which a society values assertiveness and competition instead of quality of life (Hofstede, 2010). Continued with considering the male gender as the head of the organization. In Malagasy culture, the male takes more responsibility and represent the majority of the decision taken either in the social field (home, church, community), in an economic matter, or the political area. Traditionally, gender roles in Madagascar assigned men to resource management (gender division of labor), decision-making (resistance to change), power, and authority (male dominance in decision-making). On June 27, 2020, the president of the country publicly announced during his national meeting that the central focus is to succeed and on international competition to use the COVID-Organic to mitigate the spread of the virus. The President declared, "The imperatives are to save the Malagasy population, the popularization of the consumption of COVID-Organics among all Malagasy people, participate in the implementation of the strategic measures applied by the State to fight against the coronavirus" (Présidence de la République de Madagascar, n.d.).

The third process is about risk implementation and disaster monitoring. The

objective is to implement safe risk governance with a clear vision and approach to mitigate the disaster. Health EDRM risk implementation focuses on translating action policies and guidelines into action related to deploying resources "to address current and emerging risks to public health and need for effective utilization and management of resources" (WHO, 2019). Next, mandate risk implementation according to different sectors and levels of authority so that nobody is left behind, conduct community awareness, improve risk communication, and implement an early warning protocol system to protect lives. Concerning disaster monitoring, it helps the government to assess the ongoing hazard monitoring and assess both physical damage and its impact on the population. As a result, it will help the government with disaster re-assessment and regulatory improvement by considering community inputs. Madagascar succeeded halfway through the disaster risk implementation due to weak risk governance, as it took several months to implement the rules, especially the lockdown of the country. On May 27, 2020, the government mandated the use of border lockdown, although some staff members and their families were granted special treatment and allowed to travel outside the country for health treatment. School closure policies were implemented for public and private schools. However, the government gave prestigious schools a special favor with the telecommunication contract to use online classes and remote sessions. Next, Health EDRM stipulates strengthening risk governance by converting an event-based into a risk-based approach, engaging stakeholders and the public from reactive behavior to proactive results, and shifting single agency disaster management approach to whole society involvement (WHO, 2019). In July 2020, the government decided to review the country's financial law 2020 of the land 210 days after the coronavirus, which made it an obstacle to defining risk prioritization in policy application regarding the weak resource management and procurement process. Additionally, Health EDRM stresses the importance of inclusive and multisectoral approaches to strengthening risk governance. As for Madagascar, Political polarization was explained by an ununified decision between ministers, including the health, transportation, communication, and population. Madagascar's risk governance policies were focused on looking for vaccination. They promoted using an herbal remedy, COVID-Organics, which claimed to prevent and cure COVID-19 based on traditional remedy processes. Sendai's framework stipulates, "encourage parliamentarians to support the implementation of disaster risk reduction by developing new or amending relevant legislation and setting budget allocations." (United Nations General Assembly, 2015). On June 24, 2020, parliaments voted 250,000 USD during the council of ministers to promote COVID-19 as a remedy for COVID-19. The government faced challenges during production due to a lack of raw materials, poor supply chain, distribution management, and fighting against scams and fake products. In June 2020, WHO urged Madagascar to stop the untested medicine and mandated COVID-19 distribution restrictions to the public, even at the hospital, to prevent misuse; the government stopped pro-

moting COVID-19 and lowered traditional remedies prioritization over evidence-based medicine.

Why is it hard for Madagascar to implement new policies and frameworks into action?

Madagascar was challenged to mandate new policies due to its highly collectivist culture. As defined by Hofstede, a strong collectivist society considers horizontal integration (people live with relatives and family members) and vertical integration (care for aged relatives and respect for ancestors) (Hofstede, 2010). Inherited from the Eastern culture, 80% of the Malagasy civilizations, taboos, and norms are mostly centered around social harmony where individual interest is bonded by authority and regulated by community norms. Related to the mitigation of the coronavirus, Madagascar presents a strong collectivist culture despite the number of meetings and councils held starting from December 18, 2019, collectively on March 20, 2020. Three ministers were essential in implementing policies and ensuring their effectiveness: the Ministry of Health, Communication, and Transportation. Rather than executing their tasks individually and independently within their respective domains, each minister was waiting to collaborate and engage collectively. The Health Ministry relied on the Communication Ministry to promulgate the rules, while the Communication Ministry awaited coordination with the Public Security and the Minister of Transportation on lockdown processes. Described as the need for consensus, a delay of 162 days (from December 18, 2019, to May 27, 2020), the government took several months to agree on the first measure of National Policy enforcement of lockdown and quarantine (see **Table 4** & **Figure 3**). At the community level, collectively, communities trust government guidance and instruction even if the instructions are not based on scientific evidence (the use of COVID Organics). In addition, communities' behaviors and risk preparation were influenced by significant social norms and traditions regarding quarantine, mask-wearing, physical distance, and any other preventive measures that make the mitigation measure more challenging. Several stakeholders and other state member agencies could not monitor the spread of the virus. The autonomy of the decentralized territory was not respected, which violates Article 3 of the Madagascar constitution, "The implementation of effective decentralization, autonomy at the level of competences and level of financial means" (Madagascar's Constitution). Still, the abuse of power distance (Hofstede) is felt as all power and decisions came from

Table 4. Madagascar council of minister.

Council of Ministers Held During COVID	Quantity
CM without COVID-19	48
CM with COVID-19	41
Total Council of Ministers	**89**

Comment: During COVID-19, Madagascar held 89 Council of Ministers, and only 41 councils were concerned with COVID-19.

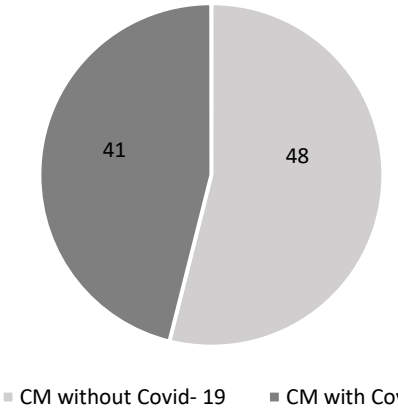

Figure 3. Council of ministers held during COVID.

the president and its government members. A lack of coordination and self-interest in bureaucracy took advantage of the collectivist cultural dimension (Hofstede), which rendered the country more vulnerable and highly exposed to COVID-19 (see **Figure 4**).

6. Discussion

Lack of political will and interest in mitigating the pandemic. By discovering how vital culture influences the country's disaster preparation and mitigation. Moreover, despite Malagasy's economic situation and low social development indices, it still adopts event-based disaster risk management. The government remains the first responsible root of disaster risk management within its inclusive and integrative powers. The lack of political will and interest lay in the inconsistency of the pandemic's regulation, control, and management. Madagascar is prone to disaster, and every year, the island is exposed to natural disasters like cyclones, severe droughts for 35 years, floods, and famine. The UNISDR suggested a corrective improvement by considering disaster risk reduction as a priority since 2015. Sendai stresses the ultimate involvement of the central government and national authorities in disaster management (United Nations General Assembly, 2015). The lack of political will endangers public safety as policymakers prioritize self-interest beyond public safety. Madagascar could have managed COVID-19 as a whole island if quarantine, lockdown, and isolation had been mandated since the beginning of the virus. The lack of political will is expressed first by focusing on priorities; the short-term presidential project has resulted in political apathy regarding conflict of interest, inadequate regulations, and insufficient response, jeopardizing public health's long-term impact. WHO confirmed that in Madagascar, from January 3, 2020, to November 22, 2023, there were 1426 deaths and 68,382 confirmed cases (WHO, 2023b). The other form of lack of political will is the absence of the government's legitimacy. As a decentralized democratic system, the government over-abused its power and neglected local authorities' autonomy. Structural conformity and the central

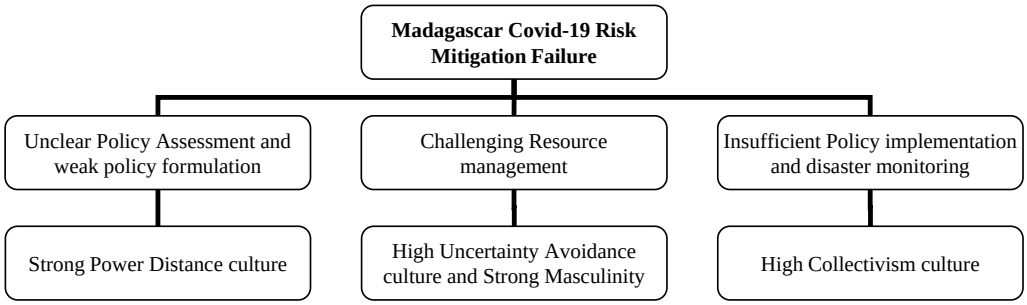

Figure 4. Summary of madagascar COVID-19 mitigation.

government's authority influence local demands for effective and efficient disaster reduction. Instead, decentralization helps the institution understand community-specific needs and dilemmas for bottom-up approaches and top-down governance. "Disaster risk reduction requires an all-of-society engagement and partnership" (United Nations General Assembly, 2015). Indeed, policy formulation and implementation were mainly centered on development projects rather than strengthening national disaster mitigation. Additionally, the lack of practical information and communication management highlights a potential lack of political incentive to mitigate the virus promptly, a delay of 162 days in sharing information and making decisions (from December 18, 2019, to May 27, 2020).

In addition, the lack of political will to manage the disaster is perceived in the government's collaboration with stakeholders, including International Non-governmental agencies and civil organizations. Furthermore, resource management and coordination, including financial, medical supplies, and human resources, are the three pillars of effective disaster mitigation. Emphasizing the value of culture and tradition (treating with medicinal plants-COVID Organic drinks), the government allocates the necessary resources to cope with the pandemic and promote private institutions. The resource allocation policies were abused to drive the community's interest in the importance of culture to eradicate the virus. The production of a traditional-based and untested vaccination received more consent than prioritizing public safety through different measures to meet basic needs. As described in **Figure 5(a)** and **Figure 5(b)**, the Malagasy public expenditures were categorized into eleven different sections: Defense and Military, Disaster Management, Economic Affairs and Development, Education, Environmental, General Public Service, Health, Plan for Growth and Transformation, Population and Culture, Public Order and Safety, and Social Protection. There is a significant difference in how the government prioritizes its budget before and after COVID-19. The two figures translate the implementation of public expenditure and government budget priorities voted during Councils of Ministers. In **Figure 5(a)**, public expenditure leads in Population and Culture, Plan for Growth and Transformation, and Defense and Military. Although Disaster Management, Education, and Health are low, this explains why the country is low in HDI. After the 89 councils, the Malagasy government's expenditure shifted from non-disaster-related motivation to disaster recognition and management.

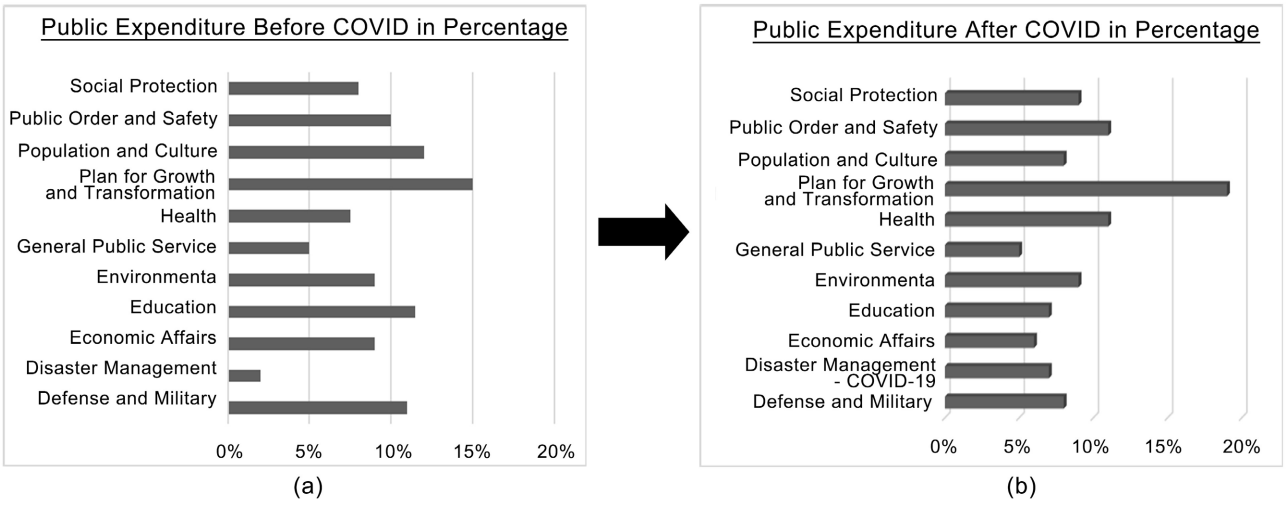

Figure 5. (a) Public expenditure before COVID-19; (b) Public expenditure after COVID-19.

Public decisions and motivation show a lack of political will as the Plan for Growth and Transformation rate continues to increase amid the pandemic, besides a slight increase in the health sector and a decrease in education (see **Figure 5(a)** & **Figure 5(b)**).

Stakeholders' involvement and interagency coordination helped the country develop its resources through various means, including funding, investment in assets and equipment, assisting social needs, and protecting the economy. Based on the Minister of Council's data and information, Madagascar received a total of USD 434,583,701.34 to mitigate COVID-19. The amount is composed of international funding with an amount of USD 416,380,400.00 and national funding with an amount of USD 18,203,301.34 (see **Table 5**).

International aid and cooperation were remarkably engaging and promoting the local government to mitigate the spread of the virus. With a total amount of USD 416,386,517.00, where USD 3,981,430.00 from bilateral agencies and USD 412,405,087.00, Madagascar could have reduced its impacts and prepared the country for a safe recovery. A minor discrepancy of USD 6,117.00 in the reported funds received between the Council of Ministers and the International Agencies. The difference is explained by the difference in exchange rate conversion of USD to Malagasy currency, which represents 0.0014% of USD 416,386,517.00 (see **Table 6**).

Policymakers and elite leaders play an essential role in heading the country's priorities. The absence of political will and motivation is often observed in how leaders behave and prioritize issues. Malagasy disaster risk management is weak, as most incentives deviate from societal needs management over personal interests. Thus, prioritizing disaster risk mitigation helps the country to "Build Back Better" (United Nations General Assembly, 2015), and as well as increasing political interest in public benefits, it will "prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political,

Table 5. COVID-19 funding—council of minister.

Council of Minister (2020-2021)	Financial Aid COVID	Amount in USD
International Funding	Vaccine: Johnson & Johnson: 100 million USD	$100,000,000.00
	COVID-19—Disaster Risk Reduction	$316,380,400.00
	Total	**$416,380,400.00**
National Funding	Investment in PHARMALAGASY	$25,247.30
	COVID-19 and Plan for Growth and Transformation	$18,178,054.04
	Total	**18,203,301.34**
	Total	**434,583,701.34**

Table 6. COVID-19 funding—international organization.

Agencies	Financial Aid—COVID-19—Nature of Donation	Amount in USD
Bilateral Agencies	Donation of Materials in the Fight of Pandemics	2,814,647.00
	Wash, Sanitation, Hygiene	1,118,203.00
	COVID-19 Education	48,580.00
	Total	**3,981,430.00**
Multilateral Agencies	COVID-19 Mitigation Response	6,405,087.00
	Economic Development Support	7,040,000.00
	Nutrition Outcomes Improvement Emergency Response	18,540,000.00
	Social Safety Nets Project	12,010,000.00
	Rapid Credit Facility	337,890,000.00
	COVID-19 Mitigation Project	5,500,000.00
	Counter-Value Fund Project	1,180,000.00
	Logistical and Operational Technical Support	5,200,000.00
	Social Support, WASH, Nutrition, Education	13,530,000.00
	Logistical and Provision of Equipment	4,110,000.00
	Employment Security and Capacity Building	1,000,000.00
	Total	**412,405,087.00**
	Total	**416,386,517.00**

and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience" (United Nations General Assembly, 2015).

7. Conclusion

Risk mitigation or preparation is essential in disaster risk reduction management. Substantial risk mitigation will help the country prepare and respond ac-

cordingly to disasters, and in addition, it will help the government recover from losses. COVID-19 has devastated the entire world in many ways; as in the case of Madagascar, the country has endured a strong challenge in preparing and considering the importance of risk mitigation. Due to many factors, weak risk mitigation has been perceived due to the lack of non-compliance with international and adequate disaster risk management frameworks such as the Sendai and the Health Emergency Risk Management Framework. In addition, the political power failed to address public safety, formulation of political procedures, and institutional disaster management risk implementation frameworks. Still, the government should promote underestimating general security interests, the protection of its population and assets, and forecast sustainability development. Consequently, Madagascar will be exposed to future hazards and become more vulnerable in the social and economic aspects. We have discovered that the value of institutions and policy is essential in disaster risk management; the relationship is complex and multifaceted. Grouping in a one-word, strong institutions facilitate recovery from hazards and disasters, promote economic and social growth, and engage different sectors and stakeholders for an environment for entrepreneurship, innovation, and investment. However, weak institutions endanger economic growth and deteriorate social sustainable development. Our recommendations converge on aligning collective interest and power relations for the benefit of the masses. As a solution for post-COVID recovery, we suggest the implementation of the Minimum Economic Recovery Standards (MERS) framework, known for its best practices for healing and securing sustainable development in the long term. It was adopted in 1997 by the International Red Cross and Red Crescent Movement. By enforcing an institutional solid development (formal and informal institutions. In addition, respecting the values and norms of the cultural shape of the community in terms of work ethic, trust, social capital, and values, the informal institution needs to be supported and used as a resource for addressing disaster and recovery. Another essential concept in institutional and policy development is promoting social inclusion, reducing inequality, mitigating the negative impacts of disasters and shocks, and sharing economic growth equitably. In an economic approach, providing liquidity support to financial instructions to maintain financial stability by providing emergency loans is recommended. It stabilizes the currency exchange rate policies to facilitate exportation competition and engage different SMEs in the economic boom policies. Additionally, by lowering interest rates, each actor is treated equally to borrow for economic activities, and even households and individuals can restart entrepreneurship opportunities to become potential shifts of long-term investments that will promote sustainable development.

To conclude, to mitigate disaster health-related, the Madagascar government needs to prioritize the development of the health sector first by adopting a post-epidemic surveillance approach. It is essential to monitor and track changes in public health and help the country recover in every aspect. Second, in order to improve a health initiative, it is recommended to promote health support, both

psychological and physical, through service accessibility and inclusivity. Moreover, by improving healthcare infrastructure, providing adequate medical supplies, and enhancing the capacity of healthcare workers, the country will be ready to mitigate risk and reduce impact for a safe recovery and resilience. Lastly, concerning health initiative development, it is advisable to intensify research and development in case of future outbreaks and promote efficient and effective institutional policy development for long-term sustainability. All these solutions should consider the cultural relativism founded by the Bosnian Anthropology (Franz Boas) (Brown, 2008); cultural relativism will consider that cultural practices and beliefs should be understood in cultural diversity. Can we say that the Cultural aspect is the development anchor?

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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List of Abbreviations

Abbreviation	Definition
CRED	Centre of Research on the Epidemiology of Disaster
DRR	Disaster Risk Reduction
Health EDRM	Health Emergency and Disaster Risk Management
IDNDR	International Decade for Natural Disaster Reduction
PHEIC	Public Health Emergency of International Concern
PTSD	Post-Traumatic Stress Disorder
MERS	Minimum Economic Recovery Standards MERS
NGOs	Non-profit organizations
UN	United Nations
UNISDR	United Nations Office for Disaster Risk Reduction
WHO	World Health Organization