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Report No: PGD63

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROGRAM DOCUMENT FOR A

PROPOSED DEVELOPMENT POLICY GRANT

IN THE AMOUNT OF SDR 36.3 MILLION (EQUIVALENT TO US$50.0 MILLION)

TO THE

REPUBLIC OF MADAGASCAR

FOR THE

MADAGASCAR DISASTER RISK MANAGEMENT DEVELOPMENT POLICY FINANCING WITH A CATASTROPHE DEFERRED DRAWDOWN OPTION

November 13, 2019

Urban, Resilience, and Land Global Practice
Finance, Competitiveness and Innovation Global Practice
Africa Region

Republic of Madagascar
**GOVERNMENT FISCAL YEAR**
*January 1 – December 31*

**CURRENCY EQUIVALENTS**
(Exchange Rate Effective as of October 31, 2019)
Currency Unit = Malagasy Ariary (MGA)
US$1.00 = SDR 0.72495813
US$1.00 = MGA 3,675.64

**ABBREVIATIONS AND ACRONYMS**

| | |
|---|---|
| AFD | French Development Agency (*Agence Française de Développement*) |
| AfDB | African Development Bank |
| BNGRC | National Disaster Risk Management Agency (*Bureau National de Gestion des Risques et des Catastrophes*) |
| CAT DDO | Deferred Drawdown Option for Catastrophe Risks |
| CBM | Central Bank of Madagascar |
| CERVO | Center for Studies, Reflection, Monitoring and Orientation (*Centre d'Etudes, de Réflexion, de Veille et d'Orientation*) |
| CNOSSE | National Operational and Strategic Epidemiological Surveillance Center (*Centre National Opérationnel et Stratégique de Surveillance Epidémiologique*) |
| CPF | Country Partnership Framework |
| CPGU | Emergency Management and Prevention Unit (*Cellule de Prévention et d'Appui à la Gestion des Urgences*) |
| CRIC | Disaster Response Coordination Mechanism (*Comité de Réflexion des Intervenants aux Catastrophes*) |
| CNGRC | National Disaster Risk Management Council (*Conseil National de Gestion des Risques et de Catastrophes*) |
| DFID | U.K. Department for International Development |
| DPF | Development Policy Financing |
| DPO | Development Policy Operation |
| DRM | Disaster Risk Management |
| ECF | Extended Credit Facility |
| ELS | Local Rescue Team (*Équipe Locale de Secours*) |
| ESIA | Environmental and Social Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| EU | European Union |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GIZ | German Agency for International Cooperation (*Deutsche Gesellschaft für Internationale Zusammenarbeit*) |
| GoM | Government of Madagascar |

| | |
|---|---|
| IDA | International Development Association |
| IMF | International Monetary Fund |
| JIRAMA | National Water and Electricity Utility (*Jiro Sy Rano Malagasy*) |
| MEF | Ministry of Economy and Finance |
| MGA | Malagasy Ariary |
| MID | Ministry of Interior and Decentralization |
| MoH | Ministry of Public Health |
| MPSPPW | Ministry of Population, Social Protection and Promotion of Women |
| NDF | National Disaster Fund |
| NPV | Net Present Value |
| ONE | National Environment Office (*Office National pour l'Environnement*) |
| PDO | Program Development Objective |
| PEFA | Public Expenditure and Financial Accountability |
| PEM | Plan Emergence Madagascar |
| PFM | Public Finance Management |
| PPCR | Pilot Program for Climate Resilience |
| PPP | Public-private Partnership |
| RCF | Rapid Credit Facility |
| RETF | Recipient-Executed Trust Fund |
| SDR | Special Drawing Rights |
| SEMoI | Mobile Intervention Team (*Services des Equipes Mobiles d'Intervention*) |
| SNGRC | National Disaster Risk Management Strategy (*Stratégie Nationale de Gestion des Risques et des Catastrophes*) |
| SOE | State-owned Enterprise |
| SPCR | Strategic Program for Climate Resilience |
| SURECA | Department of Emergency and Response to Epidemics and Disasters (*Service des Urgences et des Ripostes aux Epidémiologies et Catastrophes)* |
| TA | Technical Assistance |
| UNICEF | United Nations Children's Fund |
| WBG | World Bank Group |
| WDI | World Development Indicators |
| WHO | World Health Organization |

| | |
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**REPUBLIC OF MADAGASCAR**

**MADAGASCAR DISASTER RISK MANAGEMENT DEVELOPMENT POLICY FINANCING WITH A CATASTROPHE DEFERRED DRAWDOWN OPTION (CAT DDO)**

TABLE OF CONTENTS

The proposed Disaster Risk Management Development Policy Financing (DPF) with a Catastrophe Deferred Drawdown Option (Cat DDO) was prepared by a joint International Development Association (IDA) - French Development Agency (AFD) team led by Michel Matera (Task Team Leader, SAFU2), Martin Luis Alton (co-Task Team Leader, EFNRF), and Alix Francoise (co-Task Team Leader, AFD) and consisting of Niels Holm-Nielsen (SURDR), Gael Fetraniaina Raserijaona (SAFU2), Brenden Jongman (SAFU2), Oscar Ishizawa (SAFU1), Evie Calcutt (EFNRF), Mellany Geraldine Pintado Vasquez (EFNRF), Marc Stocker (EA1M2), Faniry Nantenaina (EA1M2), Craig Thorburn (EFNLT), Brinda Devi Dabysing (EA1F2), Maud Juquois (HAFH1), Voahirana Rajoela (HAFH1), Laura Rawlings (HASF1), Julia Rachel Ravelosoa (HASF3), Pantaleo Creti (HASF3), Erik Reed (SAFE3), Andrianjaka Rado Razafimandimby (SAFS1), Sylvain Rambeloson (EA1RU), Maharavo Ramarotahiantsoa (EA1G2), Marouan Maalouf (LEGAM), Adama Diop (WFACS) and Emilie Garet (AFD). The team benefited from the guidance of Mark R. Lundell (AFCS2), Marie-Chantal Uwanyiligira (AFMMG), Raymond Bourdeaux (IAFDR), Ellena Rabeson (AFMMG), Meskerem Brhane (SAFU2), and Olivier Mahul (EFNRF). Valuable peer review comments and suggestions were provided by Alanna Simpson (SCAUR), Benedikt Lukas Signer (EFNRF), and Bianca Adam (GTFSA).

## SUMMARY OF PROPOSED FINANCING AND PROGRAM

### BASIC INFORMATION

| Project ID | Programmatic |
|---|---|
| P167941 | No |

#### Proposed Development Objective(s)

The development objective of the proposed operation is to strengthen the Government of Madagascar's institutional, technical and financial capacity to manage disaster and climate-related risks.

#### Organizations

Borrower: MINISTÈRE DE L'ECONOMIE ET DES FINANCES

Implementing Agency: CELLULE DE PRÉVENTION ET DE GESTION DES URGENCES (CPGU), BUREAU NATIONAL DE GESTION DES RISQUES ET DES CATASTROPHES (BNGRC)

### PROJECT FINANCING DATA (US$, Millions)

#### SUMMARY

| | |
|---|---|
| **Total Financing** | **61.70** |

#### DETAILS

| | |
|---|---|
| International Development Association (IDA) | 50.00 |
| IDA Grant | 50.00 |
| Cofinancing - Other Sources (IFIs, Bilaterals, Foundations) | 11.70 |
| FRANCE: French Agency for Development | 11.70 |

### INSTITUTIONAL DATA

#### Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

## Overall Risk Rating

Substantial

## Results

| Indicator Name | Baseline | Target |
|---|---|---|
| **Pillar 1: Strengthening the national system for disaster risk management** | | |
| Number of people covered by Regional DRM Offices in most-at-risk areas | 900,000 [2019] | 7,000,000 [2022] |
| Number of humanitarian agencies that use the Government's Social Protection System for disaster response | 1 [2019] | 3 [2022] |
| Scalable Social Protection System in place for rapid and slow onset disasters with adequate operational procedures | None [2019] | System established [2022] |
| **Pillar 2. Strengthening financial resilience to disasters** | | |
| National Disaster Fund is operational as shown by the adoption of an operations manual, an annual budget allocation to the fund, and the publication of audited financial statements of the fund | Fund not operational [2019] | Fund is operational [2022] |
| The Government has contracted sovereign catastrophe insurance against tropical cyclone risk in accordance with its disaster risk finance strategy | None [2019] | At least one transaction by 2022 |
| **Pillar 3: Mainstreaming disaster and climate resilience into territorial and urban planning** | | |
| % of new primary school buildings constructed according to the new codes/regulations | 0 [2019] | 100% [2022] |
| Percentage of the national territory covered by regional planning documents (SRAT) that follow the new risk management and resilience approach | 0 [2019] | 30% [2022] |
| Percentage of urban population covered by urban planning documents (PUDi) that follow the new risk management and resilience approach | 0 [2019] | 30% [2022] |
| Percentage of rural population covered by communal planning documents (SAC) that follow the new risk management and resilience approach | 0 [2019] | 15% [2022] |

**IDA PROGRAM DOCUMENT FOR A PROPOSED GRANT TO THE REPUBLIC OF MADAGASCAR**

## 1. INTRODUCTION AND COUNTRY CONTEXT

1. **The proposed operation is a stand-alone US$50 million equivalent Disaster Risk Management Policy Grant from the International Development Association (IDA) with a Deferred Drawdown Option for Catastrophe Risks (Cat DDO), including a EUR 10 million (US$11.7 million equivalent) credit in co-financing from the French Development Agency (*Agence Française de Développement*, AFD).** The Program Development Objective (PDO) of the proposed operation is to support the Government of Madagascar (GoM) institutional, technical, and financial capacity to manage disaster and climate-related risks. This will be achieved through the implementation of three pillars: (a) strengthening the national system for disaster risk management (DRM); (b) strengthening financial resilience to disasters; and (c) mainstreaming disaster and climate resilience into territorial and urban planning. Preparation for the proposed operation started in 2018 and built on the long-standing program of the authorities that has been supported by the World Bank and other development partners. A strong dialogue was sustained throughout the 2018 elections. Following elections, the new government has confirmed its commitment to the reform program supported by the proposed operation. Thus, the pillars and prior actions are fully aligned with the Government's program and current initiatives in the country.

2. **Madagascar is one of the countries in the world most exposed to disaster risk, with disaster shocks negatively affecting growth and development on a regular basis.** Due to its location, topography, and socioeconomic conditions, Madagascar is one of the most exposed and vulnerable countries in the world to climate change and extreme weather events,[1] with cyclones, flooding, and drought posing the greatest risks. While cyclone wind hazard is greater on the northern half of the country, particularly in coastal regions, flooding from tropical cyclone rainfall can affect much of Madagascar. River flooding risk tends to be highest on the eastern side and northern end of Madagascar, but urban floods affect most of the country's urban centers. The west coast of the country is generally drier and is subject to significant coastal erosion. Finally, the extreme south is a semi-desert environment, receiving less than 400 mm per year where droughts are common. In recent years, the greater south of Madagascar has suffered a severe drought which resulted in a widespread failure of maize crops and has caused a humanitarian crisis that has affected more than a million people.

3. **Damages and losses from disasters have a high economic and fiscal impact.** A recent catastrophe risk modeling study estimates that Madagascar faces average annual losses of US$100 million for cyclone and flood combined hazards (and earthquake) and that every year, there is a 10 percent probability that damages will exceed US$240 million and a 5 percent probability that they will exceed US$600 million.[2] The risk is illustrated by recent disasters which disproportionately affected the poor who rely essentially on weather-dependent agriculture for their livelihood, destroying public and private infrastructure, disrupting economic activity, and resulting in significant fiscal costs. In 2015, floods caused by tropical

[1] The 2019 World Risk Report ranked Madagascar at 17 out of 171 countries in terms of risk to natural disasters. Madagascar also ranks as the 7th most affected country in 2017 considering indicators such as death toll and losses. https://www.ireus.uni-stuttgart.de/Internationales/WorldRiskIndex/

[2] World Bank. 2016. *Disaster Risk Profile: Madagascar.*

storms Chedza and Fundi resulted in damages and losses of US$119 million, equivalent to 1.1 percent of the gross domestic product (GDP). Negative fiscal impacts were estimated at US$31.9 million from lower revenues and higher expenditures.[3] Cyclone Enawo in 2017, the strongest cyclone since 2004, affected over 430,000 people and resulted in damages and losses estimated at US$407 million, equivalent to 4 percent of GDP.[4] In 2018, the widespread wind and flood caused by Cyclone Ava affected over 161,000 people with damages estimated at US$195 million, corresponding to about 2 percent of GDP.[5]

4. **Multiple factors contribute to Madagascar's high vulnerability to disasters and climate-related shocks.** These include high population growth, unplanned urbanization, and a lack of resilient building and infrastructure standards. The country today houses more than 9 million people living in urban areas compared to 3.2 million in 1993. Rapid urbanization is mostly driven by strong rural-urban and urban-urban migration. The urban poor generally live in settlements that have inadequate basic services and often reside in temporary housing. It is estimated that about 70 percent of Antananarivo's settlements are informal. The growth of the city has spread to a natural floodplain creating vulnerability mainly for poor people who cannot afford rent in less-risky areas.[6] Moreover, the lack of cyclone-resilient building and infrastructure leads to recurrent damages in houses and public buildings. In 2018, Cyclone Ava, for example, damaged or destroyed close to 15,000 houses and 1,120 classrooms. The impacts of cyclones on public buildings such as schools, hospitals, and government buildings can be largely prevented by using cyclone-resistant building standards in the initial construction of such buildings. More broadly, spatial development needs to be risk-informed to prevent the creation of new risks and mitigate impacts on existing housing and infrastructure.

5. **Modeling suggests that climate change will negatively affect Madagascar in several ways.[7]** Its extensive coastline and location in the Indian Ocean make Madagascar naturally prone to cyclone risk. Drought conditions are ever present in southern regions while the north and northeast are often affected by flooding and rainfall variability. Such climate-related risks are expected to worsen with climate change: (a) by 2065, the temperature is projected to increase between 1.1°C and 2.6°C; (b) rainfall intensity is predicted to increase, thus aggravating the risk of flooding; and (c) cyclone intensity will increase by 46 percent and shift northwards, with implications for agriculture, food security, and infrastructure. The GoM recognizes the importance of taking proactive measures to manage climate-related risks.

6. **In addition to the potential impact of natural hazards, Madagascar is vulnerable to emerging epidemics.** Epidemics accounted for 35 percent and cyclones for 33 percent of total shocks between 2005 and 2018. When considering the number of deaths from natural hazards in the same period, cyclones were responsible for 57 percent, epidemics for 28 percent, and drought for 7 percent.[8] Madagascar's limited public health sector is vulnerable to climate variability and change, particularly with regard to an increased incidence of nutritional deficiencies and vector-borne diseases (see annex 8 for additional

[3] World Bank. 2016. *Évaluation de l'impact économique et budgétaire des catastrophes à Madagascar.*
[4] World Bank. 2017. *Madagascar Economic Update: Coping with Disasters.*
[5] World Bank. 2018. *Estimation of Economic Losses from Cyclone Ava.*
[6] World Bank. 2017. *Greater Antananarivo: Urban Poverty and Resilience Study.*
[7] GoM. 2017. *Strategic Program for Climate Resilience.*
[8] DesInventar dataset: https://www.desinventar.net.

information). Projected temperature increases, coupled with warmer and more humid environments, could increase the incidence of malaria, diarrheal diseases, and acute respiratory infections.[9]

7. **Disasters disproportionately affect the most vulnerable and therefore pose an important obstacle to poverty reduction if adequate measures are not taken.** Madagascar is one of the poorest countries in the world, with the headcount poverty rate based on the international poverty line estimated at 77.6 percent in 2012 (the last available survey in the country). From 2012 to 2019, the percentage of the population living below the international poverty line of US$1.90 (2011 purchasing power parity) per day is estimated to have fallen only slowly, from 77.6 percent to 74.1 percent, and remains significantly higher than the regional average of 41 percent. In terms of social indicators, Madagascar ranks 140 out of 157 countries in the 2018 World Bank Human Capital Index,[10] reflecting challenges related to years of schooling (7.5 years average), outcome of test scores (351 on a scale where 625 represents advanced attainment and 300 represents minimum attainment), and healthy growth (49 out of 100 children are stunted and so at risk of cognitive limitation that can last a lifetime). These high levels of stunting are closely linked to extremely poor sanitary conditions. Disasters and epidemics can cause people to fall into poverty because of immediate damages/losses caused; in the long term, they can prevent people from escaping poverty due to negative long-term effects associated with poor nutrition and educational outcomes to which disasters contribute. In 2018, 70 percent of the population was employed in the agricultural sector, which is particularly vulnerable to disaster and climate-related shocks. The reforms supported by this operation are aimed at increasing long-term resilience and the ability to recover from the adverse impacts of disasters, thus increasing the sustainability of development programs and supporting the GoM's effort to eliminate extreme poverty and boost shared prosperity.

8. **The GoM has started to shift its focus from post-disaster relief operations to proactive DRM and measures to increase climate resilience.** Since 2015, the country has made important progress in strengthening its DRM framework. The GoM has adopted a strong DRM policy framework and a range of strategies for DRM and climate change adaptation, both sectoral and cross-sectoral ones, such as the *Politique Nationale de Gestion des Risques et des Catastrophes* (National Disaster Risk Management Policy; Law 2015-031) and the *Stratégie Nationale de Gestion des Risques et des Catastrophes 2016–2030* (National Disaster Risk Management Strategy 2016–2030). Furthermore, the 2019–2023 *Stratégie Nationale de Protection Sociale* (National Social Protection Strategy) and the 2018 *Politique Nationale de Protection Sociale* (National Social Protection Policy, Law 2017-028) foresee the establishment of a social protection system that is shock responsive and would allow to channel disaster assistance to disaster-affected poor. Despite this progress, Madagascar's DRM policy framework still has several strategic, financial, and sectoral shortcomings.

9. **On a strategic level, clear institutional roles and responsibilities across public sector institutions responsible for DRM policy and practice have not been established.** The National Disaster Risk Management Policy was never translated into a decree and has therefore not been enforced, and the role of social protection in DRM needs clearer operational definition regarding public sector interinstitutional coordination as well as engagement with humanitarian and development actors. As a result, disaster

[9] World Bank. 2015. *Systematic Country Diagnostic: Madagascar.*

[10] The Human Capital Index (HCI) measures the amount of human capital that a child born today can expect to attain by age 18. It conveys the productivity of the next generation of workers compared to a benchmark of complete education and full health. The 2018 profile of Madagascar is available at https://databank.worldbank.org/data/download/hci/HCI_2pager_MDG.pdf.

response capacity across national institutions and even more on a decentralized level is weak and the resilience of key sectors is limited. The proposed operation addresses these challenges in an integrated way. For more details on the evolution of Madagascar's DRM Framework, see annex 5.

10. **Limited prearranged mechanisms are in place to finance disaster response.** The GoM has been struggling to finance disaster response. In 2015, in the first three months after tropical storm Chedza and Fundi, the Government could only cover 6 percent of immediate needs. Until October 2019, when the GoM bought sovereign drought insurance from the African Risk Capacity,[11] no prearranged mechanisms were in place to finance disaster preparedness and response in the country. The DRM policy envisages a disaster fund, but no concrete steps to set up and operationalize such a fund have been taken to date. As a result, the GoM has in the past relied on budget reallocations and development partners to cover response costs to a significant extent.[12] Between 2005 and 2018, international donors have provided on average US$26 million per year to Madagascar in humanitarian response, reaching a high of US$67 million in 2017. Budget reallocations can have an opportunity cost if they divert funding from ongoing development projects while donor support is uncertain and sometimes slow to arrive. The proposed operation provides the GoM with a prearranged source of funding and sets foundations for putting in place further, complementary financial instruments to increase the GoM's financial capacity to respond to disasters on time (see annex 6 for a technical discussion on the benefits of combining different financial instruments for disaster response).

11. **This operation builds on a strong record of engagement on DRM between the GoM and the World Bank.** The World Bank has supported the GoM at national, regional, and local levels, through both analytical work and lending operations. The US$75 million Integrated Urban Development and Resilience Project for Antananarivo *(Projet de Développement Urbain Intégré et de Résilience du Grand Antananari*vo, PRODUIR, P159756) strengthens flood protection infrastructure and urban resilience in the poorest parts of Antananarivo. A US$1.5 million Recipient-Executed Trust Fund (RETF), the Pilot Program for Climate Resilience (PPCR, P158816), provides technical assistance (TA) to increase knowledge on climate resilience and climate risk management in the country. Two installments of additional financing for the Social Safety Net Project (P167881) totaling US$50.9 million specifically address disaster response. A US$0.2 million Insurance Sector Supervision World Bank TA provided critical support in the reform of the insurance law.

12. **It also builds on an important and long-time AFD engagement in Madagascar and in the urban sector in particular.** AFD is currently implementing several urban programs throughout the country, for secondary cities, and in Antananarivo for informal settlements access and upgrading, road extension, and sanitation of the Greater Antananarivo for EUR 93 million with additional co-financing from the European Investment Bank and European Union (EU). AFD is also supporting the National Urban Development Policy and, as part of its overall strategy, mainstreaming climate change adaptation and mitigation in all its operations. In recent years and globally, AFD has also established a global resilience and DRM road map with new financial tools, such as the Cat DDO, that it is willing to mobilize more frequently. The World

[11] The African Risk Capacity is a specialized agency of the African Union established to help African governments improve their capacities to better plan, prepare, and respond to extreme weather events and natural disasters. For more information, see https://www.africanriskcapacity.org

[12] World Bank. 2016. *Évaluation de l'impact économique et budgétaire des catastrophes à Madagascar.*

Bank Group and AFD signed a Strategic Memorandum of Understanding in June 2018 to enhance collaboration between the two institutions.

## 2. MACROECONOMIC POLICY FRAMEWORK

### 2.1. RECENT ECONOMIC DEVELOPMENTS

13. **The Malagasy economy continues to perform well, but growth has moderated in 2019.** Following a prolonged period of political instability[13] and economic stagnation, growth accelerated over the last five years to reach an estimated 5.1 percent in 2018, its fastest pace in over a decade (figure 1). The recovery since 2014 was supported by robust activity in export-oriented sectors, as well as in services such as transport, finance, and telecommunications (figure 2). The return to constitutional order was instrumental to this economic revival, as it contributed to restore investor confidence, reopen access to key export markets, reinstate flows of concessional financing, and encourage structural reforms. However, growth softened in the first half of 2019 amid weakening external demand and slow execution of public spending as the new government took office after successful conclusion of the presidential election in January 2019. Overall, growth continued apace in 2019, although moderating slightly to an estimated 4.7 percent. In per capita terms, this translates into a 2 percent rise in average income, still largely outpacing the rest of Sub-Saharan Africa in 2019.

14. **Progress in poverty reduction is supported by improved labor market conditions but is hindered by low labor productivity in agriculture.** Strong economic performance over the last five years has supported job creation, with private employment recorded at the main private social security fund[14] expanding on average by 6.8 percent per year over 2016–2018, more than twice the pace of growth of the economically active age population. However, progress in alleviating extreme poverty is slowed by low and generally declining labor productivity in agriculture,[15] partly due to poor market access in rural areas which is further exacerbated by the vulnerability of agricultural production to climatic fluctuations. From 2012, the last year for which poverty data are available, to 2019, the percentage of the population living below the international poverty line of US$1.90 (2011 purchasing power parity) per day is estimated to have fallen only slowly, from 77.6 percent to 74.1 percent, and remains significantly higher than the regional average of 41 percent.[16]

[13] Between 2009 and 2013.
[14] As recorded by *Caisse Nationale de Prévoyance Sociale* (CNaPS), the main private social security fund in Madagascar.
[15] As measured by value added per worker (source: World Development Indicators [WDI]).
[16] Povcalnet latest years.

**Figure 1. Real GDP Growth (%)**

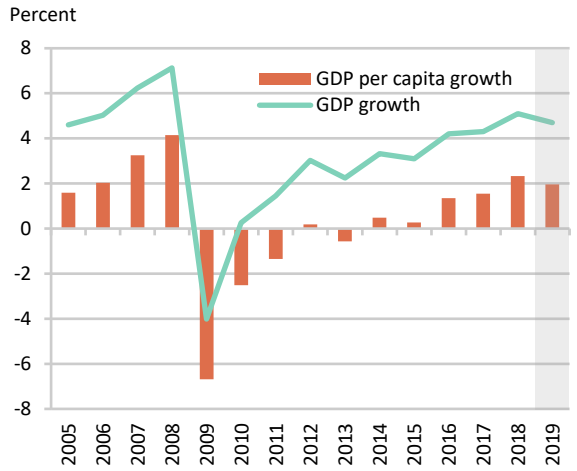
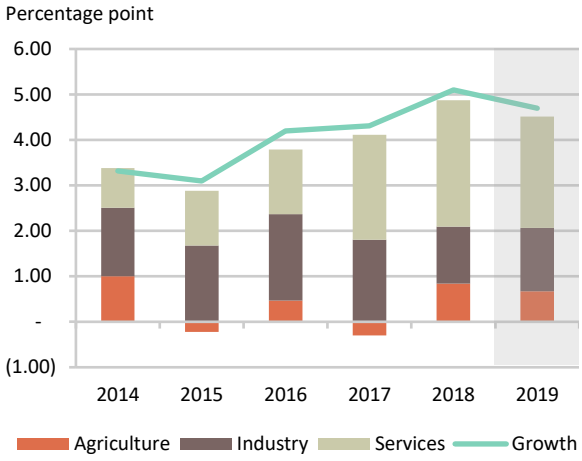



**Figure 2. Sectoral Contributions to Growth (%)[a]**




*Source:* World Bank.
*Note*: a. The gap between the total sector contribution and GDP growth represents changes in net indirect taxes. Real GDP and GDP per capita calculated in 2010 U.S. dollar. 2018 numbers are estimates and 2019 are forecasts.

15. **Consumer price inflation moderated in 2019.** Consumer price inflation eased during 2018 amid diminishing food price inflation. The downward trend continued up to the third quarter of 2019, despite upward price adjustments of some staple goods such as edible oils since mid-2019. In contrast, rice price inflation continued to moderate in 2019, owing to robust domestic production and favorable weather conditions. The downward revision of gas prices at the pump negotiated by the Government in June 2019, together with declining international oil prices earlier in the year, were reflected in energy inflation decelerating up to the third quarter of 2019. A flaring up of geopolitical tensions in the Middle East during the fourth quarter have made international oil prices more volatile but have not led to a sustained uptick. Overall, inflation is expected to moderate to 6.3 percent on average in 2019, down from 8.6 percent in 2018, which remains consistent with the Central Bank of Madagascar (CBM)'s price stability objective.

16. **Monetary policy remains on a steady course.** In a context of decelerating inflation, the CBM has kept its main monetary policy rate unchanged at 9.5 percent since end-2017 and continued to manage intra-year fluctuation in banks' excess reserves through well-targeted liquidity interventions. Furthermore, credit growth has been stable, averaging about 14 percent year on year in the first half of 2019. Regulatory and institutional reforms accompanying the 2016 Central Bank Act have helped enhance the independence and credibility of the CBM. However, the transmission of the interest-rate-based monetary policy on credit conditions and activity continues to be limited by an underdeveloped interbank lending market and low levels of financial inclusion.

17. **Madagascar's banking sector exhibits strong financial fundamentals, although there are low levels of financial intermediation.** All banks fulfill the minimum capital adequacy requirement, with a capital-to-risk-weighted assets ratio of 13 percent on aggregate in 2018, well above the required minimum of 8 percent. Nonperforming loans remain low, at 8.5 percent of total credit to the economy, and below

a regional average of 10.1 percent.[17] Subject to seasonal fluctuations, bank liquidity is ample in aggregate, with overall deposits exceeding loans. Banks are on average highly profitable, mostly due to high spreads between loan and deposit rates.[18] Private credit-to-GDP ratio increased from 12.9 percent in 2016 to 13.4 percent in July 2019. These levels are well below the regional average of 24.4 percent and signal a limited financial intermediation role played by banks. The share of the population with access to a savings account in commercial banks and mobile money accounts remains low by regional standards but increased in recent years to reach 11 percent and 7 percent in 2018, respectively.

18. **The current account was in surplus in 2018 but weakening export revenues led to a modest deficit at the start of 2019.** In 2018, strong export receipts were supported in part by high vanilla prices and rising extraction and mining revenues. This, together with increased current transfers, contributed to a current account surplus amounting to 0.8 percent of GDP in 2018, despite rising oil prices and accelerating import demand. In the first half of 2019, the current account reverted to a deficit, as export revenues decelerated amid weakening global demand while imports of equipment and intermediate goods were sustained. The current deficit is expected to be financed by a combination of net official transfers, estimated to increase to 3.9 percent of GDP in 2019 and foreign direct investments, estimated at 3.2 percent of GDP in 2019.

19. **Robust external sector accounts are reflected in rising international reserves.** A healthy current account position and ongoing capital inflows have allowed the CBM to accumulate international reserves, reaching an equivalent of 4.6 months of imports in September 2019. The CBM continued to implement targeted interventions to smooth seasonal changes in demand and supply of foreign exchanges linked to production cycles of key cash crops. The nominal effective exchange rate depreciated at a moderate pace during 2018 and in the first half of 2019, while the real effective exchange rate remained broadly stable throughout the period. External sector accounts have benefited in recent years from record high vanilla prices and are therefore susceptible to sudden deterioration in case of an abrupt reversal in prices.

20. **The tax-to-GDP ratio is on an upward trend, but revenue mobilization remains among the lowest in Sub-Saharan Africa.** Total government revenues excluding grants increased to 11.8 percent of GDP in 2018, up from 10.1 percent in 2014. Tax collection has slightly exceeded the target set in the budget in the first half of 2019, with overall revenues estimated to increase to 12.2 percent in 2019. Despite some improvement, the tax-to-GDP ratio is well below the average of 16 percent in Sub-Saharan Africa.[19] Madagascar has a simple domestic tax structure, with a flat 20 percent income tax rate and a 20 percent value added tax rate, which potentially make tax collection and compliance easier. However, limited effectiveness and coordination of tax administrations, numerous exemptions and loopholes, and pervasive tax evasion and corruption are reducing revenue collection.

21. **The composition of government spending is improving gradually.** Public expenditures (excluding interest payments on commitment basis) declined to 16.3 percent of GDP in 2018, mainly due to under-execution of public investments. The new government approved the revised 2019 budget in May to reflect changes in the government structure and new priorities. However, major policy directions have so far

[17] Data for Sub-Saharan Africa for 2017.
[18] The high spread is partly explained by the transfer of credit risks to consumers, linked to challenges in the business environment.
[19] Data for 2016 for Sub-Saharan Africa. Source: WDI.

been preserved. For example, the transfer to the utilities state-owned enterprise (SOE), National Water and Electricity Utility (*Jiro Sy Rano Malagasy*, JIRAMA), is projected to decrease from 0.8 percent of GDP in 2018 to 0.6 percent of GDP in 2019. In addition, the Government remains committed to eliminating fuel subsidies, negotiated a new cost structure for fuel prices at the pump and the reduction of accumulated liabilities to petroleum companies. Spending on social protection is projected to stabilize at 1 percent of GDP in 2019, similar to the execution rate in 2018. Overall expenditures (excluding interest payments) are expected to rebound to 16.6 percent in 2019, reflecting a scaling up of public investments in the second half of the year.

22. **Budget deficits remain low and are largely externally financed.** The budget deficit widened marginally to 2.5 percent of GDP in 2018 (on commitment basis), while total public debt declined slightly to 45.7 percent of GDP. The deficit is expected to remain broadly unchanged in 2019, with capital expenditures and government revenues increasing at the same pace, while the debt-to-GDP ratio is estimated to increase to 46 percent of GDP.[20] The deficit is mainly externally financed, with external borrowing projected at 2.6 percent of GDP in 2019, compared to 1.9 percent in 2018. External financing has been largely on concessional terms, accounting for 95 percent of external public debt. On the domestic side, appetite for treasury bills continued to be determined by seasonal variations in bank liquidity but was positively affected by the smooth political transition after the presidential election end-2018.

### 2.2. MACROECONOMIC OUTLOOK AND DEBT SUSTAINABILITY

23. **A positive short-term outlook is supported by ambitious public investment plans and a post-election rebound in confidence.** Despite the dampening impact on exports of weakening global demand, growth is projected to increase to 5.3 percent in 2020, on expectations of a scaling up of public investment, including in road, health, and education infrastructures. Private investment will also be boosted by a post-election rebound in confidence and incoming foreign direct investments. Rising capital spending should more than offset a slowdown in export growth as economic activity in China, Europe, and the United States decelerates. In 2021, growth is expected to increase slightly further to 5.4 percent, as the upturn in public and private capital spending continues. Over the medium term, the growth potential of Madagascar is robust but continues to be held back by inadequate infrastructures, low human capital, a lack of competition in key sectors, and poor governance. While this is expected to continue constraining activity through subdued productivity trends in the base-case scenario, accelerated reforms by the new government could result in better outcomes and hence represent an upside risk to the outlook.

24. **Poverty headcount rates are projected to gradually decline, but the poor population will continue to increase.** With per capita income growth remaining slightly above 2 percent in coming years, poverty rates are projected to continue declining, to reach 71.4 percent in 2021. While poverty rates continue to decline, the number of poor people is increasing further, with an estimated 20 million people living on less than US$1.90 per day by 2021, partly due to rapid population growth.

[20] Debt data valuation has been revised since July 2019 to comply with the definition used in the new Debt Sustainability Analysis Framework.

25. **Consumer price inflation is predicted to continue hovering around 6 percent over 2020–2022.** Stable inflation is predicated on favorable weather patterns keeping food price increases in check, as well as broad stability in oil prices, a modest pace of currency depreciation, and measured credit growth. Under baseline assumptions, policy interest rates are expected to remain around current levels, with the credible commitment of the CBM to price stability and an improved operational framework contributing positively to anchor inflation and exchange rate expectations. Central bank liquidity and foreign exchange interventions are expected to continue to smooth seasonal fluctuations in banks' excess reserves and foreign exchange needs.

26. **The current account deficit is expected to gradually expand, reflecting prospects of decelerating export revenues and scaled-up investment.** Softening external demand and moderating vanilla prices should result in weaker export revenues in 2020 and 2021. At the same time, rising public and private investments will continue to support strong import demand, which together with lower net current transfers, will contribute to a rising current account deficit. The latter is projected to reach 2.4 percent of GDP in 2020 and 3.6 percent of GDP in 2021. Growing external deficits, combined with an increasing share of non-concessional financing at higher interest rates should result in a gradual increase in public external debt, albeit from low levels.

27. **Government deficits are on an upward trajectory.** The Central Government budget deficit is expected to widen to 3.7 percent of GDP by 2021, up from 2.5 percent in 2018, driven by accelerated public investments, which are projected to increase from an estimated 6.1 percent for GDP in 2018 to 9.5 percent in 2021. This projected increase assumes an improved absorptive capacity and reduced implementation constraints. Increased public investments will more than offset the Government's planned reductions in transfers and subsidies to SOEs (from 2.6 percent of GDP in 2018 to 2.1 percent in 2021). The fall in transfers to JIRAMA are based on the assumption that the utility's operational performance improves and plans to clean up its arrears and restructure its debt are effectively implemented. The Government's ability to finance priority spending is hampered by low domestic revenue mobilization. Plans to increase this ratio by 0.5 percentage points of GDP per year are expected to continue through measures targeting delinquent taxpayers, by accelerating the digitalization of tax declaration and by improving the efficiency of tax administration. Over the medium term, increasing nontax revenues, including by raising royalty rates in the extractive sector, and rationalizing and limiting the proliferation of tax exemptions and loopholes are among the key options to increase revenue mobilization and create fiscal space to finance priority investments and social spending.

28. **Accelerated reforms could lead to stronger-than-expected growth, but downside risks loom as well.** The Malagasy economy is highly vulnerable to both domestic and external shocks, as a history of stop-and-go growth episodes illustrates. A successful transition of power after the presidential election end-2018 has reduced risks of political instability but the materialization of other risks could lead to significantly weaker-than-expected growth in coming years. These include a sharper-than-expected slowdown in major trading partners, a sudden drop in vanilla prices from their current highs, and reform setbacks or renewed policy uncertainty.

29. **Risk of external debt distress is low, while that of overall debt distress is moderate.** Despite prospects of rising current account deficits, a Debt Sustainability Analysis undertaken in July 2019 led the risk of external debt distress to be downgraded to low from moderate in the June 2018 assessment. This

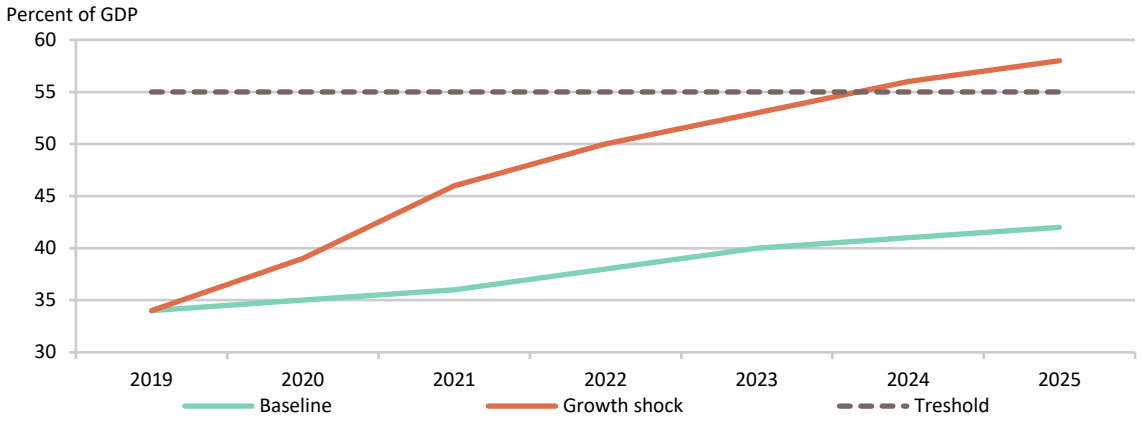
reflected an upgrade of the debt carrying capacity of Madagascar owing to progress recorded in the World Bank debt performance assessment, as well as ample foreign exchange reserves. The risk of public debt distress is assessed to be moderate, with public and publicly guaranteed debt breaching stress thresholds in scenarios implying substantial growth and terms-of-trade shocks (figure 3). However, some fiscal risks warrant close monitoring, including those associated with rising contingent liabilities and a proliferation of public-private partnership (PPP) projects when the legal and institutional framework to manage those risks still needs to be strengthened. The Fiscal Sustainability and Energy Development Policy Operation (P166752),[21] currently under implementation, supports the Government's endeavor to manage fiscal risks, mainly those associated with SOEs and PPPs.

30. **Climate change poses an ongoing threat to economic sustainability.** Climate-related disasters are estimated to cost on average 1 percent of GDP per year, which is a substantial contingent liability. Unmitigated impacts of climate change mostly translate into volatile growth of the primary sector and affect the security of rural livelihoods due to high dependence on rain-fed agriculture, chronic food insecurity, physical isolation and the lack of access to social safety nets. Planning for future costs involve the implementation of a contingency fund as supported by this operation, as well as contingent grant/credit and sovereign insurance that are expected to mitigate the fiscal impacts of natural disasters and accelerate responses to shocks.

31. **The macroeconomic policy framework is considered adequate.** The return to constitutional order in 2014 has seen important reforms being implemented to reverse the poor public expenditure management decisions implemented during the political crisis period. Notably, there has been a renewed focus on increasing fiscal space for priority expenditures, which include investment in infrastructure, human capital, and climate mitigation. These reforms have been supported by development partners including through seven World Bank DPF operations and International Monetary Fund (IMF) facilities. The CBM has continued to implement reforms to contain inflation and maintain adequate levels of reserves while advancing legislation to enhance governance arrangements. Expenditure and public debt levels are on a sustainable path. The economic recovery has continued with moderate inflation and still sound fiscal and external positions. The World Bank and the IMF are closely collaborating on the economic policy dialogue to ensure the reform momentum remains on track.

[21] Approved by the Board on April 30, 2019.

**Figure 3. Present Value of Public Debt-to-GDP Ratio under Stress Scenario**




*Source:* Debt Sustainability Assessment, July 2019.

**Table 1. Selected Economic and Financial Indicators: 2016–2022**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| | | | Estimates | Projections | | | |
| **Real sector** | | | | | | | |
| GDP (billions of ariary) | 31,634 | 35,729 | 40,032 | 44,242 | 49,300 | 54,713 | 60,181 |
| Real GDP (annual % change) | 4.2 | 4.3 | 5.1 | 4.7 | 5.3 | 5.4 | 5.4 |
| Primary sector (contribution to real GDP growth, pp) | 0.4 | −0.3 | 0.8 | 0.6 | 0.7 | 0.7 | 0.7 |
| Secondary sector (contribution to real GDP growth, pp) | 0.9 | 1.4 | 1.1 | 1.3 | 1.5 | 1.5 | 1.5 |
| Tertiary sector (contribution to real GDP growth, pp) | 2.1 | 2.4 | 2.5 | 2.2 | 2.3 | 2.3 | 2.3 |
| GDP per capita (current US$) | 409 | 459 | 467 | 477 | 503 | 528 | 554 |
| Real GDP per capita (annual % change) | 1.4 | 1.5 | 2.3 | 2.0 | 2.6 | 2.7 | 2.2 |
| GDP deflator (annual % change) | 6.2 | 8.3 | 6.6 | 5.6 | 5.8 | 5.3 | 5.2 |
| Inflation, consumer prices (annual %, end of year) | 6.1 | 8.6 | 8.6 | 6.3 | 6.0 | 5.8 | 5.0 |
| | | | | | | | |
| **Public Finance (% GDP)** | | | | | | | |
| Total revenue and grants | 14.8 | 14.8 | 14.6 | 15.0 | 15.4 | 15.5 | 15.4 |
| o/w: Tax Revenues | 11.0 | 11.5 | 11.8 | 12.2 | 12.5 | 12.7 | 13.2 |
| Total spending (commitment basis) | 16.1 | 17.2 | 17.1 | 17.5 | 18.4 | 19.1 | 19.9 |
| o/w: Capital spending | 5.2 | 5.5 | 6.1 | 6.6 | 8.3 | 9.5 | 9.8 |
| Overall balance (commitment basis) | −1.3 | −2.4 | −2.5 | −2.5 | −3.0 | −3.7 | −4.5 |
| Total public debt | 47.1 | 46.0 | 45.7 | 45.9 | 47.4 | 49.7 | 51.6 |
| o/w: External | 29.6 | 29.5 | 30.5 | 31.7 | 33.7 | 36.1 | 38.3 |
| | | | | | | | |
| **Monetary accounts (annual % change)** | | | | | | | |
| Money Supply (M2) | 21.3 | 19.3 | 13.7 | 17.1 | 13.3 | 14.7 | 15.0 |
| Net foreign assets | 37.4 | 23.1 | 13.1 | 10.9 | 15.2 | 16.3 | 13.8 |
| Net domestic assets | 10.8 | 14.2 | 14.2 | 20.6 | 8.6 | 10.9 | 13.5 |
| of which: credit to the private sector | 8.2 | 18.4 | 16.4 | 17.8 | 11.5 | 11.0 | 14.2 |

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| | | | Estimates | Projections | | | |
| **External sector (% GDP)** | | | | | | | |
| Exports of goods, fob | 21.7 | 24.4 | 25.0 | 25.5 | 24.8 | 24.7 | 24.2 |
| Imports of goods cif | 0.0 | 0.0 | 28.9 | 29.6 | 29.8 | 29.4 | 29.5 |
| Current account balance | 0.6 | −0.5 | 0.8 | −0.8 | −2.4 | −3.6 | −3.7 |
| Foreign direct investment | 4.5 | 3.1 | 4.1 | 3.2 | 3.2 | 3.2 | 3.2 |
| Foreign reserves (months of imports) | 3.9 | 4.0 | 4.3 | … | … | … | … |
| Terms of trade (percent change) | 35.7 | 2.4 | −1.2 | −0.8 | −0.4 | −0.4 | 0.0 |
| Exchange Rate local currency unit/U.S. dollars (average) | 3,176.5 | 3,116.1 | 3,333.6 | … | … | … | … |

*Source:* Malagasy authorities, World Bank staff (October 2019).

**Table 2. Balance of Payments Financing Requirements and Sources (% GDP)**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| | Actuals | | Estimated | Projected | | | |
| **Total financing requirements** | **9.1** | **8.4** | **8.7** | **8.1** | **8.7** | **9.4** | **9.6** |
| • Current account deficit | −0.6 | 0.5 | 0.8 | −0.8 | −2.4 | −3.6 | −3.7 |
| • Net repayment of private sector debt | 2.1 | 1.2 | 1.5 | 1.8 | 0.8 | 0.7 | 0.4 |
| • Repayment of government debt | 0.7 | 0.7 | 0.6 | 0.5 | 0.6 | 0.6 | 0.7 |
| • Gross reserves accumulation (+= increase) | 3.2 | 3.1 | 1.6 | 1.2 | 1.0 | 1.3 | 1.2 |
| • IMF repayments | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 |
| • Other (including unrepatriated export revenues) | 3.5 | 2.9 | 4.1 | 5.3 | 8.6 | 10.3 | 10.9 |
| Available financing | **9.1** | **8.4** | **8.7** | **8.1** | **8.7** | **9.4** | **9.6** |
| • Foreign direct and portfolio investment | 4.5 | 3.1 | 4.1 | 3.2 | 3.2 | 3.2 | 3.2 |
| • Budgetary support loans | 0.2 | 0.7 | 0.4 | 0.0 | 0.4 | 0.0 | 0.0 |
| • Project support | 4.0 | 3.5 | 3.8 | 3.8 | 5.2 | 6.3 | 6.4 |
| • IMF: rapid credit facility (RCF) and extended credit facility (ECF) arrangement | 0.4 | 1.1 | 0.4 | 1.0 | 0.0 | 0.0 | 0.0 |

*Source:* Malagasy authorities, World Bank staff (October 2019).

**Table 3. Fiscal Operations of the Central Government (% GDP)**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| | | | Estimates | Projections | | | |
| Total revenues and grants | 14.8 | 14.8 | 14.6 | 15.0 | 15.4 | 15.5 | 15.4 |
| • Tax revenues | 11.0 | 11.5 | 11.8 | 12.2 | 12.5 | 12.7 | 13.2 |
| • Nontax revenues | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 |
| • Grants | 3.5 | 2.9 | 2.5 | 2.7 | 2.7 | 2.5 | 2.0 |
| Total expenditure | 16.1 | 17.2 | 17.1 | 17.5 | 18.4 | 19.1 | 19.9 |
| • o/w: social priority spending | 0.8 | 1.0 | 1.0 | 1.0 | 1.5 | 1.7 | 1.8 |
| • Current expenditure o/w | 10.9 | 11.7 | 11.0 | 10.9 | 10.1 | 9.6 | 10.1 |
| • Wages | 5.7 | 5.8 | 5.8 | 5.8 | 5.7 | 5.6 | 5.6 |
| • Goods and services | 0.6 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 |
| • Transfers and Subsidies | 3.1 | 4.1 | 2.6 | 2.5 | 2.2 | 2.1 | 2.0 |
| o/w: Transfers to JIRAMA | 0.9 | 1.2 | 0.8 | 0.6 | 0.2 | 0.1 | 0.0 |
| • Interest | 0.9 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| • Capital expenditures | 5.2 | 5.5 | 6.1 | 6.6 | 8.3 | 9.5 | 9.8 |
| • Domestically financed | 1.2 | 2.0 | 2.3 | 2.8 | 3.1 | 3.3 | 3.4 |
| • Externally financed | 4.0 | 3.5 | 3.8 | 3.8 | 5.2 | 6.3 | 6.4 |
| Domestic primary balance | 0.1 | −1.0 | −0.3 | −0.4 | 0.4 | 0.9 | 0.8 |
| Overall balance (commitment basis) | −1.3 | −2.4 | −2.5 | −2.5 | −3.0 | −3.7 | −4.5 |
| Arrears variation and float (+= accumulation) | −0.7 | 0.1 | −0.1 | −0.6 | −0.1 | −0.1 | −0.1 |
| Overall balance (cash basis) | −2.0 | −2.3 | −2.6 | −3.1 | −3.0 | −3.8 | −4.6 |
| Central Government financing | 2.0 | 2.3 | 2.6 | 3.1 | 3.0 | 3.8 | 4.6 |
| External (net) | 0.7 | 1.4 | 1.9 | 2.6 | 2.6 | 3.0 | 3.5 |
| Domestic (net) | 1.4 | 0.9 | 0.7 | 0.5 | 0.5 | 0.8 | 1.1 |

*Source:* Malagasy authorities, World Bank staff (October 2019).
*Note:* Current expenditures do not include *Autres Operations Net du Trésor* (Other Treasury Operations) which refer to (a) advance payments made by the state to entities with budget autonomy, such as public establishments; (b) debt repayments; (c) dues related to Madagascar's participation in international organizations; and (d) payments to commercial accounts. These Treasury Operations will be regularized as 2018 actuals are finalized.

### 2.3. IMF RELATIONS

32. **Madagascar is under a three-year ECF agreement with the IMF, with the last disbursement due in November 2019.** In July 2016, the IMF Board approved a three-year ECF agreement for Madagascar for an amount of SDR 220 million (equivalent to about US$295 million), increased to SDR 250.5 million in June 2017 in the context of the first review. The arrangement under the ECF supports the Government's program to reinforce macroeconomic stability and promote sustainable and inclusive growth. The

program focuses on (a) boosting prospects for inclusive growth through scaling up of investment and improving access to education, health care, and social protection; (b) creating fiscal space through improved revenue generation and spending prioritization; (c) reinforcing economic governance by strengthening public financial management and intensifying anticorruption measures; and (d) strengthening macroeconomic stability by bolstering CBM operations and financial supervision. The IMF Executive Board has concluded the fifth review of the program in July 2019. Performance remained on track under the five successive reviews. Main identified challenges during the fifth review were related to fuel pricing and losses of the public utility JIRAMA. The World Bank maintains a close working relationship with the IMF, with regular collaboration across policy issues between the two institutions.

## 3. GOVERNMENT PROGRAM

33. **The Government has demonstrated commitment to a multisectoral approach toward reducing vulnerability and strengthening resilience to climate and disaster risk.** The new Government's development strategy is laid out in the *Plan Emergence Madagascar* (PEM) 2019–2023, which is being finalized. The PEM, under its Engagement 13 related to sustainable management and conservation of the country's natural resources, set as a key priority strengthening community resilience through enhanced access to disaster risk information. To address disaster and climate risks, the PEM identifies several specific objectives: (a) improving the production and dissemination of weather and climate data and strengthening early warning systems; (b) ensuring effective integration of DRM in the national development policy and sector development policies; (c) enhancing DRM governance; (d) increasing political commitment; (e) building the capacity of key actors and stakeholders; and (f) developing disaster and risk profiles to inform public and private investments. The nationally determined contribution that Madagascar submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015 identified adaptation policy measures in sectors considered key to the prospects for climate resilience. Some of these sectors have started to mainstream climate adaptation measures in their planning instruments.

34. **As part of a transition to a more proactive DRM and climate resilience approach, the GoM has developed laws and policies aligned with relevant international frameworks.** The GoM has adopted a strong DRM policy framework and a range of strategies for DRM and climate change aligned with the Sendai framework. The *Politique Nationale de Gestion des Risques et des Catastrophes* (National Disaster Risk Management Policy; Law No. 2015-031) was adopted in 2016 to define the structure and principles underlying DRM in Madagascar. In 2016, the Government published a 15-year strategy for disaster risk reduction to operationalize the DRM policy (*Stratégie Nationale de Gestion des Risques et des Catastrophes 2016–2030*). However, the necessary decrees to implement the policy and strategy have not been developed nor adopted to date. The Strategic Program for Climate Resilience (SPCR), supported by the World Bank, seeks to build the resilience of key institutions, sectors, and geographic areas through (a) enhancing the enabling environment for climate resilience; (b) developing capacity to enhance hydro-meteorological services; (c) building urban resilience in Greater Antananarivo; (d) building resilience in the Grand Sud; (e) building resilience in coastal cities; and (f) building resilience of the agricultural sector.

35. **The government program stresses the need to strengthen the framework for DRM.** The GoM is committed to strengthening its National DRM System through effective institutional arrangements,

planning tools, information systems, and a coordination mechanism supported by appropriate financing mechanism and instruments. The Government recognizes the importance of building awareness with regional committees and integrating territorial planning with DRM. It also recognizes the need to increase awareness among the population. Government efforts to increase awareness in Greater Antananarivo notwithstanding, about a third of households do not know that shelters and disaster risk committees exist in their neighborhoods.

36. **The GoM has recognized the importance of increased financial resilience to disasters.** Recent events in the country and a recognition of the effects of climate change have raised awareness of the importance of financial resilience. Cyclone Enawo in 2017 caused about US$400 million of damages and losses and Cyclone Ava in 2018 about US$200 million. The Government is struggling to finance the impact of those events. The SPCR includes a component on financial resilience with a view to (a) address the vulnerability of public finances to climate shocks and (b) promote financial protection instruments such as the CAT DDO, agricultural insurance, and access to credit of the most vulnerable. The DRM policy (Law 2015-031) provides the framework for the establishment of a national disaster fund (NDF) but necessary steps to establish and operationalize such a fund have not been taken. Finally, the GoM has just signed a contract with the African Risk Capacity for sovereign insurance against drought risk. Overall, however, the country is lacking prearranged financial instruments which give the GoM quick access to liquidity to finance preparedness and emergency response.

37. **Various entities have been established to support the country's institutional architecture for DRM, including mainstreaming DRM into territorial and urban planning.** The National Disaster Risk Management Agency (*Bureau National de Gestion des Risques et des Catastrophes,* BNGRC), under the Ministry of Interior and Decentralization (MID), is the operational arm of the National Disaster Risk Management Council (*Conseil National de Gestion des Risques et de Catastrophes,* CNGRC), an inter-ministerial body headed by the Prime Minister. The BNGRC, at the national level, is in charge of the operational aspects involved in the management of disasters, as well as the coordination of emergency relief. At the local level, the BNGRC is supported through Disaster Management Committees that have been established by municipal decree for each fokontany.[22] The Emergency Management and Prevention Unit (*Cellule de Prévention et d'Appui à la Gestion des Urgences,* CPGU), a coordination unit within the Prime Minister's Office, was created to provide high-level strategic advice on DRM, primarily by mainstreaming disaster risk reduction into sectorial planning and programs. Its objectives are to reduce the vulnerability of the country's infrastructure and build resilience to climate hazards. Even though the aforementioned entities have been established, the GoM still faces operational challenges at the national and subnational level due to overlapping mandates and limited response capacity.

## 4. PROPOSED OPERATION

### 4.1. LINK TO GOVERNMENT PROGRAM AND OPERATION DESCRIPTION

38. **The PDO is to support the GoM institutional, technical, and financial capacity to manage disaster and climate-related risks.** This operation supports reforms that are critical in achieving certain of

[22] A fokontany is a subdivision of a commune with its own administration. There are 18,251 fokontany in Madagascar.

the Government's priorities outlined in the PEM, SPCR, and DRM policies and strategies. The program is structured around three pillars with six prior actions fully aligned with the Government's program described in section 3.

- **Pillar 1** will strengthen the national system for disaster risk management.
- **Pillar 2** will strengthen financial resilience to disasters.
- **Pillar 3** will mainstream disaster and climate resilience into territorial and urban planning.

39. **Climate co-benefits for the proposed operation are high as climate change adaptation considerations are explicitly integrated in all prior actions.** Climate change is projected to increase the temperature and increase the rainfall intensity and cyclone intensity (see paragraph 5) with negative implications for agriculture, food security, and infrastructure in the country. The program will enhance the country's capacity to adapt to climate change.

40. **The proposed DPF with CAT DDO can help meet Madagascar's immediate need for liquidity in the aftermath of a natural catastrophe.** Disaster and adverse climate-related events represent a contingent liability for the Government. Impacts from previous disasters, such as Cyclone Enawo in 2017 and Cyclone Ava in 2018, have exceeded the financial capacity of the Government to respond and recover. The Cat DDO will be an important building block in the country's risk financing strategy that will support rapid emergency response and will help alleviate the economic and humanitarian costs associated with delays in securing needed financing.

41. **The design of the proposed operation builds upon lessons learned from many years of World Bank operations in the area of DRM[23] and preparation of Cat DDOs.** This operation will be the fourth Cat DDO in the Africa Region and brings the total number of both IBRD and IDA Cat DDOs to 18. To date, the World Bank has approved Cat DDOs for an approximate total value of US$2.5 billion. The design of this operation with a Cat DDO considers lessons learned from World Bank operations in DRM and from the Implementation Completion and Results Reports of seven Cat DDOs (Guatemala, Colombia, Costa Rica, El Salvador, Peru, the Philippines, and Sri Lanka). Key lessons learned include the following: (a) a successful Cat DDO operation needs to align actions with government priorities and match the dialogue with TA; (b) multisectoral reforms are required for institutionalizing a comprehensive approach to DRM; and (c) it is important to position the Cat DDO within a broader disaster risk financing strategy.

42. **The Cat DDO allows rapid access to financing in the event of a natural catastrophe.** Funds can be disbursed after the declaration of a state of emergency described below. Drawdown conditions and renewals of the instrument are as follows:

- **Drawdown trigger.** Under this DPF, funds may be drawn down upon a "Declaration of a National Disaster" (*Déclaration de Sinistre National),* a declaration by the Recipient of a national disaster due exclusively to a catastrophic disaster generated by an eligible natural catastrophe, including inter alia: earthquake, tsunamis, volcanoes, landslides, drought,

[23] Including lessons reflected in the 2006 Independent Evaluation Group Report *Hazards of Nature, Risks to Development: An IEG Evaluation of World Bank Assistance for Natural Disasters*.

tropical cyclones, floods, and storms surge or public health emergency that has caused, or is likely to cause imminently, a major adverse economic and/or social impact on the Recipient in accordance with the Recipient's Law No. 215-031 *"Politique Nationale de Gestion des Risques et des Catastrophes"* (National Disaster Risk Management Policy).

- **Drawdown period and renewals.** The drawdown period for this operation will be three years. The Recipient can renew it one time for an additional three-year period during which the Cat DDO can be disbursed. Renewal is subject to satisfactory maintenance of the program and of an adequate macroeconomic policy framework.

### 4.2. PRIOR ACTIONS, RESULTS, AND ANALYTICAL UNDERPINNINGS

43. **The proposed operation will support ongoing reforms of Madagascar's disaster and climate risk management system.** The program has three pillars: Pillar 1: Strengthening the national system for disaster risk management, Pillar 2: Strengthening financial resilience to disasters, and Pillar 3: Mainstreaming disaster and climate resilience into territorial and urban planning. The policy reforms represent a strong commitment by the Government to disaster risk reduction and climate resilience. The TA of both AFD and World Bank has been mobilized to support the reforms and will continue to be provided throughout implementation to ensure that targeted results are achieved.

**Pillar 1: Strengthening the national system for disaster risk management**

44. **Through reforms in Pillar 1, the GoM operationalizes the institutional framework established under the new DRM Law.** The National DRM System requires a functioning coordination mechanism at a technical level and the mandates of the two main DRM institutions, the BNGRC and the CPGU, need to be aligned. They also need to be well-coordinated with other actors, notably social protection and humanitarian agencies at the forefront of disaster response. Finally, the level of accumulated risk throughout the country requires that decentralized regional entities be established and that they achieve operational effectiveness.

45. **Pillar 1 also supports the creation of a regulatory framework for an adaptive social protection system which can effectively respond to disaster-related shocks.** Madagascar's social safety net has already been used in disaster response through the FIAVOTA program[24] which has provided an effective emergency response to the El Niño-linked drought in the south, with clear evidence of success from impact evaluations in combatting food insecurity and malnutrition. Madagascar's cash transfer system has also recently been used by the World Food Programme and United Nations Children's Fund (UNICEF) to deliver humanitarian assistance in Beloha. However, an institutionalized mechanism with clear and pre-agreed rules for scale-up is lacking, as are clear rules regarding the division of labor between the GoM and humanitarian agencies in the provision of emergency assistance.

[24] The FIAVOTA program is an emergency drought response program for the South of Madagascar (*Fiavota* means assistance in a southern Malagasy dialect). The program has been implemented since 2016 and provides cash transfers, nutrition services, and livelihood recovery grants to drought affected households.

**Prior Action 1:** The Recipient has: (a) updated the Disaster Risk Management (DRM) system at the national and regional level which includes, inter alia, the provision of creating DRM offices at the regional level; and (b) defined the respective roles of the National Disaster Risk Management Bureau (BNGRC) and the Unit for the Prevention and Management of Emergencies (CPGU) by identifying that the BNGRC leads all operational aspects of DRM, while the CPGU is responsible for strategic planning.

**Legal Evidence:** (a) Adoption of Decree No 2019-1954 of October 16, 2019 implementing the Law No 2015-031 of February 12, 2016 on National Policy on disaster and catastrophe risk management; (b) adoption of Council of Government's Decree No 2019-1949 of October 16, 2019 defining the organization, attributions and the functioning of the CPGU; and (c) adoption of the Council of Minister's decree No 2019-1958 of October 16, 2019 defining the organization, attributions, and the functioning of the BNGRC.

46. **The 2016 National DRM Law[25] defines the overall DRM approach, principles, and institutional structure but has not formally established required DRM structures nor clearly defined the responsibilities of key DRM actors.** To ensure the efficient management of emergency situations, it is critical to set up the right institutional structures which clearly delineate the mandates, competencies, and accountabilities for overseeing risk assessments and coordinating different ministries and agencies which have a role in disaster preparedness and response. Such an institutional framework is essential for mainstreaming DRM and climate resilience into decision-making processes across the Government. The National DRM Law lays out a comprehensive approach to DRM with shared responsibilities among line ministries under an overall coordinating body, the National DRM Council. Building on this law, an application decree[26] is needed to formally establish all the DRM structures at central and at decentralized levels, strengthen inter-ministerial coordination, and clearly define disaster response instruments. This reform is particularly pertinent because currently two DRM organizations—the CPGU and BNGRC—have overlapping mandates, regularly leading to coordination failures.

47. **Through Prior Action 1, the GoM has –(a) clearly defined the overall DRM approach at national and regional level and (b) clarified the respective roles of the BNGRC and CPGU.** Regarding (a), the reform clearly defines and establishes an integrated and multisectoral approach and mechanism based on the participation of all relevant actors. Regarding (b), the reform clarifies the roles and mandates of the BNGRC, as the main operational body for disaster preparedness and emergency response, and the CPGU, as the main strategic body for promotion and monitoring of DRM mainstreaming in sectors and as the secretariat of the National DRM Council. The reform also officially creates DRM offices at regional level in the most at-risk regions. See annex 5 for more details on the institutional framework for DRM in Madagascar and key changes made by this reform.

48. **Expected results.** The adoption of the three decrees is expected to result in an increase in the number of people covered by Regional DRM Offices in most-at-risk areas from 900,000 people in 2019 to 7 million people by 2022.

[25] *Loi No 2015-031 relative à la Politique National de Gestion des Risques et des Catastrophes*.
[26] *Décret d'application.*

**Prior Action 2:** The Recipient has defined its legal framework to implement a shock-responsive social protection mechanism.

**Legal Evidence:** Adoption of Council of Government's decree No 2019-1999 of October 22, 2019 implementing Law No. 2017-028 of January 25, 2018, on noncontributory social protection.

49. **Disaster response activities are often poorly coordinated between the Ministry of Population, Social Protection, and Promotion of Women (MPSPPW) and other relevant actors, and an institutionalized scalability mechanism for social protection is lacking.** The social protection system already responds to both recurring drought-related needs in the south of the country, as well as to rapid onset climate-related shocks including cyclones. However, the system responds on an ad hoc basis with no institutionalized mechanism in place that allows the system to scale up according to clear and pre-agreed rules. Also, coordination is lacking both at the operational and institutional level and there is a need to clarify institutional roles and mandates. Conscious of their important and complementary roles in disaster response, the MPSPPW and MID have coordinated in the development of a decree regulating the Law for Non-Contributory Social Protection.[27] In addition to within-government coordination failures, government actions are also poorly coordinated with those of international humanitarian actors who play an important role in providing relief to drought-affected populations in Madagascar's south. Evidence from other countries shows that such relief can be provided more cost-effectively through the social protection system if it is able to expand in response both to seasonal fluctuations in required assistance, as well as to rapid onset shocks.

50. **Through Prior Action 2, the GoM has defined its legal framework to implement a shock-responsive social protection mechanism in Madagascar and has clarified how the social protection system complements other entities involved in disaster response.** While the Law for Non-Contributory Social Protection sets the general framework for social protection in Madagascar, the decree regulating the law which the GoM has adopted as Prior Action 2 provides a clear mandate to develop rules and a mechanism to enable the GoM to scale up assistance to disaster-affected households through the social protection system and to do so without duplicating efforts of the humanitarian system. In particular, the decree requires that a manual is developed to clearly define (a) the rules for scaling up social protection after weather-related shocks and (b) the responsibilities of the social protection system versus the humanitarian actors.

51. **Expected results.** The result of this reform will be a more shock-sensitive social protection system, which can scale up after shocks to reach a greater number of affected households. With such a system in place, an increased number of humanitarian agencies are expected to use the Government's social protection system for disaster response. Ultimately, this reform is expected to increased resilience of the poor to disaster shocks.

[27] The submission of the law to Parliament was a prior action in the MG - Inclusive and Resilient Growth DPO (P162279). The law was passed in January 2018.

**Pillar 2: Strengthening financial resilience to disasters**

52. **The reforms supported under Pillar 2 will strengthen the GoM's financial capacity to respond to disasters.** Given the significant average annual losses from disasters in Madagascar, strengthening financial protection against disasters requires prearranging financing for emergencies caused by natural disasters. While the proposed Cat DDO will make an important contribution to this, both theory and international experience with disaster risk financing suggest that a combination of multiple financial instruments is the most cost-effective way to financially prepare for disasters. An NDF supported under Prior Action 3 and recently purchased drought insurance from the African Risk Capacity (for maximum annual coverage of US$2.8 million) will provide additional funding for disaster response. International experience shows that a formal disaster risk finance strategy is important to ensure proactive financial planning for disasters, in which a variety of instruments are considered and carefully assessed to ensure cost-effectiveness. The GoM has committed to developing such a strategy during implementation of this operation.[28]

**Prior Action 3:** The Recipient has strengthened its financial capacity to respond to disaster and address the challenge of insufficient immediate disaster response through the creation of the National Disaster Fund to finance disaster preparedness and emergency response.

**Legal Evidence:** (a) Adoption of the Council of Government's Decree No 2019-1954 of October 16, 2019 implementing Law No 2015-031 of February 12, 2016 on the national policy on disaster and catastrophe risk management; and (b) adoption of the Council of Ministers' decree No 2019-1958 of October 16, 2019 defining the organization, attributions, and the functioning of the BNGRC.

53. **Without recourse to a prearranged and dedicated financing source to meet the needs for immediate disaster response, the GoM has in the past, routinely relied on budget reallocations and international assistance to finance emergency response.** For example, after the Tropical Cyclones Chedza and Fundi and flooding caused in the first three months of 2015—for which the GoM was only able to cover 6 percent of immediate needs—79 percent of GoM financing for response came from budget reallocations. Donor funds can help shrink financing gaps. However, the availability of such funds is highly uncertain, often takes a long time to come forth, is typically only available after extreme events, and is associated with high coordination costs and fragmented response. Overall, funds for disaster response in Madagascar are currently mobilized only after an event and arrive late. Insufficient and delayed disaster response poses a significant risk to poverty reduction efforts. Research has demonstrated that the poor are the most vulnerable population to disasters and inadequate response, in part because they may need

[28] See the Letter of Development Policy.

to resort to so-called negative coping strategies[29] which further deteriorate their—and their children's — prospects to escape poverty.[30]

54. **Addressing the challenge of insufficient immediate disaster response finance and associated negative economic and social impacts, the GoM has created an NDF to finance disaster preparedness[31] and emergency response.** While the GoM has been considering the establishment of a contingency fund for disasters since at least 2008, efforts to date have not led to a resourced and functioning fund. Only through the leadership of the Ministry of Economy and Finance (MEF) in the last 18 months has the push to create such a fund attained real momentum. The creation of the fund aims to increase the predictability of resource availability for preparedness and immediate response to disasters, as well as the efficiency and transparency of preparedness and immediate response expenditure. If adequately financed, an NDF can help ensure that the GoM has the resources to meet the response costs of recurrent events as well as the immediate needs after larger events. With World Bank TA, regulations will be developed which clearly define procurement processes and eligible expenditures for NDF resources; beneficiaries of such resources; and oversight, control, and audit processes. The fund will receive regular financing from a dedicated annual budget allocation.

55. **The NDF will not accumulate large balances as it is not intended to cover reconstruction costs which represent the bulk of post-disaster needs.** Rather, it seeks to ensure that sufficient resources are available throughout the fiscal year to respond to recurrent events. Also, in the unlikely event that no needs arise in any given year, the NDF is expected to accumulate funds up to a point where the emergency costs of events expected to occur every second year can be covered (events with a two-year return period). As such, the NDF will complement this Cat DDO and sovereign insurance by providing coverage for events too small to trigger the Cat DDO or sovereign insurance, which in turn provide coverage for larger events (that is, events with greater return periods). A technical discussion on expected emergency needs, potential funding gaps, and on the relative cost-effectiveness of a reserve fund and insurance to finance emergency response to frequent events is provided in annex 6. Further details on the NDF's mandate and governance, potential size of the fund, and key operational features are presented in annex 7.

56. **Expected results.** First, the NDF will ensure a more stable source of funding for emergency response. For medium and large events, the NDF can be topped up by donor contributions and potentially receive payouts from sovereign risk insurance policies. Second, the NDF will facilitate the tracking of disaster related expenditures, while increasing efficiency and transparency. The immediate next step in operationalizing the NDF will be the development of an operations manual to clarify when the NDF can disburse, eligible expenditures, control mechanism and oversight of NDF expenditures, and a rule to determine the size of annual allocations to the fund. The results indicator for this prior action is thus the

[29] Such as taking children out of school so they can contribute to household income.
[30] Furthermore, while their absolute economic losses are usually much smaller than those of the better-off, in relative terms they are higher. If welfare effects of disasters rather than damages and losses are considered, the poor also suffer disproportionally from disasters since any given loss for a poor person is more impactful in terms of welfare than for a well-off person.
[31] Preparedness in this context refers to preparatory activities for imminent disasters, such as an approaching tropical cyclone.

operationalization of the NDF as shown through the adoption of an operations manual and through the publication of financial audits in the final year of the operation.

**Prior Action 4:** The Recipient's Prime Minister has submitted to Parliament a draft new insurance law that (a) allows the purchase of sovereign catastrophe insurance from foreign entities if such coverage is not offered by Malagasy insurance companies and (b) allows insurers to develop products that will assist households and enterprises to improve their climate and disaster resilience.

**Legal Evidence:** Submission to Parliament on November 6, 2019 of the Draft Insurance Law No 007/2019 of October 30, 2019.

57. **Madagascar has a very low insurance protection against disaster losses and has struggled to purchase sovereign catastrophe insurance due to a lack of legal clarity on the ability to purchase insurance from foreign entities.** Limited insurance against catastrophe losses is part of a wider problem of low insurance penetration in Madagascar, which stands at 0.7 percent of GDP. Catastrophe insurance has great potential to help protect businesses and households against the financial impacts of natural disasters. However, the current regulatory framework is not conducive to the development of the insurance sector, in part because it does not treat Malagasy and foreign insurance companies equally. The regulatory framework is also unclear regarding the Government's ability to purchase sovereign insurance since such insurance is only provided by foreign entities. Through a special law,[32] the GoM was able to purchase insurance from the African Risk Capacity. However, only through the new insurance law will the GoM be able to access potentially alternative providers of sovereign insurance.

58. **The new insurance law is critical to (a) create a clear legal basis for purchasing insurance coverage, including sovereign insurance, from foreign entities in cases where coverage is not be provided by insurance firms registered in Madagascar and (b) strengthen the enabling environment for catastrophe and climate insurance.** This reform will clarify that the GoM can purchase sovereign insurance from foreign insurance companies. This is important as it will enable the GoM to access sovereign insurance from a variety of potential providers and therefore ensure that the GoM can obtain the greatest value for money when undertaking sovereign risk transfer transactions going forward. The reform will also create a stronger enabling environment for regular catastrophe and climate insurance. In the medium term, this is expected to increase the offering and uptake of catastrophe and climate insurance products. Increasing the sum insured of potential disaster losses will help limit the GoM's disaster-related contingent liability because businesses/households/farmers will depend less on state aid if insured. Measures to strengthen insurance markets are therefore important to increase the GoM's fiscal resilience to disasters.

59. **Expected results.** This reform is expected to lead to an overall strengthening of the insurance sector in Madagascar, resulting in an increased offering of insurance against disaster risk. It will also create a clear legal basis for the purchase of sovereign catastrophe insurance by the GoM and is expected to lead to the purchase of sovereign tropical cyclone insurance by the GoM for at last one cyclone season by 2022.

[32] Loi No. 2018-012.

**Pillar 3: Mainstreaming disaster and climate resilience into territorial and urban planning**

60. **The reforms in Pillar 3 focus on ensuring that new infrastructure is resilient to disaster and climate-related risks through strengthened building and land-use regulations.** New development in areas prone to floods and cyclones is a major driver of increasing disaster losses in Madagascar. The creation of new risks can be mitigated by adopting updated resilient building standards and risk-informed land use planning instruments, which establish zoning restrictions for construction in hazard-prone areas.

**Prior Action 5:** The Recipient has adopted a resilient buildings regulatory framework implementing Law No 2015-052 of February 3rd, 2016 on urban, development and housing.

**Legal Evidence:** (a) Adoption of the Council of Government's Decree No 2019-1957 of October 16,2019 defining the national standard for the construction of disaster-resistant building; (b) adoption of the Council of Government's Decree No 2019-1956 of October 16,2019 specifying the procedures for obtaining construction permits.

61. **Madagascar is affected by cyclones annually, leading to severe and recurrent damages to buildings that do not meet cyclone-resistant standards.** Experience from countries in the region, including Mozambique, shows that cyclone-resistant building codes can be implemented in a cost-effective way (that is, the additional construction costs are low compared to the damages prevented). Despite the high risk of cyclones in Madagascar, little progress has been made with the specification and implementation of such building standards.

62. **By legally mandating the use of cyclone-resistant building standards and risk-informed land use planning, the GoM ensures that new public buildings will not create new risk, thus avoiding significant potential future costs.** Adequate and risk-informed land use planning is critical for resilient development and to avoid the creation of new risks. In 2018, the Law on Urban Development and Housing (LUH 2015-052) was approved to establish Madagascar's regulatory framework for urban planning. The law and its proper implementation are necessary for the state and municipalities to better control their land use and urban development. The decrees *(décrets d'application)* supported under Prior Action 5 allow the law to come into force. They reform the process by which construction permits are granted; improve national, regional, and municipal coordination; and define how resilient building codes in public construction programs are enforced. Overall, their approval establishes a robust institutional framework for risk-informed construction of public buildings and spatial planning.

63. **Expected results.** It is expected that this reform will lead to new public buildings being constructed in accordance with the adopted standards. Initial implementation of the reform will focus on the education sector, which has experienced some of the highest losses after past cyclones. Going forward, all new primary schools are expected to be constructed according to the new codes/regulations. The World Bank will provide TA to assist the GoM in implementing the reform going forward.

**Prior Action 6:** The Recipient has adopted a methodology and issued guidelines to mainstream climate change adaptation and DRM into urban, communal, and regional planning.

**Legal Evidence:** (a) Adoption of the Council of Government's decree No 2019-1932 of October 9, 2019 on the methodology for elaborating, validating, and implementing urban plans; (b) the adoption of the Council of Government's decree No 2019-1934 of October 9, 2019 on the elaboration, validation, and implementation of municipal and inter-municipal territorial planning schemes; and (c) the adoption of the Council of Government's decree No 2019-1931 of October 9, 2019 on the elaboration, validation, and implementation of regional territorial plans.

64. **A concentration of new developments in disaster-prone areas and the consequences of climate change are leading to a rapid increase in risk exposure in Madagascar.** A combination of population growth and rural-urban migration is causing rapid growth of built-up areas throughout Madagascar. For example, Antananarivo gains approximately 100,000 new inhabitants per year and has seen a 50 percent increase in its built-up area since 2003. Both economic considerations and competition for space lead to households settling in areas that are at risk of floods but close to urban labor markets. A large part of new developments is occurring in areas prone to flooding as well as exposed to cyclones and landslides. This, together with the consequences from climate change, is leading to an overall rapid increase in risk exposure. It is therefore urgent that risk be considered when planning spatial development, to prevent the creation of risk for inhabitants and infrastructure and to mitigate impacts on existing housing and infrastructure stocks.

65. **Through Prior Action 6, the GoM has adopted a methodology and issued guidelines to mainstream climate change adaptation and DRM into urban and communal planning.** The National DRM Strategy states that urban as well as regional and municipal spatial planning should be preceded by a disaster risk analysis. However, only now, through Prior Action 6, has the GoM officially adopted a methodology and issued guidelines for such analyses exist and made adherence to them compulsory.

66. **Expected results.** Going forward, all new regional, urban, and communal plans will follow an approach that integrates spatial resilience considerations, including disaster risk analysis, following Government approved guidelines. Risk-informed territorial planning documents that cover at least 30% of the national territory; 30% of the urban population; and 15% of the rural population will be developed by 2022. AFD and other development partners such as German Agency for International Cooperation (*Deutsche Gesellschaft für Internationale Zusammenarbeit*, GIZ) will provide TA to ensure successful implementation of the mandated approach in key urban centers.

**Table 4. DPF Prior Actions and Analytical Underpinnings**

| Prior Actions | Analytical Underpinnings |
|---|---|
| **Pillar 1: Strengthening the national system for disaster risk management** | |
| **Prior Action 1:**<br>The Recipient has: (a) updated the Disaster Risk Management (DRM) system at the national and regional level which | • Sendai Framework for Disaster Risk Reduction 2015–2030. https://www.unisdr.org/we/inform/publications/43291<br>• Shock Waves: Managing the Impacts of Climate Change on Poverty. https://openknowledge.worldbank.org/handle/10986/22787 |

| Prior Actions | Analytical Underpinnings |
|---|---|
| includes, inter alia, the provision of creating DRM offices at the regional level; and (b) defined the respective roles of the National Disaster Risk Management Bureau (BNGRC) and the Unit for the Prevention and Management of Emergencies (CPGU) by identifying that the BNGRC leads all operational aspects of DRM, while the CPGU is responsible for strategic planning. | • World Bank. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters.* https://openknowledge.worldbank.org/handle/10986/25335<br>• World Bank. 2013. *Building Resilience: Integrating Disaster and Climate Resilience into Development GFDRR.* https://www.gfdrr.org/sites/default/files/publication/Building%20Resilience%20.pdf |
| **Prior Action 2:**<br>The Recipient has defined its legal framework to implement a shock-responsive social protection mechanism. | • World Bank. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters. Climate Change and Development.* This report moves beyond asset and production losses and shifts its attention to how natural disasters affect people's well-being. https://openknowledge.worldbank.org/handle/10986/25335<br>• World Bank. 2017. "With a Little Help: Shocks, Agricultural Income, and Welfare in Uganda." Policy Research Working Paper 7935. The study describes the type of income growth households experienced and assesses the importance of these external events in determining progress. http://documents.worldbank.org/curated/en/209501483980067882/pdf/WPS7935.pdf<br>• World Bank. 2015. "Reducing Poverty and Investing in People: The New Role of Safety Nets in Africa." *Directions in Development* 2015. This report assesses the status and analyzes the objectives, features, systems, performance, and financing of safety nets in 22 African countries. https://openknowledge.worldbank.org/handle/10986/16256 |
| **Pillar 2: Strengthening financial resilience to disasters** | |
| **Prior Action 3:**<br>The Recipient has strengthened its financial capacity to respond to disaster and address the challenge of insufficient immediate disaster response through the creation of the National Disaster Fund to finance disaster preparedness and emergency response. | • Improving the Assessment of Disaster Risk to Strengthen Financial Resilience: Joint G20 Publication by the Government of Mexico and the World Bank: https://www.gfdrr.org/G20DRM;<br>• World Bank. 2012. *FONDEN: Mexico's Natural Disaster Fund--A Review*. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/26881. Mexico's fund for natural disasters was established in the late 1990s as a mechanism to support the rapid rehabilitation of federal and state infrastructure affected by adverse natural events. FONDEN was first created as a budget line in the federal expenditure budget of 1996 and became operational in 1999. Funds from FONDEN could be used for the rehabilitation and reconstruction of (a) public infrastructure at the three levels of government (federal, state, and municipal); (b) low-income housing; and (c) certain components of the natural environment. It channels resources from the federal expenditure budget to specific reconstruction programs.<br>• World Bank. 2016. *Dull Disasters? How Planning Ahead Will Make a Difference.* |

| Prior Actions | Analytical Underpinnings |
|---|---|
| | This report makes the case that financial and budgetary planning, ahead of disasters, can lower losses from extreme events. It also emphasizes the importance of quick liquidity post-disaster, which is the purpose of this Development Policy Operation (DPO), and the need for having multiple sources of post-disaster financial resources, which this prior action aims to achieve. http://documents.worldbank.org/curated/en/962821468836117709/pdf/106944-PUB-add-isbn-PUBLIC-9780191088414.pdf |
| **Prior Action 4:**<br>The Recipient's Prime Minister has submitted to Parliament a draft insurance law that (a) allows the purchase of sovereign catastrophe insurance from foreign entities if such coverage is not offered by Malagasy insurance companies and (b) allows insurers to develop products that will assist households and enterprises to improve their climate and disaster resilience. | • Gine, Xavier, Bernardo Barboza Ribeiro, and Peter Friedrich Wilhelm Wrede. 2019. "Beyond the S-curve: Insurance Penetration, Institutional Quality and Financial Market Development (English)." Policy Research Working Paper No. WPS 8925. World Bank Group, Washington, DC. http://documents.worldbank.org/curated/en/272881561663514250/Beyond-the-S-curve-Insurance-Penetration-Institutional-Quality-and-Financial-Market-Development<br>• World Bank. 2016. *Disaster Risk Finance as a Tool for Development: A Summary of Findings from the Disaster Risk Finance Impact Analytics Project.* https://openknowledge.worldbank.org/handle/10986/24374<br>• Mahul, Olivier, and Charles J. Stutley. 2010. *Government Support to Agricultural Insurance, Challenges and Options for Developing Countries.* Washington, DC: World Bank. |
| **Pillar 3: Mainstreaming disaster and climate resilience into territorial and urban planning** | |
| **Prior Action 5:**<br>The Recipient has adopted a resilient buildings regulatory framework implementing Law No 2015-052 of February 3rd, 2016 on urban, development and housing. | **Relevant ASA and analytical work:**<br>• Madagascar Pilot Program for Climate Resilience (P158816). |
| **Prior Action 6:**<br>The Recipient has adopted a methodology and issued guidelines to mainstream climate change adaptation and DRM into urban, communal, and regional planning. | **Relevant ASA and analytical work:**<br>• Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756) and associated technical work.<br>• World Bank. 2017. *Greater Antananarivo: Urban Poverty and Resilience Study.*<br>• World Bank. 2016. *Investing in Urban Resilience: Protecting and Promoting Development in a Changing World.* This report illustrates how building urban resilience is critical for poverty reduction and shared prosperity. https://openknowledge.worldbank.org/handle/10986/25219<br>• World Bank Group. *The Triple Dividend of Resilience*. https://www.gfdrr.org/sites/default/files/publication/The_Triple_Dividend_of_Resilience.pdf<br>**Key findings that inform the prior action:**<br>• The concentration of people and assets in areas prone to climate risks is increasing rapidly. A disproportionate number of households in those areas are poor. By integrating climate risk into development planning, the increased of new risk could be reduced. |

### 4.3. LINK TO CPF, OTHER BANK OPERATIONS AND THE WBG STRATEGY

67. **The proposed operation is fully aligned with the World Bank Country Partnership Framework (CPF) FY 2017–2021 for Madagascar (Report No. 114744-MG).** The CPF has two focus areas: (a) increase resilience and reduce fragility and (b) promote inclusive growth. Contributing to the first focus area, the operation will directly support Objective 2 'Enhanced resilience of livelihoods of vulnerable households in rural and urban areas' by strengthening the national system for DRM, increasing financial resilience to disasters, and integrating resilience to climate-related and disaster shocks into sector programs. The Systematic Country Diagnostic highlights Madagascar's status as one of the most climate vulnerable countries in the world. The document emphasized the importance of strengthening the protection of the poor against natural disaster-related shocks and increasing the investment in risk reduction, risk information, and disaster recovery. The proposed operation supports reforms to strengthen the institutional, technical, and financial capacity to manage disaster and climate-related shocks and therefore is in line with recommendations made by the Systematic Country Diagnostic.

68. **The project complements several World Bank projects in Madagascar, both lending operations and analytical and advisory services.** The proposed operation is complementary to the active DRM and climate resilience portfolio in Madagascar. The US$75 million Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756) strengthens flood protection infrastructure and urban resilience in the poorest parts of Antananarivo. The US$1.5 million RETF PPCR finances TA to strengthen the knowledge on climate resilience and climate risk management in the country. The Cat DDO complements these projects by helping fill key institutional and legal gaps for DRM and by strengthening the financial capacity of the Government to respond to shocks. A full list of TA projects and operations which complement this Cat DDO is provided in annex 9.

### 4.4. CONSULTATIONS AND COLLABORATION WITH DEVELOPMENT PARTNERS

69. **This operation benefits from EUR 10 million (US$11.7 million equivalent) co-financing from AFD.** Through this co-financing, the World Bank and AFD combine their experience on DRM and urban resilience to better support the GoM. AFD has implemented several urban resilience and climate change adaptation projects in Madagascar over the past years. In the proposed operation, AFD will specifically support Prior Actions 5 and 6 under Pillar 3 on mainstreaming disaster and climate resilience into territorial and urban planning. AFD has mobilized dedicated funds from a project preparation facility (Cities and Climate Change in Sub-Saharan Africa Initiative, co-funded by AFD, the Swiss Cooperation State Secretariat for Economic Affairs, and the EU) for this Cat DDO. This facility also finances TA to develop methodological guidelines and review regulations. In particular, AFD has a EUR 2 million TA grant which it will use to support implementation of the reforms under Pillar 3. Finally, this operation complements AFD's EUR 27 million Program for Intermediary Cities *(Programme d'Appui au Developpement des Villes d'Equilibre)*. This program finances urban planning for Madagascar's six key intermediary cities (Antsiranana, Fiananrantsoa, Toamasina, Antisrabe, Toliara, and Mahajanga).

70. **Consultations have been held with other key development partners in Madagascar.** Development partners play an important role in disaster prevention, preparedness and response in

Madagascar. Key partners consulted in preparation of this operation include GIZ, the EU, the Red Cross, UNICEF, and the African Development Bank (AfDB).

## 5. OTHER DESIGN AND APPRAISAL ISSUES

### 5.1. POVERTY AND SOCIAL IMPACT

71. **The reforms supported by this operation are expected to have positive poverty and social effects for poor and vulnerable groups.** Madagascar is one of the poorest countries in the world with an extreme poverty ratio of 78 percent in 2012. Natural disasters push people into poverty and/or prevent people from escaping from poverty. Thus, efforts to reduce poverty and disasters are complementary. A World Bank study conducted in 2017 found that in Antananarivo, households in areas affected by floods are poorer in terms of their consumption levels, asset ownership, and access to services, compared to households that were not affected.[33] The 2017 Unbreakable Report estimated for Madagascar that a US$1 asset loss from a disaster is equivalent to a US$1.61 consumption loss—and the same report also notes that consumption losses have particularly strong negative welfare impacts on the poor. This impact on overall well-being is compounded by inequality among female-headed households and children in such households, which face a higher extreme poverty incidence in the country than other households.[34]

72. **The disproportional impacts of disasters on the poor have been well documented for Madagascar, including possible negative long-lasting effects.** Poor people suffer disproportionately from the impacts of natural disasters due to overexposure, higher vulnerability, and a lower ability to cope and recover and because of permanent impacts on education and health. In Madagascar, cyclone risk was found to increase poverty in rural areas: the average cyclone decreases total consumption by 12 percent and increases the probability of being poor by 7.4 percent. No such impact has been found in urban areas.[35] However, World Bank analytical work found that two-thirds of Antananarivo households affected by flooding reduced spending and food consumption. Poorer households are more likely to reduce their food intake and sell their animals off compared to wealthier households that are more able to rely on savings.[36] Reduced food consumption by the poor after flooding is of concern given the detrimental long-term effects. The reforms supported by this operation are aimed at increasing resilience to disasters in Madagascar, and to strengthen Government's ability to manage the adverse impacts of disasters. This is expected to have positive impacts on the GoM's effort to eliminate extreme poverty and boost shared prosperity by ultimately reducing the risks of disasters to the poor as discussed above.

73. **By strengthening DRM and increasing financial resilience under Pillars 1 and 2 and by establishing a framework for scalable social protection under Pillar 1, the GoM will have greater capacity to support the poor and vulnerable in the aftermath of disasters.** The reforms supported by the

[33] World Bank. 2017. *Greater Antananarivo: Urban Poverty and Resilience Study.*
[34] World Bank. 2014. *Face of Poverty in Madagascar: Poverty, Gender and Inequality Assessment*.
[35] Andrianarimanana, D. 2015. "The Role of Inter-Household Transfers in Coping against Post-disaster Losses in Madagascar." In *Disaster Risk Financing and Insurance: Issues and Results*, edited by Daniel Clarke, Alain de Janvry, Elisabeth Sadoulet, and Emmanuel Skoufias.
[36] The study found differences in the copping strategies by wealth quintiles: an 81 percent of household in the lowest quintile ate less food while in the highest quintile, 54 percent. Unlike the lowest quintile, the highest one relies more on savings (23 versus 14 percent) and sells assets (22 versus 14 percent).

operation aim to support the GoM's institutional, technical, and financial capacity to manage disaster and climate-related risks. Early intervention is critical to protect the lives and livelihoods of affected people. Early intervention is not only important for rapid onset events such as cyclones, but also for droughts. Evidence has shown that early measures to help affected people can reduce their resorting to negative coping strategies (for example, parents taking children out of school so they can work and contribute to household income or the sale of assets to cover immediate needs), which can reduce long-term welfare. Strengthening disaster preparedness and response capacity also includes strengthening financial resilience. This can help ensure that sufficient liquidity is available to finance preparedness and immediate response activities, including the provision of assistance to the poor and to vulnerable populations. Finally, capacity to respond in a manner benefitting the poor is strengthened by the existence of efficient ways to channel assistance to the poor in the aftermath of shocks, such as through the social protection system. This supported by Prior Action 2 of this operation.

### 5.2. ENVIRONMENTAL ASPECTS

74. **The reforms supported by the proposed operation are unlikely to have significant negative impacts and risks on Madagascar's natural assets.** All the actions supported through the operation are policy oriented; they do not support direct investment in environmentally impactful projects or involve policy actions with significant environmental consequences. Under Pillar 1, the proposed reforms are aimed at strengthening the DRM technical capacities to manage the impact of climate and disaster risk. The policy reforms under this pillar could promote natural resource and environmental management and are likely to reduce environmental degradation through a better understanding of the environmental impact of disasters. Prior Action 3, under Pillar 2 with the objective to strengthen financial resilience to disasters, will create an NDF to finance disaster preparedness and emergency response. It will not induce—directly or indirectly—negative environmental effects. Reforms supported under Pillar 3 could have environmental effects as they affect how public investments in buildings and territorial planning are conducted. However, as mentioned above, they will not directly finance investments. Although unlikely, potential harmful environmental impacts derived from this policy reform will be limited and will be monitored and addressed through the Environmental Assessment procedures defined in national legislation and under the guidance and supervision of the National Environment Office (*Office National pour l'Environnement,* NEO).

75. **Environmental risk is substantial, but the Government has in place adequate environmental legislations and adequate experience and capacity implementing the Environmental Assessment procedures, as well as ongoing advisory support by development partners to mitigate risks.** Madagascar has put in place adequate environmental legislation and controls, including the Environment Charter[37]and the MECIE decree[38] and a wide range of sectoral regulatory frameworks.[39] The national framework requires the preparation of an Environmental and Social Impact Assessment (ESIA) and the production of an Environmental and Social Management Plan (ESMP) for all investment projects. To support the

[37] Law No. 90-033 of December 21, 1990, modified by Law No. 97-012 of June 6, 1997, and Law No. 2004-015 of August 19, 2004.
[38] Law No. 95-377 of May 23, 1995, modified by Law No. 99-954 of December 15, 1999, and Decree No. 2004-167 of February 3, 2004, *Mise en Compatibilité des Investissements avec l'Environnement* (Making Investments and the Environment Compatible), commonly known as MECIE decree.
[39] The regulatory frameworks are listed on the NEO website: https://www.pnae.mg/cadre-reglementaire-2.

implementation of the country's environmental regulatory framework, an operational environmental unit has been established within each sector ministry, which is responsible for integrating environmental dimensions in each project or program as relevant. The NEO oversees the implementation of the relevant ESMP with the investor. The country has demonstrated adequate capacity to implement the measures for ESIAs (and relevant management plans) in a diversity of sectors, including those that may be relevant to the policy reforms supported by the Cat DDO. Development partners, including the World Bank, support the application of national environmental frameworks through TA and the staffing of environmental focal points in each project, leading to an incremental increase in local expertise. Therefore, there are established processes and adequate capacity for assessing and mitigating environmental and social risks through the required ESIAs.

### 5.3. PFM, DISBURSEMENT AND AUDITING ASPECTS

76. **Madagascar's fiduciary risk is substantial, but policy actions taken by the Government to strengthen public financial management (PFM) and expenditure controls help mitigate these risks.** The GoM has been implementing a PFM Reform Program aimed at restoring financial controls and accountability, and it is receiving a large amount of TA in this area.

77. **The 2018 Public Expenditure and Financial Accountability (PEFA) indicates scope for significantly improving the PFM system while noting that significant progress had been made in selected areas.** In latest PEFA which is from 2018 and covers the calendar years 2014 to 2016, 61 percent of the indicators scored D, meaning that the performance is below the basic level, while no indicators scored A. PEFA identifies the lack of budget credibility as the main weakness of Malagasy PFM due to an overestimation of public resources, which often fails to take account of fiscal risks, which include unforeseen costs due to cyclones and droughts. Moreover, the report highlights the need to improve the audit and control functions. On the positive side (B scored), the assessment recognizes the results from reforms in debt management, budgetary process, multiyear budget programing, and access to information by the legislature and the public, some of which benefitted from World Bank support.[40]

78. **The legal and regulatory framework for several areas of PFM has been updated and budget transparency improved.** The update of the legal framework relates to public debt (2014), Public Private Partnership (2016), corruption (2016), and public procurement (2017).[41] The reform of the legal framework for corruption has empowered the anticorruption agency which has been more active since 2017, and cases of diversion of public funds by high officials have been subject to investigation and punished. According to the 2018 PEFA, the new Public Procurement Code still leaves a large margin for less competitive procurement practices. Since 2017, consultations for budget formulation have been

[40] The MG - Reengagement DPO (P150503) supported the adoption of the law on public debt and guarantees that has set up the layer for the institutional framework of debt management; the MG - Resilience DPO (P153084) supported the enhancement of budgetary information transparency, including the timely publication of audited financial accounts.
[41] Law No. 2014-012 on public and publicly guaranteed debt, Law No. 2016-020 on the fight against corruption and Law No. 2016-021 on anticorruption centers, Law No. 2015-039 on PPPs; Law No. 2016-055 on public procurements; Decree No. 2017-094 establishing the *Organisme de Coordination et de Suivi des Investissements et de leurs Financements* (OSCIF, Investment and Investment Funding Coordination and Monitoring Unit) and *Order gestion des investissements publics* (Public Investment Management Oder).

extended to civil society and private sector associations. The budget law is published on the MEF website, and the Citizen's Budget[42] and Citizen's Budget Execution reports are published.[43] The MG - Resilience DPO (P153084) supported the timely publication of quarterly budget execution reports and the annual consolidated accounts. The Supreme Audit Institution (*Cour des Comptes*) published its first report covering the year 2014 in May 2016, a process renewed in 2018, covering the fiscal years 2016 and 2017 with content extended to include JIRAMA. Since 2017, the audited final accounts are validated by Parliament within the time frame allowed by the law. The financial audit of the fiscal year 2018 is currently in progress. The World Bank's Country Policy and Institutional Assessment also indicates progress in public sector management, with Madagascar's relevant score improving from 2.6 in 2014 to 2.8 in 2018, and in the quality of budgetary and financial management, with an improvement of the relevant score from 2 to 3 in the same period.

79. **Progress has been made in strengthening the safeguards framework at the CBM of Madagascar (CBM).** The CBM's autonomy has been strengthened through the new Central Bank Act effective since 2016. The CBM has also reinforced its audit oversight and control environment including through the establishment of an audit committee, timely publication of the institution's audited financial statements, and capacity building in internal audit and reserves management under the IMF TA. Moreover, the functioning of the foreign exchange market has improved since the CBM discontinued buyback operations in September 2016. In addition, the procurement practices related to currency operations are being strengthened. The CBM is committed to undertake the necessary steps to implement International Financial Reporting Standards for the 2020 accounts.

80. **The World Bank is working with other partners to provide coordinated TA.** The Public Sector Performance Project (P150116) is helping advance improvements in revenue management, improved controls by the Court of Account and at the local level, and performance monitoring. In collaboration with the AfDB and the EU, it is helping build capacity at the Court of Account focus on strengthening financial audits methodology to conform with International Standards of Supreme Audit Institutions, performance audits, and forensic investigation. The IMF's TA Center for Southern Africa has a substantial TA program covering public investment management (through coordinated support with the World Bank), fiscal risks management, and cash and arrears management. The United States Treasury has seconded an adviser to support Treasury Single Account reforms. The AfDB and the EU are supporting civil service reforms. The EU and the IMF are also engaged in medium-term budget reforms.

81. **The MEF will follow disbursement procedures of the World Bank to receive proceeds.** Under these procedures, proceeds will be disbursed if the prespecified trigger defined in section 4 of this document is met. Once the Financing Agreement is declared effective, if drawdown conditions for a natural catastrophe are met, the MEF may submit a withdrawal application requesting the World Bank to deposit the proceeds into the budget account acceptable to the World Bank. IDA will disburse the proceeds into the designated U.S. dollar-denominated treasury account that is part of the country's foreign exchange reserves account at the CBM. The Government will ensure that, upon the deposit of the

[42] As part of broader efforts to increase budgetary transparency, this document recounts, in a simplified manner, the recent developments and the economic and fiscal outlook, new fiscal and customs measures, the reorientation of public spending, and the level of indebtedness.
[43] http://www.mefb.gov.mg/
http://www.dgbudget.gov.mg/transparencebudgetaire/article/budget-des-citoyens-lfi-2019-vf

proceeds into the said account, an equivalent amount is credited in its budget management system, in a manner acceptable to IDA. The agreement will include a clause for the provisions upon World Bank request, of an audit of the deposit account.

### 5.4. MONITORING, EVALUATION AND ACCOUNTABILITY

82. **Progress on the results indicators will be monitored and evaluated jointly by the Recipient and the World Bank.** The MEF is the main counterpart of the World Bank for this proposed DPF with Cat DDO and will also be responsible for coordinating the implementation of the policy program.

83. **Grievance redress.** Communities and individuals who believe that they are adversely affected by specific country policies supported as prior actions or tranche release conditions under a World Bank Development Policy Operation may submit complaints to the responsible country authorities, appropriate local/national grievance redress mechanisms, or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org

## 6. SUMMARY OF RISKS AND MITIGATION

84. **The overall risk rating for the operation is substantial.** There are substantial risks to achieving the PDO of the proposed operation. Areas of special concern include (a) political/governance; (b) low institutional capacity; (c) fiduciary; and (d) environmental and social.

85. **The stability since the democratically held presidential elections indicate that political risks have abated but governance risks remain substantial.** The conclusion of the elections—which were recognized by national as well as international observers as fair and transparent—marks the first time in the country's history that a period of economic growth has not been thwarted by a political crisis. The new government has so far maintained reform momentum, and investor confidence is on the upside. There is strong political ownership and commitment of the Government to strengthening DRM. However, institutional capacity within sector ministries is generally low and personnel changes at the technical level have led to some slowdown of the reform process.

86. **Macroeconomic risks are rated moderate.** Macroeconomic risks are closely related to the management of fiscal risks. Rapidly rising public investments and a proliferation of PPPs, if poorly selected and managed, could contribute to promptly deplete fiscal space in an environment of low domestic resource mobilization and rising external financing needs. This lack of fiscal space could significantly constrain the Government's ability to respond to unexpected shocks, such as a sudden deterioration in terms of trade or severe natural disasters. While the cost of natural disasters is estimated at about 1 percent of GDP, on average, it can spike in the face of particularly severe events. For instance, losses from

events occurring every century are estimated to cost about 9 percent of GDP, with the largest impact from exceptionally strong cyclones and floods. Proposed reforms supported through this operation would help mitigate these risks, including through the establishment of the NDF. More generally, increasing fiscal space remains a key priority in Madagascar. This requires upgrading efforts to collect tax and nontax revenues, improving the efficiency of public spending, and closely monitoring debt levels and contingent liabilities, including from PPP projects.

87. **Risks associated with limited institutional capacity for implementation, especially in sector ministries, are rated substantial.** Successful implementation of the reforms supported by the program requires a significant strengthening of the GoM across various sectors as well as important improvements in coordination among ministries relevant for DRM. To mitigate risks associated with low technical capacity, both AFD and World Bank TA have been mobilized to support the Government with all reforms and TA will continue to be provided throughout implementation to ensure targeted results are achieved**.**

88. **Fiduciary risks remain substantial despite the ongoing implementation of PFM reforms.** While there has been progress in implementing PFM reforms, the remaining fiduciary weaknesses are significant. Particularly, the most prominent risks are related to procurement, audit, and improper management of the budget dedicated for investment projects, which could undermine their value for money, as well as financial sustainability of the investments. The reforms under this operation contribute to mitigating these risks by encouraging transparency measures and are complemented by coordinated advisory support with other partners and targeted TA in PFM and public administration reforms, including the World Bank Public Sector Performance Project.

89. **Environmental and social risks are rated substantial.** The substantial risk is related to the broad scope and scale of eventual infrastructure and territorial planning that could be impacted through reforms supported by this operation. However, this risk is mitigated by the existing legislative framework, institutional arrangements, and presence of institutions such as ONE, BNGRC, CPGU as well as private firms that conduct environmental and social assessments with adequate capacity to assess risks. Within the legislative framework, specific guidance is available that can be further strengthened to incorporate the climate risk assessments that are already available. The general mapping of climate risk and more specific mapping of risks associated with cyclones and flooding by BNGRC to identify areas where improved construction norms are applicable combined with the ESIA process makes for a relatively robust set of tools that can be applied to reduce and mitigate the environmental and social risks. Additionally, the standards and planning are directed at making the target infrastructure and areas more resilient and less susceptible to natural disasters.

**Table 5. Summary Risk Ratings**

| Risk Categories | Rating |
|---|---|
| 1. Political and Governance | Substantial |
| 2. Macroeconomic | Moderate |
| 3. Sector Strategies and Policies | Moderate |
| 4. Technical Design of Project or Program | Moderate |
| 5. Institutional Capacity for Implementation and Sustainability | Substantial |
| 6. Fiduciary | Substantial |
| 7. Environment and Social | Substantial |
| 8. Stakeholders | Moderate |
| 9. Other | |
| **Overall** | Substantial |

## ANNEX 1: POLICY AND RESULTS MATRIX

| Prior Actions | Results Indicator | Baseline | Target | Responsible Entity |
|---|---|---|---|---|
| **Pillar 1: Strengthening the national system for disaster risk management** | | | | |
| **Prior Action 1:** The Recipient has: (a) updated the Disaster Risk Management (DRM) system at the national and regional level which includes, inter alia, the provision of creating DRM offices at the regional level; and (b) defined the respective roles of the National Disaster Risk Management Bureau (BNGRC) and the Unit for the Prevention and Management of Emergencies (CPGU) by identifying that the BNGRC leads all operational aspects of DRM, while the CPGU is responsible for strategic planning. | Results Indicator 1: Number of people covered by Regional DRM Offices in most-at-risk areas | 900,000 [2019] | 7,000,000 [2022] | BNGRC and MID |
| **Prior Action 2.** The Recipient has defined its legal framework to implement a shock-responsive social protection mechanism. | Results Indicator 2: Number of humanitarian agencies that use the Government's Social Protection System for disaster response | 1 [2019] | 3 [2022] | Ministry of Population and BNGRC |
| | Results Indicator 3: Scalable Social Protection System in place for rapid and slow onset disasters with adequate operational procedures | None [2019] | System established [2022] | Ministry of Population and BNGRC |

| Prior Actions | Results Indicator | Baseline | Target | Responsible Entity |
|---|---|---|---|---|
| **Pillar 2: Strengthening financial resilience to disasters** | | | | |
| **Prior Action 3**. The Recipient has strengthened its financial capacity to respond to disaster and address the challenge of insufficient immediate disaster response through the creation of the National Disaster Fund to finance disaster preparedness and emergency response. | Results Indicator 4: National Disaster Fund is operational as shown by the adoption of an operations manual, an annual budget allocation to the fund, and the publication of audited financial statements of the fund. | Fund not operational [2019] | Fund is operational [2022] | BNGRC and MEF |
| **Prior Action 4:** The Recipient's Prime Minister has submitted to Parliament a draft insurance law that (a) allows the purchase of sovereign catastrophe insurance from foreign entities if such coverage is not offered by Malagasy insurance companies and (b) allows insurers to develop products that will assist households and enterprises to improve their climate and disaster resilience. | Results Indicator 5: The Government has contracted sovereign catastrophe insurance against tropical cyclone risk in accordance with its disaster risk finance strategy | None [2019] | At least one transaction by 2022 | MEF, BNGRC, and CPGU |
| **Pillar 3: Mainstreaming disaster and climate resilience into territorial and urban planning** | | | | |
| **Prior Action 5**. The Recipient has adopted a resilient buildings regulatory framework implementing Law No 2015-052 of February 3rd, 2016 on urban, development and housing. | Results Indicator 6: % of new primary school buildings constructed according to the new codes/regulations | 0 [2019] | 100% [2022] | Ministry of Education |
| **Prior Action 6:** The Recipient has adopted a methodology and issued guidelines to mainstream climate change adaptation and DRM into urban, communal, and regional planning. | Results Indicator 7: Percentage of the national territory covered by regional planning documents (SRAT) that follow the new risk management and resilience approach | 0 [2019] | 30% [2022] | MAHTP |
| | Results Indicator 8: Percentage of urban population covered by urban planning documents (PUDi) that follow the new risk management and resilience approach | 0 [2019 | 30% [2022] | MAHTP |

| Prior Actions | Results Indicator | Baseline | Target | Responsible Entity |
|---|---|---|---|---|
| | Results Indicator 9: Percentage of rural population covered by communal planning documents (SAC) that follow the new risk management and resilience approach | 0<br>[2019 | 15%<br>[2022] | MAHTP |

## ANNEX 2: IMF RELATIONS ANNEX

**IMF Executive Board Completes Fifth Review of Extended Credit Facility Arrangement for Madagascar**

July 26, 2019

- The completion of the review enables an immediate disbursement of US$43.7 million.
- Economic conditions continued to improve in 2018, and implementation of the Fund-supported program remained generally strong.
- Enhancing revenue mobilization, improving the quality and composition of spending, and actively managing fiscal risks is crucial for creating more fiscal space.

1. On July 26, the Executive Board of the International Monetary Fund (IMF) completed the fifth review under the Extended Credit Facility (ECF) Arrangement for Madagascar. The completion of this review enables the disbursement of SDR 31.428 million (about US$43.7 million), bringing total disbursements under the arrangement to SDR 219.12 million (about US$304.5 million).

2. Madagascar's 40-month arrangement for SDR 220 million (about US$305 million, or 90 percent of Madagascar's quota) was approved on July 27, 2016 (see Press Release No.16/370 ). Additional access of 12.5 percent of Madagascar's quota was approved by the Executive Board in June 28, 2017, bringing Madagascar's access to SDR 250.55 million (about US$347 million) at that time. This arrangement aims to support the country's efforts to reinforce macroeconomic stability and boost sustained and inclusive growth.

3. Following the Executive Board discussion, Mr. Mitsuhiro Furusawa, Deputy Managing Director and Acting Chair, made the following statement:

4. "Madagascar's performance under its economic program supported by the Extended Credit Facility (ECF) arrangement has remained generally strong. Growth has been solid, inflation has been moderate, and the external position has remained robust. Going forward, the authorities' continued commitment to strong policies and an ambitious structural reform agenda will be key to mitigating internal and external risks, strengthening macroeconomic stability, and achieving higher, sustainable, and inclusive growth.

5. "The authorities' economic reform agenda requires continued efforts to enhance investment capacity, essential for scaling up priority investment spending. Increasing social spending, as planned in the revised budget law, and developing social safety nets is also crucial. Further enhancing revenue mobilization through tax collection is central to this strategy and warrants renewed efforts to avoid eroding the tax base.

6. "Resolute actions are needed to contain risks to macroeconomic stability and debt sustainability, including fiscal risks from the financial situation of JIRAMA, the sustainability of the civil servant pension fund, and liabilities to the fuel distributors. On the latter, the recent progress towards the implementation of an automatic fuel pricing mechanism while limiting its impact on the poorest is encouraging.

7. “The recent adoption of the law on illicit asset recovery brings the anti-corruption legal framework into closer alignment with international standards. The authorities should continue to build on these efforts. Making further progress on modernizing public financial management and improving the business climate will be essential to promote good governance. Allocating sufficient human and financial resources will allow for effective enforcement of this framework.

8. “The ongoing reform agenda should continue to benefit from IMF technical assistance in various areas, such as fiscal policy, governance, and the monetary and financial sectors.”

## ANNEX 3: LETTER OF DEVELOPMENT POLICY

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

**MINISTERE DE L'ECONOMIE ET DES FINANCES**

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**Le Ministre**

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*Antananarivo, le* 06 NOV 2019

**Monsieur David Malpass**
**Président du Groupe de la Banque Mondiale**
**1818 H Street NW**
**Washington DC**

Monsieur le Président,

Les élections présidentielles qui se sont déroulées à Madagascar en 2018, marquent le passage à une nouvelle trajectoire de développement du pays. Le document de Politique générale de l'Etat (PGE) a été présenté au Parlement, avec pour objectif principal de rattraper le retard de développement accumulé depuis plus de 50 ans. En outre, un nouveau document stratégique, le Plan Emergence Madagascar 2019-2023 (PEM) est en cours de finalisation. Ce dernier va permettre de fixer le cadre global de planification nationale et de définir les actions et programmes prioritaires en vue de concrétiser les engagements du Président de la République de Madagascar.

La présente lettre de politique de développement témoigne de la volonté du gouvernement en place à relever les défis pour la création des conditions favorables à une croissance économique forte et inclusive à travers l'amélioration de la résilience du pays aux catastrophes et risques climatiques. Dans ce cadre, le Gouvernement a initié un programme de réformes qui se déclinent en 3 piliers spécifiques : i) Modernisation du système national de gestion des risques et des catastrophes (GRC) ; ii) Renforcement de la résilience financière aux catastrophes ; et iii) Intégration de l'adaptation au changement climatique (ACC) et la résilience aux catastrophes dans la planification territoriale et urbaine. Ces actions s'inscrivent dans l'objectif de l'émergence et visent à assurer une croissance durable.

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L'éradication de la pauvreté demeure l'objectif majeur du gouvernement. Madagascar est classé parmi les pays les plus pauvres au monde, avec 75 % de la population qui vit au-dessous de 1,90 dollar par jour. Le secteur primaire emploie plus de 75% de la population tandis que sa part dans la production intérieure n'atteint que 28% du PIB à cause de la faible productivité, en particulier, l'agriculture. La riziculture pluviale est fortement exposée aux effets négatifs du changement climatique. Les techniques d'élevage restent primitives et l'insécurité rurale dissuade les paysans à développer leurs activités.

En outre, Madagascar est l'un des pays les plus affectés par des aléas climatiques en Afrique avec une moyenne de trois cyclones par année.

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La croissance économique reste stable, avec un taux de croissance estimé à 5,0 % en 2019. Cette performance est tirée notamment du secteur secondaire qui prévoit un taux de croissance de 7,5% sur l'année. Le renforcement des investissements dans le secteur énergie ainsi que le développement des zones franches d'exportation en sont les principales causes. Le secteur tertiaire, enregistre une croissance de 5,1% résultant de la réalisation des divers projets d'infrastructures visant aux objectifs de l'émergence. Au niveau du secteur primaire, les conditions climatiques en 2019 ont été favorables pour la production rizicole en 2019. En revanche, les exportations des principales cultures de rente et des produits de la pêche, ont connu un ralentissement au cours du premier semestre. Ainsi, la croissance de l'activité du secteur primaire a ralenti pour atteindre 2,8 % en moyenne en 2019.

L'inflation en glissement annuel est contenue à 6.8% en 2019 (fin de période) grâce à la mise en œuvre d'une politique monétaire prudente.

Au niveau des finances publiques, le Gouvernement poursuit ses efforts de mobilisation des recettes et de renforcement de la gestion des dépenses. Le taux de pression fiscale est estimé à 10,7% en 2019, une hausse de 0,5 point par rapport à celui de 2018. Du côté des dépenses, une hausse des investissements publics est prévue. En 2019, l'investissement est évalué à 7 ,4% du PIB contre 5,3% en 2018. Les dépenses dans les secteurs sociaux sont priorisées, en l'occurrence l'accès aux services de santé de base, l'éducation, l'eau potable, la lutte contre la malnutrition.

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Les perspectives économiques restent optimistes avec une croissance économique estimée à 5,5% en 2020. Cet objectif coïncidera avec la politique de l'émergence du Gouvernement. L'évolution positive du secteur secondaire, notamment la branche alimentaire, la boisson, le tabac, le textile, y contribue essentiellement. Ce secteur enregistrera un taux de croissance de 7,4%. Pour le secteur primaire, une croissance de 4,6% est attendue avec l'instauration de la sécurité rurale et l'extension des surfaces cultivables. Quant au secteur tertiaire, une croissance de 5,2% est prévue et due principalement à la construction des infrastructures essentielles, telles que les routes, les réseaux ferroviaires, les BTP et l'énergie.

L'inflation devrait se stabiliser à 6.2% en 2020 (fin de période) grâce aux nombreuses mesures gouvernementales et aux actions de la *Banky Foiben'i Madagasikara* (BFM) sur la gestion des liquidités monétaires.

Au niveau des Finances publiques, le Gouvernement continue la mise en œuvre de la Stratégie de Modernisation de la Gestion des Finances Publiques et les réformes ont été accélérées afin de garantir la mobilisation accrue de recettes et l'efficacité des affectations des deniers publics. La politique budgétaire demeure la création de plus d'espace budgétaire tout en améliorant la qualité des dépenses.

En matière de recettes, la mise en œuvre des plans d'action pour les administrations fiscales et douanière améliorera la perception des recettes. Il s'agit notamment de l'amélioration de la gestion de la TVA, du renforcement du contrôle et de la lutte contre les infractions et délits fiscaux. Pour l'année 2020, le taux de pression fiscale augmentera de 0,8 point par rapport à 2019. Ainsi, ce taux sera de 11,5% du PIB.

Concernant les dépenses, elles sont orientées vers une politique de relance en renforçant les dépenses d'investissement. L'objectif consiste à améliorer le bien-être de la population en priorisant les dépenses dans le secteur des infrastructures, dans le domaine social et dans la sécurité. A cette fin, les dépenses en capital seront prévues à 8,7% du PIB pour l'année 2020.

Madagascar continue également de mettre en œuvre son programme de réforme macroéconomique, appuyé par la Facilité Elargie de Crédit (FEC) du FMI, qui est actuellement arrivé à son terme. Le Gouvernement prévoit de renforcer ce programme et poursuivre les réformes déjà engagées tout en visant la croissance inclusive et durable, et respectant les engagements visés dans la Politique Générale de l'Etat.

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Madagascar est exposé et vulnérable aux catastrophes naturelles et aux conséquences du changement climatique. Le pays est touché par de nombreux évènements climatiques, comme les cyclones, les inondations et la sécheresse, entre autres du fait de sa localisation et de sa topographie. Sa vulnérabilité est accentuée par l'environnement socioéconomique dégradé. Le climat, à dominante tropicale, varie considérablement à l'intérieur du pays. Le sud est marqué par des sécheresses tandis que les zones côtières au nord et à l'est sont plus exposées aux cyclones. Entre 2009 et 2018, le pays a été frappé par 27 cyclones et tempêtes tropicales, systématiquement suivis d'inondations. En 2017, le cyclone Enawo a affecté 430 000 personnes, et le cyclone Ava 161 000 personnes en 2018.

Avec le changement climatique, le pays risque une intensification des pluies et des vagues de chaleur, avec une augmentation des températures moyennes, ainsi que des cyclones. Les épisodes de sécheresses, de 22 jours en moyenne aujourd'hui, pourraient augmenter de 8 jours à horizon 2050, les fortes pluies avec de grosses disparités régionales de -3 à 13%. Les vagues de chaleur de 6 jours en moyenne pourraient augmenter de 5 à 35 jours, le niveau de la mer pourrait s'élever de 19 à 47 cm.

En outre, Madagascar est également vulnérable aux risques sanitaires avec des épidémies récurrentes, telle que l'épidémie de peste, de rougeole dans un contexte de dysfonctionnement du système de santé

Cette situation pèse sur le développement social et économique du pays. Le coût économique des pertes annuelles causées par les catastrophes naturelles a été estimé à environ 100 millions USD, avec une probabilité de 10% qu'il dépasse 420 millions USD et de 5% qu'il dépasse 600 millions USD.

De nombreux facteurs contribuent à la vulnérabilité de Madagascar, notamment la croissance rapide de la population, l'urbanisation non maîtrisée, le manque d'infrastructures et de bâtiments résilients. En zone urbaine, l'accroissement se fait principalement dans des quartiers informels y compris dans des zones à risques. En matière de santé, Madagascar est particulièrement vulnérable aux maladies dépendant de facteurs climatiques, tels que le paludisme et les maladies diarrhéiques. Ainsi, conformément aux tendances observées en Afrique, les niveaux de vulnérabilité sont très élevés parmi les populations urbaines en croissance rapide à Madagascar.

Reconnaissant l'impact majeur des catastrophes et du changement climatique, le Plan Emergence Madagascar (2019-2023) fait de la résilience aux catastrophes une priorité stratégique avec l'objectif de construire un « Madagascar résilient aux chocs, informé, protégé de tous dégâts, dans toutes les dimensions du développement durable et où les investissements prennent en compte les risques et les catastrophes naturelles ». L'Etat malgache a adopté en 2015 une nouvelle politique nationale de Gestion des Risques de Catastrophes (GRC), définissant sa structure et ses principes, puis une stratégie pour opérationnaliser cette politique. Ce cadre présente néanmoins des lacunes opérationnelles, financières et sectorielles. De ce fait, la capacité de réponse au niveau régional et local est faible et la résilience des secteurs clés limitée. De plus, peu de mécanismes structurés ont été mis en place pour le financement de la préparation, la réponse aux catastrophes et la reconstruction.

Le Plan Emergence Madagascar prévoit donc d'opérationnaliser le cadre législatif et règlementaire régissant la gestion des risques de catastrophes à Madagascar grâce à des mesures institutionnelles, des outils de planification, des systèmes d'information et un mécanisme de coordination bénéficiant d'instruments de financement adaptés. Le Gouvernement reconnait aussi l'importance de renforcer la sensibilisation, institutionnelle ou auprès de la population, avec des structures régionales et en intégrant la GRC de façon transversale, notamment dans la planification territoriale.

Dans le cadre du renforcement du système national de gestion des risques et des catastrophes, les principales réformes initiées visent l'opérationnalisation de l'architecture institutionnelle prévue par la loi GRC de 2015. Grâce à 3 décrets d'application de la loi GRC, les mandats, stratégique pour la CPGU et opérationnel pour le BNGRC, sont clarifiés, de même que la possibilité pour le BNGRC de disposer de bureaux au niveau régional. La mise en place et l'opérationnalisation de ces bureaux et le développement de plans de contingence dans les régions les plus à risque, constituent une priorité du Gouvernement. De plus, les mécanismes de coordination intersectoriels, stratégiques et opérationnels, avec des instances dédiées ont également été revus afin de permettre d'améliorer l'efficacité de la réponse institutionnelle aux catastrophes. Avec la mise en œuvre de ce programme, le Gouvernement s'assurera que la

Plateforme National pour la réduction des risques de catastrophes soit établie dans les plus brefs délais et qu'elle se réunisse de façon régulière.

Dans le cadre d'une gestion nationale plus volontariste des risques de catastrophes, le gouvernement a aussi adopté en 2018 une Politique nationale de protection sociale relative au régime non contributif (Loi n°2017-028) et la Stratégie Nationale de Protection Sociale 2019 – 2023. Dans un objectif de réduction de la pauvreté mais aussi au regard de la vulnérabilité de la population, cette stratégie prévoit la mise en place d'un système qui permet d'apporter une réponse aux chocs, pour les plus pauvres. Un décret clarifiant les rôles, la coordination inter institutionnelle nationale mais aussi avec les intervenants du secteur humanitaire et du développement a ainsi été adopté afin d'opérationnaliser cette politique. L'assistance aux populations post catastrophe devrait ainsi pouvoir davantage transiter à travers le système national de protection sociale et les acteurs humanitaires internationaux devraient être en mesure de répondre aux catastrophes au travers de ce mécanisme. Cela devrait faciliter le passage à l'échelle de cette politique, améliorer la coordination des réponses nationales et internationales, mais aussi permettre de mobiliser le système de protection sociale pour les autres types de catastrophes, dites « rapides », comme les cyclones.

Compte tenu du coût des dégâts causés par les catastrophes naturelles ces dernières années et la prise de conscience du changement climatique, le Gouvernement s'est engagé à mettre en place un système de protection financière pour lui permettre de faire face aux situations d'urgence tout en protégeant l'équilibre budgétaire. Le Fonds National de Contingence destiné à financer la préparation et la réponse aux catastrophes, a ainsi été créé. Ce Fonds est géré par le BNGRC dont le statut a en conséquence été modifié, devenant ainsi un Etablissement Public à caractère Administratif. La création de ce fonds vise à améliorer la prévisibilité et la gestion des ressources disponibles avec une allocation budgétaire annuelle, qui sera versée au commencement de l'année fiscale, et la possibilité de recevoir des contributions externes. Avec son caractère pluriannuel, ce fonds améliorera la transparence et l'efficacité de la mobilisation des financements. Il permettra également de financer la souscription à une assurance catastrophe souveraine par l'Etat malgache et de gérer les fonds versés, le cas échéant. Un manuel de procédures opérationnel, clarifiant les responsabilités, les modalités de passation de marché et de dépenses éligibles, ainsi que les procédures d'audit et de contrôle de ce fonds, sera élaboré. Le manuel permettra également de clarifier les règles pour déterminer le montant maximal des ressources financières que le Fonds peut accumuler, et ce afin d'éviter un coût d'opportunité trop élevé. Cet outil constituera un nouvel élément clé pour le renforcement de la résilience financière de Madagascar aux catastrophes. Il sera complété par le développement d'une stratégie de protection financière qui permettra d'identifier et coordonner les différents instruments et mécanismes établis ou à mettre en place pour une gestion budgétaire intégrée des risques de catastrophes.

La pénétration de l'assurance contre les catastrophes à Madagascar est extrêmement faible, et plus généralement le secteur de l'assurance reste très peu développé (avec un taux de pénétration à 0,7% du PIB). Aussi, l'adoption en Conseil des Ministres et soumission au Parlement d'une nouvelle loi sur les assurances doit permettre de faciliter le recours à ce type d'assurances mais aussi d'accroître la pénétration de l'assurance dans le pays grâce à une régulation renforcée du secteur. Ceci concerne notamment l'assurance souveraine en cas de catastrophe ainsi que l'assurance pour le secteur agricole et les micro-assurances, permettant de mieux couvrir des secteurs et personnes vulnérables aux aléas climatiques.

Enfin, néanmoins, à l'instar de la loi sur la Gestion des Risques de Catastrophes (GRC), les décrets d'application font défaut. Plusieurs sont en préparation concernant la planification territoriale (aux niveaux régional, urbain, communal) et la construction. Ils intègrent chacun la question du changement climatique et de la résilience aux risques de catastrophes. Ils s'appuient sur un corpus de méthodologies développées notamment dans le cadre de la préparation de ce financement. Cet ensemble dotera le pays d'un cadre et d'une démarche clarifiée et opérationnelle, intégrant l'adaptation au changement climatique, concernant la planification territoriale et la construction.

Concernant l'intégration de l'adaptation au changement climatique et la résilience aux catastrophes dans le développement territorial et urbain, deux approches complémentaires ont été mises en place par le Gouvernement. La première porte sur la construction des bâtiments publiques avec l'adoption d'une norme nationale pour la construction de bâtiment résistant aux aléas naturels ainsi que des décrets d'application de la Loi Urbanisme et Habitat portant sur la construction (permis de construire et de lotir), afin de mieux réguler le secteur et de diffuser des règles intégrant la résilience aux catastrophes et l'adaptation au changement climatique. La deuxième approche concerne la planification. L'intégration de la gestion des risques et de la résilience dans l'aménagement du territoire et le développement urbain est aussi prévue par la Stratégie Nationale de Gestion des Risques de Catastrophes (SNGRC) qui s'appuie sur le 'principe de planification visant à réduire les vulnérabilités physiques sociales, environnementales et économiques des populations' et prévoit dans les activités à mener 'd'élaborer et opérationnaliser des plans d'urbanisme, d'aménagement et de gestion des zones rurales, intégrant une analyse préalable des risques de catastrophes'. En 2016, Madagascar a adopté deux lois structurantes, la Loi portant Orientation de l'Aménagement du Territoire (LOAT 2015-051) et la Loi relative à l'Urbanisme et de l'Habitat (LUH 2015-052). Elles fixent le cadre et les orientations générales en matière de planification territoriale et urbaine. Trois guides pour l'intégration de l'Adaptation au Changement Climatique (ACC) dans la planification urbaine, communale et régionale ont été adoptés. Des décrets portant la mise en application de ces guides sont mis en place de sorte à préparer des projets de villes plus résilientes et prenantes en compte les impacts du changement climatique. Les guides rappellent les enjeux et le processus de la démarche, précisent les méthodologies pour établir les diagnostic territoriaux (dangers, exposition, vulnérabilité climatique), des stratégies et mesures d'adaptation possibles. Des formations sur ces outils sont prévues, de même que sur les nouvelles normes de construction.

Les réformes de cette opération sont complémentaires aux réformes de la dernière opération d'appui budgétaire sur la viabilité fiscale et énergie approuvée par le Conseil d'Administration de la Banque Mondiale en avril 2019. Cet appui budgétaire, qui est en cours de mise en œuvre, soutient les réformes visant à renforcer la gestion des risques budgétaires. La présente opération est en ligne avec cet objectif en se focalisant sur les risques liés aux catastrophes naturelles. De plus, la précédente opération concourait à l'objectif de la création d'espace budgétaire tel que défini dans la politique budgétaire.

La mise en œuvre de toutes ces actions permettra au Gouvernement d'atteindre ses objectifs d'émergence afin de bâtir une nation forte prospère et solidaire pour la fierté et le bien-être des Malagasy. Toutefois, la limitation des ressources conduit le Gouvernement à solliciter l'appui financier de la Banque Mondiale. Cette opération d'appui budgétaire avec option de tirage différé en cas de catastrophe, ou Cat DDO, permettra ainsi d'appuyer les efforts du

Gouvernement pour une gestion plus proactive du risque de catastrophe. Les différentes actions préalables prévues dans le cadre de ce Cat DDO, au travers l'adoption d'une série de décrets et d'arrêtés ministériels ainsi que de la Loi sur les assurances représentent ainsi la volonté du Gouvernement de renforcer la résilience de Madagascar face aux catastrophes.

LE MINISTRE DE L'ECONOMIE ET DES FINANCES

MINISTERE DE L'ECONOMIE ET DES FINANCES

RANDRIAMANDRATO Richard


**MINISTER OF ECONOMY AND FINANCE**

*Antananarivo,* 0 6 NOV 2019

**Office of The Minister**

**Mr. David Malpass**
**President of the World Bank Group**
**1818 H Street NW, Washington DC**

Dear Mr. President,

The presidential elections that took place in Madagascar in 2018 marked the beginning of a new development path for our country. The PGE document (General Policy of the State) was presented to Parliament with the principal aim of closing the gap in development that has accumulated over the previous 50 years. In addition, a new strategic document, the 2019-2023 "Madagascar Emergence Plan" (*PEM*) is currently being finalized. The PEM will lead to the establishment of an overall national planning framework and will identify the priority actions and programs intended to give concrete form to the commitments of the President of the Republic of Madagascar.

This letter of development policy shows the willingness of the current government to take on the challenges of creating favorable conditions for strong and inclusive economic growth through an improvement in the country's resilience to climate disasters and risks. In this context, the Government has initiated a program of reforms that can be broken down into three specific pillars: 1) strengthening the national system for disaster risk management; 2) strengthening financial resilience to disasters; 3) Mainstreaming disaster and climate resilience into territorial and urban planning. These measures form part of our goal of emergence and are aimed at ensuring sustainable development.

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Eradicating poverty remains the Government's major objective. Madagascar is ranked amongst the poorest countries in the world, with 75 percent of the population living on less than $1.90 per day. The primary sector employs over 75 percent of the population while its share of domestic production accounts for only 28 percent of GDP because of low productivity, in particular in agriculture. Rainfed rice production is heavily exposed to the negative effects of climate change. Livestock production techniques are still primitive and rural insecurity discourages farmers from developing their businesses.

In addition, Madagascar is one of the countries in Africa most affected by climate change, experiencing an average of three cyclones per year.

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Economic growth remains stable, with a growth rate estimated at 5.0 percent in 2019. This performance is mainly due to the secondary sector which is expected to grow at 7.5 percent over the year. Increasing investments in the energy sector as well as the creation of duty-free zones for exports are the main reasons. The tertiary sector is experiencing 5.1 percent growth, the result of several infrastructure projects being completed in line with the goals of emergence. In the primary sector, the climate conditions in 2019 were favorable for the production of rice that year. However, exports of the principal income-producing crops and fish products saw a slowdown during the first half of the year. Consequently, growth in the primary sector slowed to an average of 2.8 percent in 2019.

The year-on-year inflation rate was stable at 6.8 percent in 2019 (end of fiscal period), owing to the implementation of a prudent monetary policy.

In terms of public finances, the Government is continuing its efforts to increase revenues and strengthen the management of expenditures. The tax burden is estimated at 10.7 percent for 2019, an increase of 0.5 points relative to 2018. On the expenditure side, an increase in public investment is envisaged. In 2019, investment was valued at 7.4 percent of GDP compared with 5.3 percent in 2018. Expenditures in the social sectors are being prioritized, for instance on access to basic health services, education, and drinking water, as well as the fight against malnutrition.

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Economic forecasts remain optimistic with economic growth estimated at 5.5 percent in 2020. This goal will coincide with the Government's emergence policy. Positive changes in the secondary sector, in particular in the food, drink, tobacco and textile branch, are making the main contributions. This sector will see a growth rate of 7.4 percent. Growth of 4.6 percent is expected in the primary sector, with increased security in rural areas and an increase in arable land. In the tertiary sector, 5.2 percent growth is forecast, owing mainly to the construction of essential infrastructure such as roads, railroads, public works, and energy.

Inflation should stabilize at 6.2 percent in 2020 (end of fiscal period), owing to many governmental measures and the numerous steps taken by *Banky Foiben 'i Madagasikara (BFM)* to manage monetary liquidity.

In terms of public finance, the Government continues to implement its strategy to modernize the management of public finance; reforms have been accelerated in order to ensure the collection of more revenue and the effectiveness of public spending. Fiscal policy continues to create more fiscal space while improving the quality of expenditures.

In terms of revenues, the implementation of action plans for the tax and customs administrations will improve the collection of revenues. In particular, management of VAT will be improved, control mechanisms will be strengthened, and the prosecution of tax infractions and crimes will be increased. For the year 2020, the tax burden will rise by 0.8 points compared to 2019. This rate will thus account for 11.5 percent of GDP.

Expenditures are geared toward a recovery policy with a strengthening of investment expenditures. The goal is to improve the well-being of the population by prioritizing expenditures in the infrastructure sector, in the area of social services and security. To this end, capital expenditures are forecast to be 8.7 percent of GDP for the year 2020.

Madagascar is also continuing to implement its macroeconomic reform program, supported by the Extended Credit Facility (ECF) of the IMF, which has actually come to an end. The Government intends to strengthen this program and continue the reforms that have already been initiated, while aiming at inclusive and sustainable growth, and respecting commitments included in the General State Policy.

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Madagascar is exposed and vulnerable to natural disasters and to the consequences of climate change. Because of its location and topography, the country is affected by many climate events, such as cyclones, flooding, and drought. Its vulnerability is accentuated by the degraded socioeconomic environment. The climate is predominantly tropical but varies considerably in the interior of the country. The south is known for its droughts while the coastal areas in the north and east are more exposed to cyclones. Between 2009 and 2018, the country was hit by 27 cyclones and tropical storms, which were systematically followed by flooding. In 2017, cyclone Enawo impacted 430,000 people and cyclone Ava 161,000 impacted people in 2018.

With climate change, the country is at risk of more intense rainfall and heat waves. There will be an increase in average temperatures, as well as more cyclones. Periods of drought lasting 22 days on average today could increase by 8 days by 2050, and heavy rains, with large regional disparities, by -3 to 13 percent. Heat waves averaging 6 days could increase by 5 to 35 days, and sea levels could rise from 19 to 47 centimeters.

In addition, Madagascar is also vulnerable to health risks with recurrent epidemics such as the plague and measles - all in the context of a dysfunctional healthcare system.

This situation weighs heavily on the social and economic development of the country. The economic cost of the annual losses caused by natural disasters has been estimated at about US$100 million, with a 10 percent probability that it could exceed US$420 million, and a 5 percent probability that it could exceed US$600 million.

Many factors contribute to Madagascar's vulnerability, in particular rapid population growth, uncontrolled urbanization, and a lack of resilient infrastructure and buildings. In urban areas, population growth is occurring mainly in the informal settlements, including in at-risk areas. In terms of health, Madagascar is particularly vulnerable to climate-related diseases, such as malaria and diarrheal illnesses. Consequently, similar to trends observed in Africa, the level of vulnerability is very high among urban populations, which are growing at a rapid rate in Madagascar.

Recognizing the major impact of disasters and climate change, the Madagascar Emergence Plan (2019-2023) has made resilience to disasters a strategic priority with the goal of building "a Madagascar that is resilient to shocks, informed, protected from all damage, in all dimensions of sustainable development, and where investments take risks and natural disasters into consideration." In 2015, the Malagasy State adopted a new national policy for Disaster Risk Management (DRM); it outlined its structure and principles, followed by a strategy to operationalize this policy. Nonetheless, this framework still has a number of operational, financial, and sectoral deficiencies. Consequently, the ability to respond at the regional and local levels is weak and the resilience of key sectors is limited. Moreover, few structured mechanisms have been set up for financing disaster preparedness and response, and reconstruction.

The Madagascar Emergence Plan therefore envisages operationalizing the legal and regulatory framework that governs disaster risk management in Madagascar; this will be done through institutional measures, planning instruments, information systems, and a coordination mechanism that will benefit from appropriate financial instruments. The Government also recognizes the importance of increasing public awareness, both of institutions and the population, by working with regional entities and integrating DRM across sectors, particularly in territorial planning.

In the context of strengthening the national disaster risk management system, the key reforms initiated aim to operationalize the institutional architecture set forth in the DRM law of 2015. The three decrees implementing the DRM law have clarified key mandates, i.e. the provide a strategic mandate for the CPGU and an operational mandate for the BNGRC, as well as the possibility for the BNGRC to obtain offices at the regional level. Setting up these offices and making them operational, and the development of contingency plans in the regions most at risk, are a Government priority. Moreover, mechanisms for sectoral, strategic, and operational coordination, with dedicated entities, have also been redesigned in order to improve the efficiency of the institutional response to disasters. With the implementation of this program, the Government will ensure that the National Platform for Disaster Risk Reduction is established as soon as possible and meets on a regular basis.

Within the context of more proactive national disaster risk management, in 2018 the Government also adopted a national policy for social protection related to the non-contributory regime (Law No. 2017-028) and the National Strategy for Social Protection 2019 – 2023. With the goal of reducing poverty but also taking into consideration the vulnerability of the people, this strategy stipulates the implementation of a system that paves the way for responses to shocks affecting the poorest. A decree clarifying roles, inter-institutional coordination nationally but also with participants from the humanitarian and development sectors, was adopted in order to operationalize this policy. Assistance to the populations after a disaster should thus increasingly use the national system of social protection, and the international humanitarian organizations should be able to respond to disasters through this mechanism. This should facilitate the up-scaling of this policy, improve the coordination of national and international responses, but also lead to the mobilization of the social protection system for other types of disasters, including so-called "rapid onset" ones, such as cyclones.

Given the cost of damage caused by natural disasters over the past years and the increasing awareness of climate change, the Government has committed to put in place a system of financial protection to allow it to face emergency situations while also maintaining balance in the budget. The National Contingency Fund, intended to finance disaster preparedness and response, was thus created. This Fund is managed by the BNGRC, the legal status of which was changed to transform it into a Public Entity with administrative character. The creation of this Fund aims at improving the predictability and management of available resources with an annual budgetary allocation that will be paid at the beginning of the fiscal year, and with the possibility of receiving outside funding. In light of its multiyear nature, this Fund will improve

the transparency and effectiveness of resource mobilization. It will also allow for the purchase of a sovereign disaster insurance policy by the Malagasy State and for any insurance payouts to be managed by the Fund, when required. A manual of operational procedures will be developed, clarifying responsibilities, procurement methods and eligible expenditures, as well as audit and supervision procedures for the Fund. The manual will also help to clarify the rules that determine the maximum amount of financial resources that the Fund can accumulate, so as to avoid excessive opportunity costs. This instrument will constitute a key element for strengthening Madagascar's financial resilience to disasters. It will be underpinned by the development of a financial protection strategy which will allow the identification and coordination of the different instruments and mechanisms already established or to be set up, to ensure an integrated financial management of disaster risks.

Insurance coverage against disasters is extremely limited in Madagascar, and more generally, the insurance industry is not very well developed (with a penetration rate of 0.7 percent of GDP). The adoption by the Council of Ministers and the submission to Parliament of a new insurance law should allow easier recourse to this type of insurance, as well as an increase in insurance penetration in the country thanks to improved regulation of the industry. This has particular relevance for sovereign catastrophe insurance as well as insurance for the agriculture sector, and micro-insurance, allowing for better coverage of sectors and individuals vulnerable to climate hazards.

Finally, notwithstanding the above regarding the law on Disaster Risk Management (DRM), there is a lack of implementing decrees. Several are being prepared in the areas of territorial planning (at the regional, urban, and communal levels) and construction. Each integrates considerations of climate change and resilience to disaster risks. They draw upon a set of methodologies developed during the preparation of this financing. The package of decrees will provide the country with a clarified and operational framework and approach, integrating climate change adaptation, including territorial planning and construction.

With regard to integrating climate change adaptation and resilience to disasters in territorial and urban development, two complementary approaches have been established by the Government. The first covers the construction of public buildings through the adoption of a national standard for the construction of disaster resistant buildings, and of decrees implementing the construction aspects of the Urban Planning and Habitat Law (building and subdivision permits), with a view to better regulate the sector and to publicize the rules integrating disaster resilience and climate change adaptation. The second approach concerns planning. Integrating the management of risks and resilience into territorial planning and urban development is also included in the National Disaster Risk Management Strategy (*SNGRC*), which is based on "the principle of planning aimed at reducing the physical, social, environmental and economic vulnerabilities of populations"; in the activities to be carried out, it stipulates the following: "to develop and operationalize urban plans and plans for rural land use and management, including a prior analysis of disaster risks." In 2016, Madagascar adopted two *Lois Structurantes*, the Law on Guidance for Land-Use Planning (LOAT 2015-0510) and the Law on Urban Planning and Habitat (LUH 2015-052). They establish the framework and general guidance for territorial and urban planning. Three guides for integrating Climate Change Adaptation (CCA) into urban, communal, and regional planning were adopted. Decrees covering the implementation of these guides have been put into place to prepare more resilient city projects that take climate change impacts into consideration. The guides emphasize what is at stake and the process to be followed, stipulating the methodologies for conducting territorial diagnostics (dangers, exposure, climatic vulnerability), and possible adaptation strategies and measures. Training on the use of these instruments, as well as on the new building standards, are planned.

The reforms of this operation complement the reforms of the last budget support operation on fiscal and energy sustainability approved by World Bank Board of Directors in April 2019. This budget support,

which is being implemented, supports the reforms aimed at strengthening the management of fiscal risks. The current operation is in line with this goal as it focuses on risks related to natural disasters. Moreover, the previous operation contributed to the goal of creating fiscal space as outlined in the budget policy.

Implementation of all these actions will allow the Government to achieve its emergence objectives in order to build a strong, prosperous and unified nation for the pride and well-being of the Malagasy people. However, limited resources are leading the Government to solicit financial support from the World Bank. This budget support operation, with a deferred drawdown option in the event of a catastrophe (Cat DDO), will allow to support the efforts of the Government to more pro-actively manage disaster risks. The various prior actions of this Cat DDO, through the adoption of a series of decrees and ministerial orders, as well as the insurance law, represent the determination of the Government to strengthen Madagascar's resilience to disasters.

MINISTER OF ECONOMY AND FINANCE

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## ANNEX 4: ENVIRONMENT AND POVERTY/SOCIAL ANALYSIS TABLE

| Prior Actions | Significant Positive or Negative Environment Effects | Significant Poverty, Social or Distributional Effects Positive or Negative |
|---|---|---|
| **Operation Pillar 1: Strengthening the national system for disaster risk management** | | |
| **Prior Action 1:** The Recipient has: (a) updated the Disaster Risk Management (DRM) system at the national and regional level which includes, inter alia, the provision of creating DRM offices at the regional level; and (b) defined the respective roles of the National Disaster Risk Management Bureau (BNGRC) and the Unit for the Prevention and Management of Emergencies (CPGU) by identifying that the BNGRC leads all operational aspects of DRM, while the CPGU is responsible for strategic planning. | No significant effect | No significant effect |
| **Prior Action 2:** The Recipient has defined its legal framework to implement a shock-responsive social protection mechanism. | No significant effect | Positive effect |
| **Operation Pillar 2: Strengthening financial resilience to disasters** | | |
| **Prior Action 3.** The Recipient has strengthened its financial capacity to respond to disaster and address the challenge of insufficient immediate disaster response through the creation of the National Disaster Fund to finance disaster preparedness and emergency response. | No significant effect | Positive effect |
| **Prior Action 4.** The Recipient's Prime Minister has submitted to Parliament a draft insurance law that (a) allows the purchase of sovereign catastrophe insurance from foreign entities if such coverage is not offered by Malagasy insurance companies and (b) allows insurers to develop products that will assist households and enterprises to improve their climate and disaster resilience. | No significant effect | Positive effect |
| **Operation Pillar 3: Mainstreaming disaster and climate resilience into territorial and urban planning** | | |
| **Prior Action 5.** The Recipient has adopted a resilient buildings regulatory framework implementing Law No 2015-052 of February 3rd, 2016 on urban, development and housing. | No significant effect | Positive effect |
| **Prior Action 6.** The Recipient has adopted a methodology and issued guidelines to mainstream climate change adaptation and DRM into urban, communal, and regional planning. | Positive effect | Positive effect |

## ANNEX 5: MADAGASCAR - TOWARD AN INTEGRATED DISASTER RISK MANAGEMENT FRAMEWORK

1. With the adoption of its first National DRM Strategy (*Stratégie Nationale de Gestion des Risques et des Catastrophes,* SNGRC) in 2003, the GoM was one of the first in Sub-Saharan Africa to establish a comprehensive framework for disaster preparedness, response, recovery, and prevention. The strategy led to the establishment in 2005 of the CNGRC under the Prime Minister's Office and a National DRM agency (BNGRC) under the MID. In 2006, the CPGU was established as a permanent technical body attached to the Prime Minister's Office, to provide TA to the Prime Minister and to the CNGRC in the fulfillment of its missions.

2. In 2015, Madagascar initiated the revision of its SNGRC to align it with the new International DRM Framework (the Sendai Framework) as well as to account for emerging risks, to address some shortcomings in the institutional arrangements and to take stock of the lessons learned during the implementation of the previous strategy. The new DRM strategy was translated into a National DRM Policy which was adopted through Law 2015-031.

3. The new DRM policy establishes a multidimensional approach to risk management, evolving from 'managing disasters' into 'managing risk', an approach that encompasses the interrelated concepts of (a) prospective risk management: to prevent or avoid the accumulation of new and future risks (that is, through territorial planning and building regulations); (b) corrective risk management: to mitigate or reduce the currently existing risks by investing in corrective measures (that is, through disaster preparedness instruments and early warning systems, retrofitting of public buildings, and investments in stormwater drainage); and (c) compensatory risk management: to support the resilience of individuals and societies in the face of residual risk, which cannot be effectively reduced (that is, through risk transfer or risk-sharing mechanisms such as sovereign catastrophe insurance and the establishment of a national disaster fund).

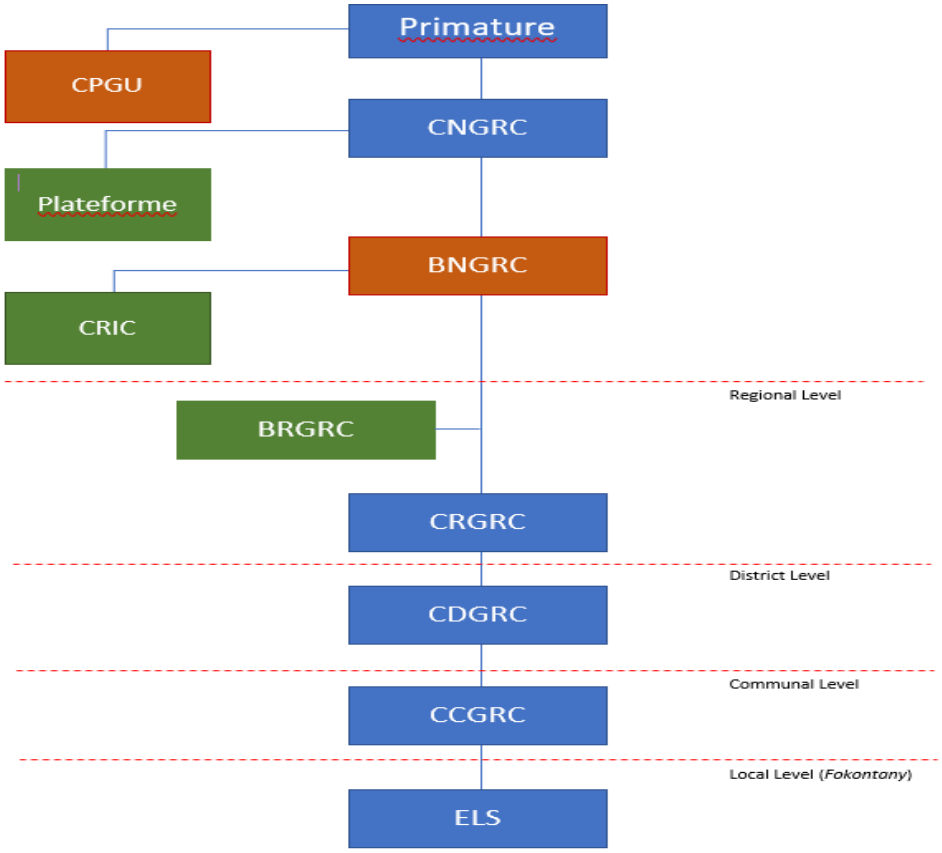
4. While the law establishes the overall DRM framework, its operationalization required the adoption of the following decrees: (a) a decree regulating Law No. 2015-031 of February 12, 2016, on National Disaster Risk Management; (b) a decree revising the organization, functioning, and role of the CPGU; and (c) a decree revising the organization, functioning, and role of the BNGRC. These decrees were adopted in October 2019 (thereby meeting Prior Actions 1 and 3).

5. Under the new framework (see figure 5.1), the BNGRC becomes an administrative public establishment (*Etablissement Public à caractère Administratif*) and gains administrative and financial autonomy. The BNGRC is the central operational structure for DRM and is the responsible entity for (a) the coordination and implementation of the National DRM Strategy and (b) the management of the NDF. The BNGRC will now have decentralized offices, the Regional DRM Offices of BRGRC, in most-at-risk regions of the country, placed under their direct responsibility to improve the capacities and response time during emergencies. The new framework also formally establishes a Disaster Response Coordination Mechanism (*Comité de Réflexion des Intervenants aux Catastrophes,* CRIC) which brings together government ministries/agencies, civil society organizations, and donors in case of an emergency.

6. The CPGU remains a structure under the Prime Minister's Office but its mandate is now focused on resilient recovery/reconstruction, disaster prevention and mitigation, and climate resilience. The CPGU will continue to assist the Prime Minister in his role as Chair of the CNGRC and will also liaise with all

ministerial departments. The CPGU will also chair the national platform for disaster risk reduction which is established under the new framework to improve synergies and ensure coordination between all stakeholders, to promote the integration of disaster risk reduction into sectoral development policies and programs.

**Figure 5.1. Madagascar Institutional Framework for DRM**




Newly established structures
Existing institutions with revised status and/or mandate

Notes:
*BRGRC* = Regional DRM Agency *(Bureau régional de Gestion des Risques et des Catastrophes)*
*CRGRC* = Regional Committee for DRM (*Comité Régional de Gestion des Risques et des Catastrophes)*
*CDGRC* = District Committee for DRM (*Comité Communal de Gestion des Risques et des Catastrophes*)
*CCGRC* = Municipal Committee for DRM (*Comités de District de Gestion des Risques et des Catastrophes*)
*CRIC* = Disaster Response Coordination Mechanism (*Comité de Réflexion des Intervenants aux Catastrophes*)
*ELS* = Local Rescue Team (*Équipe Locale de Secours*)
*Plateforme* refers to the inter-ministerial technical coordination platform for DRM.
*Primature* refers to the Prime Minister's Office.

## ANNEX 6: MADAGASCAR - EMERGENCY FUNDING ASSESSMENT

### I. Background

1. **Until October 2019, the GoM had no prearranged financial instruments which provide quick liquidity for disaster response.** This Cat DDO provides up to US$61.70 million following a declaration of a national catastrophe. Moreover, this operation supports the establishment of a national disaster fund, to be funded through an annual budget allocation. Sovereign insurance was recently purchased to cover drought events. This annex presents an overview of post-disaster expenditure; estimations of expected emergency needs and funding gaps; an assessment of the respective costs and payouts of a reserve fund and insurance to finance emergency response to frequent events; and a cost-benefit analysis for a disaster reserve fund.

2. **Key conclusions based on the analysis are that** by allocating US$4.5 million in a reserve fund, there is a 60 percent probability of exhausting the funds every year and therefore, the Cat DDO is an extremely important complement to a reserve fund. However, the resources of the Cat DDO would be exhausted by events with return periods that are smaller than 1 in 10. Insurance might therefore be an adequate complement to cover larger and relatively rare events and insurance is more expensive than a disaster fund to cover recurrent events. Finally, it is shown that under reasonable assumption a reserve fund results in significant economic benefits deriving from early response which the fund's immediately available liquidity facilitates.

### II. Post-Disaster Expenditure

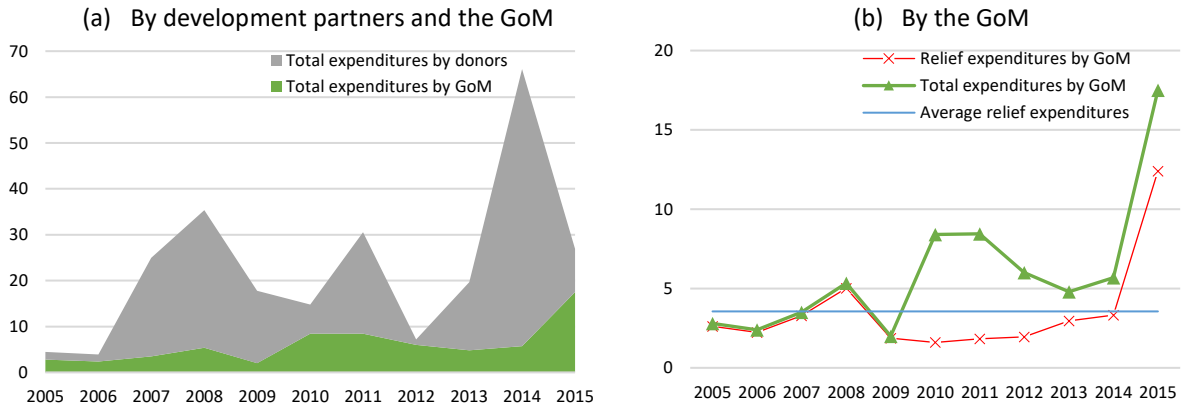
3. **Total post-disaster expenditure has increased significantly from 2005 to 2015**[44] (notwithstanding a dent between 2009 and 2013 in the upward trend). Throughout, the GoM relied on donor support which, in most years, far exceeded government contributions (figure 6.1a). Expenditures by the GoM ranged from US$3 million to US$17 million over 2005–2015 (figure 6.1b). Post-disaster expenditure financed emergency relief, medical resources, chemical pesticides, and materials for rehabilitation and reconstruction. Expenditure on emergency relief only, that is, excluding recovery and reconstruction, accounted for roughly US$3.5 million on average for 2005–2015, reaching a peak value of US$12 million in the aftermath of the 2015 tropical storms Chedza and Fundi (see red line in figure 6.1b).

4. **The GoM is looking to respond to disasters in a more timely and cost-effective way than in the past, and to reduce reliance on budget reallocations to finance emergency response.** In 2015, government post-disaster expenditure was mainly financed through budget reallocations (80 percent). The rest came from a continency budget line for disasters and support from donors channeled through the state budget (6.0 percent and 13.5 percent, respectively). The recourse to budget reallocations can have an opportunity cost if resources are diverted from development projects. Furthermore, if budget reallocations take longer than other forms of resource mobilization, associated delays in emergency response also entail a cost. Donor support, while prima facie cheap, is highly uncertain and is associated with delays, coordination costs, and fragmented response. There is therefore a clear rationale for prearranging financial instruments and mechanisms that enable the GoM to respond to disasters in a

[44] The most recent disaster response expenditure data allowing disaggregation into emergency response costs obtained provided information up until 2015. Hence, the end of the time series in 2015.

more timely and cost-effective way than in the past. The rest of this annex illustrates this with a basic framework for disaster risk financing and some quantitative analysis.

**Figure 6.1. Post-disaster Expenditure by Development Partners and the GoM (US$, millions)**




*Source:* MEF (2016) and United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA).
*Note:* Data until July 2015. Expenditure by donors includes only support provided off-budget, while expenditure by the GoM includes budget allocations and reallocations and support from development partners channeled through the budget as well as from national donors.

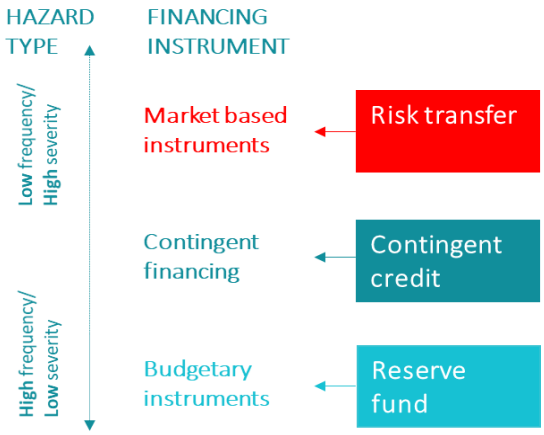
**III. Disaster Risk Financing and Insurance: A Basic Framework**

5. **Disaster risk financing aims to provide financial solutions for financing disaster response to countries in the most cost-effective way, by using different instruments for different types of risks (risk layers).** Typically, this entails combining both so-called risk retention (for example, reserve funds or contingent debt) and risk transfer instruments (for example, insurance).[45] This approach to financial protection complements other elements of a comprehensive DRM strategy, ranging from investments in risk reduction to adequate preparedness and resilient reconstruction.

6. **A simplified menu of financing options available to governments is shown in figure 6.2.** As can be seen, the different instruments address different risk layers, ranging from recurrent to more infrequent events. For recurrent events, a disaster reserve fund can provide quick liquidity to finance preparedness and emergency response. For medium-size events, contingent financing (such as the Cat DDO) can complement reserves if needed. For more extreme but rare events, risk transfer instruments can provide additional protection since the opportunity cost of holding large reserves would be prohibitive.

[45] See, for example: Ghesquiere, F., and O. Mahul. 2010. "Financial Protection of the State against Disasters: A Primer." Policy Research Working Paper WPS 5429, World Bank, Washington, DC.

**Figure 6.2. Financing Instruments for Different Layers of Risk**




**IV. Expected Emergency Costs**

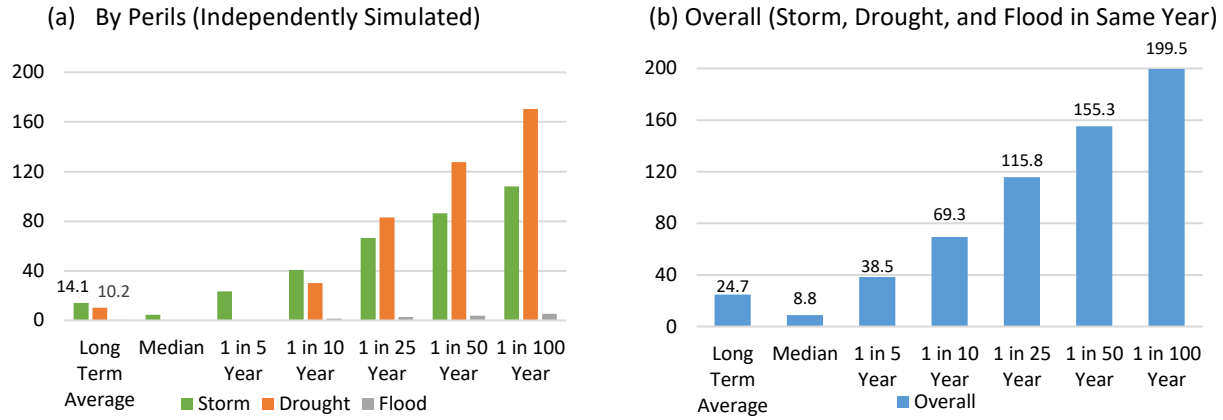
7. This section presents estimates of expected emergency response costs, obtained by fitting a statistical distribution to historical data of the emergency cost associated with storm (that is, tropical cyclone), drought, and flood.

8. **Presented estimates and assumptions are derived from limited data, particularly on the number of affected people by peril and the emergency cost per capita.** This analysis is limited given the data, assumptions, and generic methods applied and should be interpreted to illustrate trends rather than offering precision.[46] Key loss, financial, and economic assumptions are listed below:

- The number of affected people is based on data from the International Disaster Database (EM-DAT).
- The emergency response cost per person is assumed to be US$45, which equals the average relief expenditure per person by donors and the GoM during 2005–2015 (based on MEF data).
- Losses are scaled to account for population growth in Madagascar. To this end, population data from the WDI are used.

[46] Note that estimations over this section do not follow the same methodology applied in the World Bank document 'Disaster Risk Profile of Madagascar', which is a multi-hazard risk assessment based on hazard, exposure, and vulnerability data estimated through AIR modelling.

**Figure 6.3. Return Period of the Response Cost Distribution (US$, millions)**




*Note:* Return period is the estimated time between losses of at least a certain size occurring, for example, a 1-in-10 year return period refers to losses that occur on average once every 10 years. Exceedance probability is the probability that this level of loss will be exceeded, for example, a loss with an exceedance probability of 10 percent will be exceeded on average once every 10 years.
*Source:* EM-DAT and World Bank staff calculations.

9. **On average, storms result in the emergency costs of US$14 million per year, more than drought or flood.** The average annual needs due to storm, drought, and flood combined are estimated to be around US$25 million. Based on available data and the fitted statistical distribution of response cost, the annual estimated emergency cost for different scenarios are displayed in figure 6.3. Panel (a) shows response cost independently simulated by peril, while panel (b) shows response cost from the three perils happening the same year. On average, storms result in the emergency costs of US$14 million, more than drought or flood (figure 6.3a). The average annual needs due to storm, drought, and flood combined are estimated to be around US$25 million. Every other year, emergency costs are estimated to be around US$8.8 million (= median loss) or higher, and in 60 percent of the years, emergency costs are estimated to be higher than US$4.5 million (= 40th percentile). Every year, there is a 20 percent probability that emergency needs exceed US$38.5 million and a 10 percent probability that they will exceed US$69.3 million (figure 6.3b).

## V. Financing Instruments in Madagascar

10. **A reserve fund, a contingent grant, and sovereign insurance are currently being put in place or assessed by the GoM.** As discussed in section III, a combination of prearranged sources to finance disaster response is typically more cost-effective than reliance on a single instrument. The following instruments are currently being put in place or assessed by the GoM:

- **Disaster fund.** The establishment of a disaster reserve fund is supported by this operation. Such funds are useful to cover low risk layers, that is, relatively frequent/low-impact events. In Madagascar, (non-tropical cyclone) storms and regional floods occur frequently and strain government resources on a regular basis while not creating international headlines that could lead to the mobilization of additional international assistance. Given the opportunity cost of a liquid disaster reserve fund, the GoM could consider allocating the equivalent of the 40$^{th}$ percentile of emergency costs (US$4.5 million) to the fund. This would entail a 60

percent probability of the fund's entire annual allocation being used in any given year. Note that post-disaster emergency expenditure by the GoM during 2005–2015 was about US$3.5 million per year on average. Should the GoM not be able to allocate US$4.5 million on an annual basis, it could consider an allocation of 0.1 percent of the state budget, which is the equivalent of around US$3 million, as a lower bound of the range of potential allocations.

- **Contingent grant (Cat DDO).** This operation will make available US$61.7 million over three years. Given that triggering it requires declaration of a national disaster, the Cat DDO is expected to be used in less frequent events which cause significant damage and whose costs would easily exhaust the resources of the reserve fund. A tropical cyclone could be such an event.

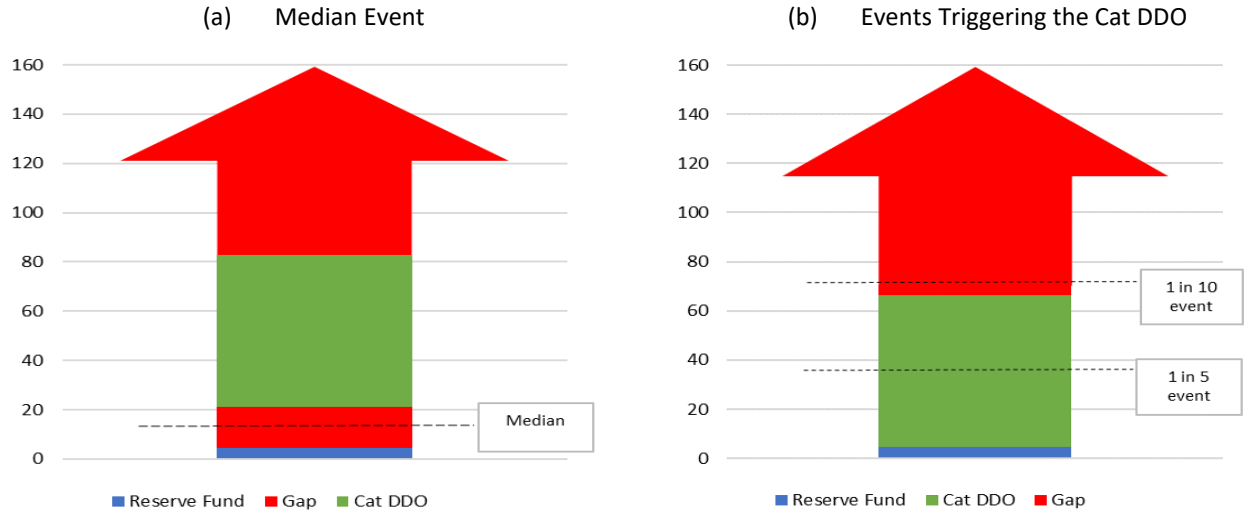
- **Sovereign insurance.** The GoM has purchased sovereign insurance against drought for the first time in October 2019. According to the framework presented in section III, insurance is suited for relatively extreme and rare events, that is, event occurring less frequently than every 5–10 years, on average, such as a severe tropical cyclone or drought.

11. Building on the expected loss distribution presented in figure 6.3, funding gaps with the following instruments in place are estimated: (a) a disaster fund financed annually with a US$4.5 million government allocation and (b) a Cat DDO of US$61.7 million for medium size events occurring less frequently than every three years (US$21 million).

12. **Based on the expected response cost, the GoM will face financing gaps to cover less frequent events.** By allocating US$4.5 million in a reserve fund, there is a 60 percent of chances of using the fund in any given year, with a potential gap of US$4.3 million should a median event occur. In this case, budget reallocations would be needed to complement the disaster fund.[47] Events of a magnitude which, on average, occur every 5 years (1-in-5 events) entail emergency costs of about US$38.5 million. This would be covered by the reserve fund and the Cat DDO. An event that, on average, occurs only every 10 years (a 1-in-10 event), is expected to cause emergency costs of around US$69.3 million. In this case, even the reserve fund and Cat DDO would not be enough to cover the emergency needs, leading to a financial gap of US$3.1 million.

[47] Note that this analysis does not consider the dynamics of the fund (that is, previous drawdowns and/or accumulations).

**Figure 6.4. Instruments and Financial Gaps (US$, millions) – including drought, flood and cyclone**




*Source:* EM-DAT and World Bank staff calculations.

**VI. Cost and Payouts Comparison: Reserve Fund and Insurance**

13. **Building on the expected response cost distribution, this section compares costs and potential maximum coverage provided by different risk financing strategies.** The same caveats regarding data quality apply.

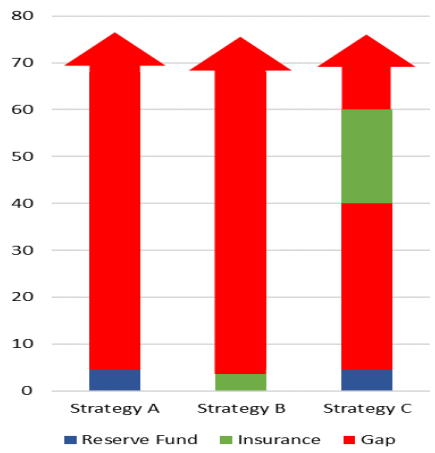
14. **The analysis illustrates that (a) insurance is more expensive than a disaster fund to cover recurrent events and (b) the higher the risk layer for which insurance is purchased, the higher the total insurance coverage (that is, sum insured) per dollar amount of premium.** Over the selected strategies, a Cat DDO of US$61.7 million is assumed to be in place, but for comparison purposes cost and potential maximum coverage of a reserve fund and insurance are quantified, as follows (see more details in figure 6.5 and table 6.1):

- **Strategy A.** It is assumed that the GoM allocates US$4.5 million to a reserve fund; hence the maximum coverage will be US$4.5 million minus a small administrative cost to maintain the fund.

- **Strategy B.** It is assumed that instead of financing the reserve fund, the GoM allocates US$4.6 million (premium) to purchase insurance at the same risk layer. Note that in both strategies the GoM covers at maximum US$4.5 million of risk, that is, both strategies would provide up to US$4.5 million in immediate liquidity in a scenario where needs are US$4.5 million or higher. However, on average, over many years the insurance considered would pay out US$3 million, so the GoM would in a typical year pay US$4.6 million but only receive US$3 million. With the reserve fund, in a typical year, the GoM would 'pay' (that is, allocate) US$4.5 million into the fund and it would use US$3 million for emergency response and thus keep US$1.5 million in the fund.

- **Strategy C.** In this case, the reserve fund and insurance are combined, but insurance provides protection for larger events, not the small events assumed in Strategy B. So, it is assumed that the GoM allocates US$4.5 million to a reserve fund and that it purchases insurance for a premium of US$4.6 million to cover a higher risk layer. Note that in both Strategies B and C, the premium is US$4.6 million. However, the insurance coverage purchased under Strategy B is only US$4.5 million while under Strategy C it is US$20 million.

**Figure 6.5.. Disaster Risk Financing Strategies (US$, millions)**




*Note:* Gaps are set for illustrative purposes, as in the three strategies the Cat DDO could be triggered at events occurring in events occurring less frequently than every three years (US$21 million).
*Source:* EM-DAT and World Bank staff calculations.

**Table 6.1. Costs and Coverage**

| Strategy | Cost in US$, millions | Potential Maximum Coverage in US$, millions |
|---|---|---|
| **A** Reserve fund | 4.5 | 4.5 - small operating cost = ~ 4.5 |
| **B:** Insurance | 4.6 | 4.5 (attachment point) |
| **C:** Reserve fund plus insurance | 9.1<br>Of which<br>Fund: 4.5<br>Insurance: 4.6 | **Fund:** ~ 4.5<br>**Insurance:** 20<br>**Total:** ~ 25.5 |

*Note:* Premium is estimated assuming 1.50 insurance multiplier and 100 percent ceding.
*Source:* EM-DAT and World Bank staff calculations.

15. **On average, the GoM would achieve cost savings by covering the low risk layer with a reserve fund rather than insurance.** Strategy A is more cost-effective than Strategy B for covering the same amount of loss caused by frequent events. Insurance is more expensive because catastrophe insurance premiums are set by taking the annual expected loss and adding an expense load.[48] The more recurrent the event, the higher its annual expected loss.[49] The expense load compensates the insurer for the non-loss expenses of providing insurance such as operating cost and startup cost. As a result, for covering the low risk layer by purchasing insurance, the GoM will pay more than the operative cost of a reserve fund.

[48] Cummins, D., and O. Mahul. 2009. *Catastrophe Risk Financing in Developing Countries. Principles for Public Intervention.*
[49] The expected loss is equal to the loss multiplied by its occurrence probability. Along the distribution of losses, recurrent events have higher probability of occurrence and expected value (see figure 6.3). For example, the expected value for a median event is equal to US$4.4 million (= US$8.8 million × 50 percent), while the expected value for an event occurring every 100 years is US$2 million (= US$200 million × 1 percent).

16. **For a given amount of premium, the GoM can achieve higher maximum coverage by purchasing protection for relatively rare events (that is, by covering a higher level of risk).** Thus, under Strategy C, the GoM obtains a maximum coverage of US$20 million by paying US$4.6 million of premium. Insurance might therefore be an adequate complement to the Cat DDO and a reserve fund to cover large and relatively rare events. Literature shows that combining different instruments is typically more cost-effective than relying on one source of funding.[50]

17. **The GoM has recently purchased sovereign drought insurance and is considering insurance against tropical cyclone risk going forward.** A potential source of insurance premium financing is the Global Risk Financing Facility, launched in 2018 by the World Bank with funding from Germany (The Federal Ministry for Economic Cooperation and Development [BMZ]) and the United Kingdom (U.K. Department for International Development [DfID]). Its objective is to strengthen the financial resilience of developing countries to protect poor and vulnerable people and livelihoods by supporting the scale-up of risk financing and insurance solutions.

**VII. Cost-benefit analysis of the National Disaster Fund**

18. **Early intervention facilitated through the NDF is expected to generate significant economic and social benefits for the Malagasy Government and society.** For the government, having rapid access to resources to meet surge demand for emergency assistance entails benefits due to cost efficiencies generated by early procurement and response. For households, early relief can reduce the resort to negative coping strategies which have been shown to have detrimental long-term consequences. Wider economic benefits are expected to result from other early intervention activities such as the clearing of debris from roads and restoring access to cut-off communities.

19. **A cost-benefit analysis was conducted to estimate the expected benefits of the NDF under various scenarios.** The economic analysis estimates the Net Present Value (NPV) of the fund over a 20-year horizon. Costs and benefits discounted at 0 and 9.5 percent are presented; the scenario with a discount rate of zero is presented to provide readers with a baseline against which to benchmark the other scenario. Key assumptions are listed below:

- ***Cost.*** Capitalization plus a small operating cost to administer the fund are assumed to amount to US$4.5 million per year; the operating cost is assumed at 0.1 percent[51]. The total cost per year is assumed to equal the disbursed amount to cover emergency preparation/response costs plus the opportunity cost[52] of holding resources in the fund instead of using them to finance development projects. The opportunity cost is assumed to equal 9.5 percent, the monetary policy rate in Madagascar. This rate has been used as the

[50] See, for example: Clarke, Daniel Jonathan, Olivier Mahul, Richard Andrew Poulter, and Tse-Ling Teh. 2016. "Evaluating Sovereign Disaster Risk Finance Strategies: A Framework." Policy Research Working Paper No. WPS 7721, World Bank, Washington, DC.

[51] Assuming three staff with an annual salary of US$1,500 (note that the 2018 non-agricultural minimum wage set by the GoM was around US$550 dollars).

[52] Following the estimation of the cost for a reserve fund in: Clarke, Daniel Jonathan, Olivier Mahul, Richard Andrew Poulter, and Tse-Ling Teh. 2016. "Evaluating Sovereign Disaster Risk Finance Strategies: A Framework." Policy Research Working Paper No. WPS 7721, World Bank, Washington, DC.

social discount rate in economic analyses undertaken for past World Bank Investment Project Financing operations for the agriculture and education sectors.

- ***Benefit.*** In the relevant literature, the economic benefits of early response are typically estimated by considering cost efficiencies generated by early procurement of emergency items and avoided negative impacts on households (such as income reduction, malnutrition, diseases, and distressed sales of assets). Evidence from Bangladesh,[53] Ethiopia,[54] Kenya,[55] Mozambique,[56] Niger,[57] and Somalia[58] suggest that US$1 secured ahead of time for early drought or cyclone response generated benefits ranging from US$1.7 to more than US$55.9. Drawing on this evidence and taking a conservative approach, this analysis assumes that in an emergency US$1 secured ahead leads to a US$1.7 benefit.

- ***Scenarios and fund accumulation dynamics.*** The following three scenarios were selected to illustrate potential costs and benefits:

    1) full disbursement every year, i.e. US$4.5 million are assumed to be disbursed yearly. US$4.5 million corresponds to the estimated emergency response cost at the 40$^{th}$ percentile of expected emergency needs;
    2) a partial disbursement of US$3 million, a figure equaling the average expected payout, as discussed in section VI; and
    3) a partial disbursement of US$3 million every two years is assumed, making this the most conservative of the three scenarios.

  The accumulation of resources in the fund over the years is estimated assuming that every year the GoM allocates the minimum of either: a) US$4.5 million or b) US$8.8 million (the ceiling of the fund) minus the previous year's balance in the fund. After the allocation, an emergency is assumed to occur resulting in a disbursement whose size differs by scenario, as mentioned above. For example, in scenario 2, the fund's balance is US$5.8 million in year 4, so in year 5 the GoM would allocate only US$3 million to the fund, and then would spend US$3 million on emergency costs. See table 6.2 for further details.

[53] DFID (U.K. Department for International Development). 2013. *The Economics of Early Response and Resilience: Bangladesh Country Study.*
[54] Hess, U., and W. Wiseman. 2007. *Ethiopia: Integrated Risk Financing to Protect Livelihoods and Foster Development*; USAID (U.S. Agency for International Development). 2018. *Economics of Resilience to Drought: Ethiopia Analysis*; Cabot V., and L. Sida. 2017. "The Value for Money of Multi-Year Humanitarian Funding: Emerging Findings Valid International." *Oxford*, 44p.
[55] USAID. 2018. *Economics of Resilience to Drought: Kenya Analysis.*
[56] DFID. 2013. *The Economic of Early Response and Resilience: Summary of Findings;* DFID. 2013. *The Economic of Early Response and Resilience: Mozambique Country Study.*
[57] DFID. 2013. *The Economic of Early Response and Resilience: Summary of Findings.*
[58] USAID. 2018. *Economics of Resilience to Drought: Somalia Analysis.*

**Table 6.2. Fund Resource Accumulation Dynamics**

| Scenario/time | 1 | 2 | 3 | 4 | 5 | 6 | 7 … | 20 |
|---|---|---|---|---|---|---|---|---|
| **Scenario 1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Scenario 2** | 1.5 | 3.0 | 4.5 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |
| **Scenario 3** | 1.5 | 6.0 | 5.8 | 8.8 | 5.8 | 8.8 | 5.8 | 8.8 |

20. **Results of this analysis suggest that the NDF will result in net benefits.** See below the results for each scenario. Table 6.3 summarizes the findings.

***Scenario 1.*** In this scenario, over 20 years the fund's average annual disbursement rate is 100 percent. The short-term liquidity provided by the fund would generate US$62 million in discounted benefits. The fund would generate a positive net present value of US$22 million with a 1.6 benefit-cost ratio.

***Scenario 2.*** In this scenario, over 20 years the fund's average annual disbursement rate is 67 percent. The fund would entail discounted costs of US$31 million including the cost of capitalization, opportunity costs and operating costs. On the flip side, the fund would generate discounted benefits of US$41 million. Overall, the fund would generate a positive net present value of US$10 million with a 1.3 benefit-cost ratio.

***Scenario 3.*** In this scenario, over 20 years the fund's average annual disbursement rate is 33 percent. Discounted costs, including capitalization, opportunity, and operating costs are US$19 million. Discounted benefits are estimated to equal US$21 million. The fund would generate a positive net present value of US$2 million with a 1.1 benefit-cost ratio.

**Table 6.3. Summary of Economic Analysis (US$ million)**

| Scenarios | r= 0 percent | r= 9.5 percent |
|---|---|---|
| **1) Full disbursement** | | |
| *Cost* | 90 | 40 |
| *Benefit* | 153 | 62 |
| *NPV* | 63 | 22 |
| *B/C ratio* | 1.7 | 1.6 |
| **2) US$3 million per year** | | |
| *Cost* | 70 | 31 |
| *Benefit* | 102 | 41 |
| *NPV* | 32 | 10 |
| *B/C ratio* | 1.5 | 1.3 |
| **3) US$3 million every two years** | | |
| *Cost* | 43.2 | 19 |
| *Benefit* | 50.9 | 21 |
| *NPV* | 7.7 | 2 |
| *B/C ratio* | 1.2 | 1.1 |

r: economic discount rate, NPV: net present value

21. **The key assumption underpinning the results of the performed economic analysis is the benefit multiplier.** A sensitivity analysis was undertaken by using different benefit multipliers. Under the most conservative assumption, where US$1 secured ex-ante only generates a US$1.1 benefit, the cost of holding resources in the fund is higher than the benefit under scenarios 2 and 3. However, the benefit-cost ratio can reach a high of 2.4 if US$1 secured ex-ante is assumed to generate a US$2.6 benefit through early response. As mentioned in paragraph 19, the benefit multiplier of 1.7 which underpins the results presented in table 6.3 is at the lower end of the range of benefit multipliers of early response that have been estimated in the relevant literature.

**Table 6.4. Sensitivity Analysis**

| Benefit ratio | Scenario 1 | Scenario 2 | Scenario 3 |
|---|---|---|---|
| **US$1.1** | 1 | 0.9 | 0.7 |
| **US$1.5** | 1.4 | 1.2 | 1.0 |
| **US$2.6** | 2.4 | 2.0 | 1.7 |

22. **These results are in line with the results of economic analyses assessing the costs and benefits of similar interventions supported by other World Bank projects.** For example, the Mozambique Disaster Risk Management and Resilience Program for Results included a component to finance the capitalization of a disaster reserve fund. The estimated benefit-cost ratio of this component was 1.4 (using a 10 percent discount rate). In addition, the Kenya Social and Economic Inclusion Project included a component to provide funding for emergency cash transfers through a scalable safety net. The internal rate of return of the project was estimated at 26 percent. In both projects, similar assumptions were used to estimate the benefits of early response.

**VIII. Conclusions**

23. **The estimated mean annual emergency needs due to storm, drought, and flood are around US$25 million.** In any given year, there is a probability of 60 percent that Madagascar will need around US$4.5 million for emergency response costs (= 40$^{th}$ percentile costs). Every year, there is a 20 percent probability that emergency needs exceed US$38.5 million and a 10 percent probability that they will exceed US$69. million.

24. **An analysis of expected emergency costs suggests that by allocating US$4.5 million in a reserve fund, there is a 60 percent probability of exhausting the funds every year.** For events occurring less frequently than once every three years, on average, the Cat DDO is an extremely important complement to a reserve fund. However, for events with a return period of 1 in 10 or greater, the resources of the Cat DDO would be exhausted. Insurance might therefore be an adequate complement to the Cat DDO and a reserve fund to cover large and relatively rare events.

25. **As shown in section VI, insurance is more expensive for covering low layers of risks than a reserve fund.** Also, a reserve fund will not only provide quick liquidity for emergency response but can, if carefully designed and properly managed, increase accountability and make post-disaster spending more transparent. It can promote ownership of disaster response by channeling support from development

partners—which typically by-passes the national budget—through the fund. This would also reduce coordination costs and lead to a less fragmented response.

26. **Finally, Section VII shows that under reasonable assumption a reserve fund results in significant economic benefits deriving from early response which the fund's immediately available liquidity facilitates.** Assuming a benefit multiplier of early response at the lower end of the range of such estimated multipliers in the relevant literature, the fund would result in a benefit-cost ratio of 1.6, 1.3, or 1.1 under three different scenarios considered. The scenarios assume different annual disbursement rates of the fund, which in turn drive the differences in estimated benefit-cost ratios.

## ANNEX 7: MADAGASCAR'S NATIONAL DISASTER FUND

### I. Background and Rationale

1. **The GoM has requested technical support from the World Bank to establish and operationalize an NDF.** Such a fund has been under discussion since 2008 and is envisaged in Madagascar's DRM policy. The MEF has asked for support to set up the NDF as part of the reforms conducted under the Cat DDO. This is part of a wider, two-pronged effort by the GoM, and the MEF, in particular, to strengthen the PFM of disasters in Madagascar.

2. **First, such efforts focus on enhancing accountability for and transparency of disaster response expenditure.** Under the current PFM setup, it is all but impossible to accurately record and trace the amount of resources spent on disaster response, particularly on emergency preparedness and response. In the absence of a budget classifier which would allow tracing spending through the chart of accounts, the GoM has concluded that a fund through which response financing is channeled would enable better tracking of emergency spending. The establishment of the NDF builds on international experience[59] to promote quick response financed in a transparent way. It will have clear rules governing the use of resources, ensure that pre-agreed contracting is used for goods which are regularly used for disaster to avoid excessive single source contracting after an event, and be subject to annual audits in line with national legislation.

3. **Second, the fund is part of an effort to strengthen financial preparedness for disasters in a cost-effective way by putting in place a combination of prearranged financial instruments.** In addition to this Cat DDO, the GoM is thus looking to contract sovereign drought insurance and is setting up an NDF. Prearranged instruments would allow the GoM to respond to disasters in a timelier manner, while using a combination of ex ante instruments increases cost-effectiveness of prearranged financing (see annex 6 for a technical illustration).[60]

4. **The Malagasy NDF is conceived to provide immediate liquidity to finance emergency response.** In particular, it is expected to provide the bulk of emergency response funds for relatively small events for which insurance protection would not be cost-effective and for which the GoM would be unlikely to declare a national disaster, a requirement for Cat DDO disbursements. The NDF is therefore not intended to accumulate large savings which would entail important opportunity costs.[61] Experience has shown that in Madagascar, the alternative to provisioning for immediate needs after a disaster are budget reallocations, which lead to delays in the implementation of development projects, resulting in important economic costs. Likewise, sourcing funds after an event routinely leads to delays in the emergency

[59] See, for example: Boudreau, L. 2016. "Disasters and Discipline: The Political Economy of Natural Disasters and of Sovereign Disaster Risk Financing and Insurance in Mexico." The World Bank Group, Washington, DC;
IMF. 2018. *How to Manage the Fiscal Cost of Disasters*.

[60] See World Bank. 2016. "Evaluating Sovereign Disaster Risk Finance Strategies: a Framework." Policy Research Working Paper WPS 7721;
World Bank. 2016. *Evaluating Sovereign Disaster Risk Finance Strategies: Case Studies and Guidance*.

[61] A 2019 policy paper from the IMF argues that even quite significant disaster fiscal buffers can be useful in low-income countries highly exposed to disasters. However, this is not a widely held view and the NDF is not expected to build up large buffers. See: IMF. 2019. *Fiscal Buffers for Natural Disasters in Pacific Island Countries*.

response, also resulting in high economic and welfare costs, which are typically absorbed by the poorest households.[62]

5. **The literature on the economic benefits of early response suggest that the returns on early response are very high**. The economics benefits of early response are typically estimated by considering cost efficiencies generated by early procurement of emergency items and avoided negative impacts on households (that is, income reduction, malnutrition, diseases, and distressed sales of assets). Evidence from Bangladesh,[63] Ethiopia,[64] Kenya,[65] Mozambique,[66] Niger,[67] and Somalia[68] suggest that US$1 secured ahead of time for early drought or cyclone response generated benefits ranging from US$1.7 to more than US$55.9.

6. **The NDF will not accumulate resources for reconstruction activities, as the GoM considers the budget the best instrument to finance this type of expenditures.** While quick liquidity is crucial (and can be lifesaving) for emergency preparedness and response, there is more time to mobilize funding for reconstruction, not least because reconstruction project preparation takes weeks if not months. Also, the financing requirements for reconstruction projects are significantly higher than for emergency response, making continued reliance on development partners for reconstructions likely.

7. **Finally, the NDF can finance the purchase sovereign risk insurance to cover emergency costs of less frequent events.** Payouts from such insurance will flow through the fund, ensuring that the NDF's provisions related to procurement, reporting, and audit also apply to the use of insurance payouts.

**II. Governance and Financial Arrangements**

8. **The BNGRC is responsible for the management of the NDF, while the National DRM Council will provide oversight.** The latter comprises 15 members from the Prime Minister's Office, the MEF, and other relevant sectors. The council will be responsible for approving the list of eligible expenses to be financed with NDF resources. Within the BNGRC, the administrative and financial service is responsible for operational tasks such as procurement, bookkeeping, and reporting. The MEF will have financial oversight of the NDF.

9. **The NDF is a dedicated account financed and resourced through budget allocations, donations from private donors or development partners, and insurance payouts.** The NDF is a dedicated bank

[62] Hallegatte, Stephane, Adrien Camille Vogt-Schilb, Mook Bangalore, and Julie Rozenberg. 2016. "Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters (English)." *Climate Change and Development series.* Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/512241480487839624/Unbreakable-building-the-resilience-of-the-poor-in-the-face-of-natural-disasters.
[63] DFID (U.K. Department for International Development). 2013. *The Economic of Early Response and Resilience: Bangladesh Country Study.*
[64] Hess, U., and W. Wiseman. 2007. *Ethiopia: Integrated Risk Financing to Protect Livelihoods and Foster Development*; USAID (U.S. Agency for International Development). 2018. *Economics of Resilience to Drought: Ethiopia Analysis*; Cabot V., and L. Sida. 2017. "The Value for Money of Multi-Year Humanitarian Funding: Emerging Findings Valid International." *Oxford*, 44p.
[65] USAID. 2018. *Economics of Resilience to Drought: Kenya Analysis.*
[66] DFID. 2013. *The Economic of Early Response and Resilience: Summary of Findings;* DFID. 2013. *The Economic of Early Response and Resilience: Mozambique Country Study.*
[67] DFID. 2013. *The Economic of Early Response and Resilience: Summary of Findings.*
[68] USAID. 2018. *Economics of Resilience to Drought: Somalia Analysis.*

account managed independently from other BNGRC resources. Sources of funding include allocation from the national budget, donations, and payouts from risk transfer instruments. To ensure recurrent capitalization of the NDF, the MEF will make an annual allocation to the NDF through the national budget.

10. **The annual budget allocation to the fund is estimated to range from 0.1 percent to 0.2 percent of the national budget.** The exact size of the annual allocation is yet to be defined but considering post-disaster expenditures in the past and financial analysis on the average expected cost of emergencies (see annex 6), it is expected that the GoM allocates around US$3 million to US$4.5 million each year, representing 0.1 percent to 0.2 percent of the national budget.[69] In addition, the GoM is considering putting in place a ceiling on the size of funds which the NDF can accumulate to avoid the risk of incurring large opportunity costs should there be a long period with no disasters and hence with continuous buildup of reserves. In particular, the GoM could cap the NDF at the median of the expected emergency response cost which equals US$8.8 million (equivalent to 0.4 percent of the 2019 state budget).[70] Finally, NDF resources can only be invested in low-risk and highly liquid financial instrument after the BNGRC has developed an investment strategy.

**III. Key Operational Features**

11. **It is expected that NDF resources will only be accessed following the activation of an alert by the GoM.** Once the alert is activated, the BNGRC will be responsible for allocating fund resources for eligible preparedness and emergency response needs and across eligible NDF beneficiaries.

12. **Support from the BNGRC for preparedness and emergency response is expected to be provided in kind and procured through pre-agreed contracts in accordance with a positive list that will be defined by the BNGRC**. For rapid onset disasters, this list will include materials necessary for search and rescue operations; acquisition, transportation, and distribution of essential goods and services for the relief or assistance of victims of disasters; and provision of temporary shelter and sanitation, food, medical care, and temporary evacuation of areas affected by disasters. Significant cost efficiencies are expected due to economies of scale from procuring emergency items in advance.

**IV. Transparency and Accountability**

13. **The NDF's financial statements will be audited annually and published online.** Emergency response requires speed and therefore often greater flexibility is granted to agencies responsible for response in emergency situations (for example, through emergency procurement provisions). With the NDF, the GoM seeks to balance the needs for speed and flexibility with stringent control and oversight. It will be subject to regular audits and financial oversight from the MEF. Overall, the fund is expected to increase transparency as it will create one channel through which a large part of funds for emergency preparedness and response are channeled. Fragmentation of response spending across ministries/agencies within the Government, as well as across various humanitarian actors, had made it very difficult to track such spending to date. By clarifying what items emergency funds can be

[69] According with the 2019 *Loi de Finances Rectificative*, the 2019 total expenditures are estimated at MGA 8,219.3 billion, equivalent to around US$2.3 billion.

[70] Capping reserve funds has precedent. For example, the Fiscal Stabilization Fund of Peru is capped at 4 percent of GDP. While the NDF has a different objective to Peru's Fiscal Stabilization Fund, the latter illustrates that caps for reserve funds have been instituted elsewhere.

spent on ex ante, the fund will reduce discretion in emergency response spending. Finally, through pre-agreed contracting, it will reduce the amount of single-source procurement after events—currently a source of poor value for money of emergency spending—thereby ensuring that the most cost-effective providers of goods and services obtain contracts.

## ANNEX 8: HEALTH EMERGENCIES: FINANCING AND RESPONSE CAPACITY

### I. Risk Profile

1. Madagascar is affected by epidemic outbreaks on a recurrent basis, with events in the last 10 years including (a) plague; (b) malaria; (c) acute respiratory infections; (d) marine animal intoxication (ICAM); (e) toxicology collective food infections; (f) conjunctivitis; and (g) measles. Of these diseases, malaria affects the largest number of persons and causes the largest number of deaths, followed by measles. In 2019, measles killed more than 859 persons and affected about 140,000 persons over the 22 regions in the country, of which children ages 1 to 10 years accounted for 64 percent of the total number of cases.[71]

**Table 8.1. Epidemics in Madagascar from 2013 to 2019**

| Year | Epidemic | Persons Affected | Deaths |
|---|---|---|---|
| 2013 | Malaria | 174 | 0 |
| 2014 | Plague | 325 | 50 |
| 2015 | Malaria | 740,000 | 866 |
| | Conjunctivitis | 866 | 0 |
| 2016 | Acute Respiratory Infection | 1,114 | 0 |
| 2017 | Malaria | 167,223 | 121 |
| | Plague | 2,450 | 214 |
| 2019 | Measles | 140,935 | 859 |

*Source:* Department of Emergency and Response to Epidemics and Disasters (*Service des Urgences et des Ripostes aux Epidémiologies et Catastrophes*, SURECA), 2019.

2. The Joint External Evaluation conducted in 2017 by the World Health Organization (WHO) regarding Madagascar's compliance with International Health Regulations pointed out some strengths related to relevant operational capacities as well as some major weaknesses, which are summarized in table 8.2.

**Table 8.2. Summary of the 2017 Joint External Evaluation**

| Scores by Group | Capacity of the 19 Technical Areas of the Joint External Evaluation (2017) |
|---|---|
| **Low scores 1–2 (Low capacity)** | • Legislation, policy, and national financing<br>• Coordination, communication, and International Health Regulations promotion<br>• Resistance to antimicrobials<br>• Food health security<br>• Biological safety<br>• Preparedness |

[71] World Health Organization. 2019. *Measles Madagascar*. https://www.who.int/csr/don/17-january-2019-measles-madagascar/en/.

| | |
|---|---|
| | • Link between public health and security authorities<br>• Medical means and staff deployment<br>• Entry points<br>• Chemical risks<br>• Radiological emergency |
| **Mixed scores (Some indicators low, others high)** | • Zoonoses<br>• Immunization<br>• National laboratory system<br>• Notification<br>• Staff development<br>• Emergency interventions<br>• Communication on risks |
| **High scores 3-4-5 (Developed capacity)** | • Real-time surveillance |

## II. Policy, Legal, and Institutional Framework

3. The GoM has demonstrated commitment to enhance national capacity to comply with the WHO guidelines on Public Health Emergencies of International Concern and to move toward a more proactive approach to managing health-related emergencies. Key policy and legal documents governing disease surveillance and threat response include the National Health Policy, National DRM Policy, National Strategic Plan for Public Health Surveillance, and the National Multi-risk Contingency Plan.

4. The Ministry of Public Health (MoH) leads the management of public health threats, while DRM entities—the CPGU, and the BNGRC—provide coordination support during responses to major epidemics and pandemics. Within the MoH, SURECA is responsible for health-related disaster response, as well as for strengthening the response capacity of Madagascar's 22 regions and for prepositioning medical resources. Madagascar also has mobile intervention teams (*Services des Équipes Mobiles d'Intervention,* SEMoI) within regional directorates of public health. During a Government-declared national emergency, SURECA supports the SEMoI with staff, emergency physicians, and specialists, as well as medicines and medical devices.

**Table 8.3. Institutional Arrangements in Public Health Surveillance and Response**

| Entity | Roles |
|---|---|
| MoH<br><br>Directorate for Health Surveillance Epidemiological Surveillance (DVSSE) | • Sectoral strategy and coordination<br>• Operational support through National Operational and Strategic Epidemiological Surveillance Center (*Centre National Opérationnel et Stratégique de Surveillance Epidémiologique,* CNOSSE) |
| SURECA | • Reduce the spread of diseases.<br>• Provide support to SEMoI at the regional level. |

| Entity | Roles |
|---|---|
| BNGRC and CPGU | • Cross-sectoral strategy and coordination of disaster response (media, transport, defense, education, and so on)<br>• Secure essential services<br>• Operational support through Center for studies, reflection, monitoring and orientation *(Centres d'Etude, de Réflexion, de Veille et d'Orientation,* CERVO) |

*Source:* Multi-risk Contingency Plan 2015 and WHO 2017.

## III. Contingency Plans and Emergency Response

5. The response strategy to pandemics and major epidemics is based on two contingency plans: (a) the Multi-Risk Contingency Plan and (b) the National Contingency Plan for Pandemics and Major Epidemics 2014–2016. The contingency documents define the response scenarios from an outbreak to a major situation, with communication campaigns to inform citizens who are considered the fundamental layer of response. The *Plan d'Organisation des Secours (*ORSEC Plan or emergency organization plan) triggers an intervention at the regional level while the National Plan triggers one at the central level. Based on existing contingency plans, the public health and DRM teams intervene jointly in an emergency.

**Table 8.4. Scenarios**

| Scenarios | Action to Trigger |
|---|---|
| Potential pandemic virus in neighboring countries or within Madagascar | Communication<br>Surveillance |
| Limited and isolated cases of a possible pandemic or highly epidemic | Communication<br>ORSEC Plan (regional level) |
| Major epidemic | Communication<br>National Plan (central level) |

*Source:* National Contingency Plan for Pandemics and Major Epidemics 2014–2016.

6. At the central level, Madagascar has responded in a coordinated manner to several major crises in the last five years. The operational centers (CERVO for natural disasters and CNOSSE for epidemics) have been activated several times and have demonstrated effectiveness. They have equipment to provide a 24-hour service. However, a lack of operational capacity at the regional level often necessitates interventions from the central level, which can result in significant delays. Reliance on the central level also leads to bottlenecks in the event of simultaneous occurrence of several crises in different regions.

## IV. Financial Resources

7. The GoM has a budget line for epidemic control, to which varying amounts have been allocated in recent years. Over the past five years, the budget has ranged from US$60,000 to US$300,000. It finances the activities supporting the epidemic control program, including actual care provided, such as the prepositioning of medicines. In case of emergency, this line is topped up with additional resources. In fact, during the major epidemics of pest and malaria in 2017, US$1.8 million was mobilized through the emergency budget, while during the measles epidemic in 2018, US$750,000 came from the emergency budget. Note that the amounts spent in 2017 and 2018, shown in table 8.5, also included the cost of

vaccinations administered as part of the response.[72] Domestic resources are typically complemented by significant financing from development partners (it is estimated that for the recent measles crisis, partners contributed more than US$11 million to the response). Due to the large role development partners play in financing response, efforts are typically fragmented, requiring additional coordination efforts and following different procedures for different partners, which is inefficient.

**Table 8.5. Past Domestic Expenditures for Epidemics from 2013 to 2018 (US$)**

| Year | Epidemic | Control of Epidemics (Budget Line) | Epidemics Response (Emergency Budget) |
|---|---|---|---|
| 2013 | Malaria | 392,601 | |
| 2014 | Plague | 68,758 | |
| 2015 | Malaria and conjunctivitis | 89,295 | |
| 2017 | Malaria and plague | 284,333 | 1,792,980 |
| 2018 | Measles | 286,940 | 754,173 |
| | **Total** | **1,121,928** | **2,547,154** |

*Source:* STP-CA Primature, 2019.

8. According to the 2017 WHO assessment, available human, material, and financial resources will not be enough in a major epidemic. Given the potential types of emergencies, medicine reserves at SURECA are insufficient. In an emergency response, the means of intervention are insufficient given the size of the national territory and the limitations of many regions. Finally, the lack of a rapidly deployable emergency fund creates delays in the implementation of operations.

9. However, capacities of the GoM for surveillance, preparedness, and responses to health outbreaks are being strengthened. Through the World Bank's Improving Nutrition Outcomes using the Multiphase Programmatic Approach Project, the following interventions are being financed to improve resilience of the health system:

- Surveillance and health information system: Investments are financed to digitize the health information system and TA is provided by the WHO.
- Strengthened operational capacities of the health system at the local level (training, human resources, equipment and drugs, and so on).

10. Furthermore, a Human Capital DPO under preparation is supporting key reforms in the health sector that will help increase the functionality and quality of health services at the primary level by a) improving availability and quality of qualified health workers at frontline service providers; and b) ensuring health facilities have more financial resources and autonomy, which is expected to result in stronger surveillance and response capacities.

11. Due to the limitations of public health emergency response capacity, resources for response that can be quickly mobilized have been suggested by the 2017 WHO assessment. This Cat DDO will help

[72] GoM. 2019. *Etude des impacts économiques et budgétaires des catastrophes à Madagascar.*

address this, as it makes available quick liquidity for timely support to prevent any epidemic outbreak from escalating. As such, it is an important complement to interventions to strengthen the health system financed by the Improving Nutrition Outcomes Project and to reforms supported by the Human Capital DPO.

## ANNEX 9: WORLD BANK TECHNICAL ASSISTANCE PROJECTS AND OPERATIONS COMPLEMENTING THE CAT DDO

1. **The program complements several World Bank projects in Madagascar, both lending operations and analytical and advisory services.** The proposed operation is complementary to the active DRM and climate resilience portfolio in Madagascar. The US$75 million Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756) strengthens flood protection infrastructure and urban resilience in the poorest parts of Antananarivo. The US$1.5 million RETF PPCR finances TA to strengthen the knowledge on climate resilience and climate risk management in the country. The PPCR will finance Technical Assistance for the development of the DMF regulations and the Disaster Risk Financing Strategy, in partnership with the Africa Disaster Risk Financing Initiative of the AfDB. A full list of TA projects and operations which complement this Cat DDO is provided below.

2. **In addition, a TA project financed by an AFD loan support subsidy of up to Euro 1.5 million will support the implementation of Pillar 3 and will focus on strengthening the resilience of cities to climate change**. Its main objective will be the development of capacities and the strengthening of climate adaptation and resilience management in urban areas. The main beneficiaries will be: a) the Ministry of Spatial Planning (MAHTP) and its technical directorates who are in charge of steering and coordinating activities on this theme at the national level; b) local authorities, responsible for planning and territorial foresight, and in the forefront in terms of information and communication with the inhabitants; c) other local actors regularly mobilized by authorities and communities: design offices and universities in priority.

**Table 9.6. World Bank Technical Assistance Projects and Operations Complementing the Cat DDO**

| | |
|---|---|
| **Lending Operations** | • Fiscal Sustainability and Energy Development Policy Operation (P166752)<br>• Madagascar Social Safety Net Project Additional Financing (P167881)<br>• Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756)<br>• Improving Nutrition Outcomes using the Multiphase Programmatic Approach (P160848)<br>• Second Inclusive and Resilient Growth DPO (P166425)<br>• Human Capital Development Policy Operation (P168697) – under preparation and to be delivered in FY 20. |
| **Technical Assistance** | • World Bank. 2017. *Greater Antananarivo: Urban Poverty and Resilience Study.*<br>• Madagascar Pilot Program for Climate Resilience – Phase 1 (P158816)<br>• Madagascar - Building Urban Resilience in Greater Antananarivo (TF0A9057)<br>• Madagascar #E015 Insurance Sector Supervision (P164875)<br>• Madagascar Universal Health Coverage/Health Financing Support (P164662)<br>• Africa Disaster Risk Financing DRFIP (P153097) |

## ANNEX 10: MAP OF MADAGASCAR