Climate Investment Funds

PPCR/SC.21/8
November 13, 2017

Meeting of the PPCR Sub-Committee
Washington D.C.
Tuesday, December 12 – Wednesday, December 13, 2017

Agenda Item 8

PPCR Strategic Program for Climate Resilience for Madagascar

PROPOSED DECISION

The PPCR Sub-Committee, having reviewed the document PPCR/SC.21/8, *Strategic Program for Climate Resilience (SPCR) for Madagascar* [endorses] the SPCR.

The Sub-Committee encourages the Government of Madagascar and the MDBs to actively seek resources from other bilateral or multilateral sources to fund further development and implementation of the projects foreseen in the strategic plan.

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

STRATEGIC PROGRAM FOR CLIMATE RESILIENCE: MADAGASCAR PILOT PROGRAM FOR CLIMATE RESILIENCE

CELLULE DE PREVENTION ET GESTION DES URGENCES
(CPGU)

BUREAU NATIONAL DE COORDINATION DES CHANGEMENTS CLIMATIQUES
(BNCCC)

Template for Summary of SPCR[1]

Pilot Program for Climate Resilience Summary of Strategic Program for Climate Resilience		
(1) Country/Region:	MADAGASCAR	
(2) PPCR Funding Request (in USD million):	Grant: 165 Million USD	Loan:
(3 National PPCR Focal Point:	Mamy Nirina RAZAKANAIVO	
(4) National Implementing Agency (Coordination of Strategic Program):	CPGU (Cellule de Prévention et Gestions des Urgences)	
(5) Involved MDB	World Bank and African Development Bank	
(6) MDB PPCR Focal Point and Project/ Program Task Team Leader (TTL):	Headquarters-PPCR Focal Point: Kanta Kumari RIGAUD (World Bank) Leandro Azevedo (African development Bank)	TTL: Michel MATERA (World Bank) Zinso BOUE (African Development Bank)

(7) Description of SPCR:

(a) **Key challenges related to vulnerability to climate change/variability:**
Madagascar faces significant risks imposed by an increasingly variable and changing climate. Cyclones, droughts and floods are all recurrent occurrences in the country, affecting food security, drinking water supply and irrigation, public health systems, environmental management and development prospects overall.

In a country of predominantly rural and vulnerable population, climate change is expected to disproportionately affect farmers (about 80% of the population) and make their livelihoods even more precarious. Malagasy smallholders, especially female-led households, are particularly at risk owing to their high dependence on rain-fed agriculture, chronic food insecurity, physical isolation and the lack of access to social safety nets.

In urban settings, an unplanned and rapid expansion of informal settlements and the increasing frequency and intensity of weather events is a risk-multiplying equation. While the rural poor are expelled from their land and climate-induced migrants seek alternative livelihoods in cities, urban plans and building codes are not in place and new settlements sprout in areas prone to flooding, landslides or cyclones.

The intensification of risks requires for the authorities to adapt their rural and urban development strategies and implement policies that are more resilient: more could be done to better equip national institutions, to develop sector-specific responses and integrate climate risks into planning and to build financial resilience.

(b) Areas of Intervention – sectors and themes
To address its climate adaptation challenges, Malagasy stakeholders engaged in the SPCR formulation process have decided to guide the program according to five guiding principles that have oriented thematic interventions:

(2) **Spatial** resilience: acknowledgement of the particular challenges of different regions in the country,

(3) **Sectorial** resilience: addressing sector-specific vulnerabilities in priority sectors,

(4) **Communities'** resilience: applying a community-based adaptation approaches,

(5) **Infrastructures'** resilience: ensuring the climate-proofing of public investments,

(6) **Fiscal** resilience (addressing the vulnerability of public finances to climate shocks.

Vulnerable sectors where program interventions have been selected include:

- **Hydrometeorology:** enhancing hydro-meteorological services to allow a better management of climate risks.
- **Urban:** upgrading public infrastructure to protect vulnerable communities and avoid macroeconomic loss.
- **Coastal management:** introducing innovative approaches to equip communities and local authorities facing climate risks in the coastline.
- **Social protection:** strengthening social safety nets and lifeline infrastructure to reduce extreme vulnerability.
- **Agriculture:** supporting irrigation infrastructure to spur agribusiness productivity and job creation.
- **Biodiversity:** promoting ecotourism as a means to diversify livelihoods and build resilience.

(c) Expected Outcomes from the Implementation of the SPCR

- Climate knowledge base, institutional capacities and policy frameworks for climate resilience are strengthened
- Capacities of the hydro-meteorological services fortified to provide user-oriented data that can inform planners
- Selected basic services and flood-control infrastructure of Greater Antananarivo is enhanced improving the living conditions of vulnerable communities and strengthening capacities for integrated climate risk management
- Selected coastal cities have developed capacities to respond to climate impacts and communities have enhanced their resilience.
- Social protection and basic infrastructure in the Grand Sud region is scaled-up building the resilience of extremely vulnerable selected communities.
- Irrigation infrastructure developed enhancing agricultural production and food security in the Grand Sud region.
- Conditions for the deployment of ecotourism schemes in preserved areas are enhanced contributing to green growth and biodiversity protection

(8) Expected Key results from the Implementation of the Investment Strategy (consistent with PPCR Results Framework):

A. TRANSFORMATIONAL IMPACT: Increased resilience of communities and sectors most exposed to climate variability and change in Madagascar

Results	Success Indicators (indicative)
Increased resilience of highly vulnerable households, communities, sectors, society, livelihoods and assets to climate variability and climate change – **PPCR Result A1**	• Percentage of people with year-round access to reliable and safe water supply (domestic, agricultural) and whose livelihoods have improved in areas of PPCR intervention • Number of people supported by the PPCR to cope with the disaggregated by gender, effects of climate change, disaggregated by gender – **PPCR Core Indicator A1.3**
Strengthened integration of climate change into development planning – **PPCR Core Result A2**	Degree of integration of climate change in government planning (fiscal protection tools operational; Number national, sectoral and local plans and budgets integrating climate risks) – **link to PPCR Core Indicators A2.1/A2.2**

B. PROGRAM LEVEL (TIME FRAME: 2 – 10 YEARS)
Climate resilience mainstreamed into Madagascar's core development planning [contributing to climate proofing the Country's National Development and building resilience in key geographical areas, sectors and institutions]

Results	Success Indicators (indicative)
Increased use of climate-related information (risk maps, vulnerability maps, climate change scenarios) in decision making – link to **PPCR Core result B3**	Evidence showing that climate information products/services are used in decision making in climate sensitive sectors and regions (Number of sub-national authorities accessing vulnerability/risk maps)
Strengthened adaptive capacities – **PPCR Core Result B1**	Extent to which vulnerable households, communities, business and public-sector services use improved PPCR supported tools, instruments, and guidelines to respond to climate vulnerability or climate change – **PPCR Core Indicator B1**
Improved institutional framework in place – **PPCR Core result B2**	Evidence of strengthened government capacities and performance of coordination mechanisms to mainstream climate resilience – **PPCR Core Indicator B2**
Climate Responsive Investment approaches identified and implemented – **PPCR Result B5**	Quality and extent to which climate responsive instruments/ investment projects pilot approached have been tested and replicated – **PPCR Core Indicator B5.1**

C. PROJECT LEVEL (TIME FRAME: 2 – 10 YEARS) Catalyzing Priority Investment Projects for Strengthening Climate Resilience in Madagascar	
IP1: Hydro-Met Services Strengthened	
Result	**Success Indicators (indicative)**
Strengthened capacity of hydro-met institutions to collect, generate and analyze reliable hydro-met data, and provide quality and timely climate /weather services for informed planning and decision-making process	• Number of government institutions with an installed capacity to collect, process, standardize and share climate-related information • Number of national/regional and sectoral climate change scenarios developed and utilized
Improved community preparedness during extreme events	Number of communities using functioning early warning systems
IP2: Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo	
Result	**Success Indicators (indicative)**
Key urban infrastructure improved/climate-proofed	Incidence of seasonal flooding reduced as a result of green infrastructure enhancement
Regulations (standards/codes of practice) for infrastructure resilience adopted by municipal authorities	Guidelines for the use of green infrastructure for climate proofing key urban infrastructure, developed and adopted by pilot municipalities and replicated by others.
Enhanced capacity of authorities, CSO and business to develop climate-proofed urban infrastructure	Awareness and training programs implemented for government officials, contractors and regulators at national and sub-national level.
IP3: Strengthening Climate Resilience of Coastal Cities	
Result	**Success Indicators (indicative)**
Strengthened institutional capacity to collect/analyze climate risk information and use tools for coastal risk reduction	Coastal Multi-hazard vulnerability and risk assessments developed for selected coastal communities
Strengthened adaptive capacity and reduced exposure and vulnerability of communities to climate risks	Number of people protected from coastal hazards (gender disaggregated)
Reduced vulnerability of selected communities through ecosystem-based and hybrid coastal interventions	Share of coastal population (%) protected by ecosystem-based and hybrid interventions, disaggregated by gender
IP4: Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud"	
Result	**Success Indicators (indicative)**
Social Protection Systems building resilience are scaled-up	Increased number of beneficiaries of the safety net programs from the 30% poorest of the population
Strengthened livelihood diversification and improved access to productive inputs	Number of community members involved in natural resources management programs (disaggregated by gender)
Water Resources Infrastructure Rehabilitated	Share of rural population with access to improved/rehabilitated water and sanitation infrastructure (%)
Improved/restored selected road infrastructure	Share of rural population with access to an all-season road (%)
IP5: Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition in the "Grand Sud"	
Result	**Success Indicators (indicative)**
Climate- Resilient Agricultural Production, Food Security and Nutrition Enhanced in the Grand Sud	150,000 ha for agricultural production is carried out 150 km of rehabilitated / built rural roads Rice imports reduced and export surplus from Malagasy production
IP6: Biodiversity and Ecotourism Promotion	
Result	**Success Indicators (indicative)**
Ecotourism is developed and contributes significantly to Madagascar's National Parks budget	Self-financing index of the Parks and Reserves network reaches 50% Revenues from admission fees paid by tourists double in the fifth year

(9) Project and Program Concepts under the SPCR:

Project/Program Concept Title	MDB	Requested potential PPCR Amount ($)[2]			Expected co-financing ($)	Preparation grant request ($)	Total request for resilience building[3]	Potential MDB Fee[4]
		TOTAL	Grant	Loan				
Strengthening Hydro-Met Services	WB	25 million	25 million		GCF[5]: TBC	1 million		
Enhancing Climate Resilience of Urban Communities and Infrastructure in GA	WB	30 million	30 million		IDA: 70 million		70 million	
Strengthening Climate Resilience of Coastal Cities	WB	30 million	30 million		AFD[6]: TBC	2 million	50 million	
Climate-proofing Social Infrastructure and Regional Development in "Grand Sud"	WB	20 million	20 million		IDA: 50 million	2 million	50 million	
Enhancing Climate-Resilient Agricultural Production/ Food Security in the "Grand Sud"	AfDB	35 million	35 million		AfDB: TBD		100 million	
Biodiversity and ecotourism promotion	AfDB	25 million	25 million					
TOTAL		**165 million**	**165 million**		**120 million**	**5 million**	**270 million**	

(10) Timeframe (tentative)[7] –Milestones

A. TRANSFORMATIONAL IMPACT (TIME FRAME: BEYOND 10 YEARS):
Increased resilience of communities and sectors most exposed to climate variability and change in Madagascar

B. PROGRAM LEVEL (TIME FRAME: 2 – 10 YEARS)
Climate resilience mainstreamed into Madagascar's core development planning, [contributing to climate proofing the Country's National Development Plan (2015-2019) by building resilience in key geographical areas, sectors and institutions]

C. PROJECT LEVEL (TIME FRAME: 2 – 10 YEARS)

Pillar 1: Enabling environment for mainstreaming climate resilience - Strengthening institutional and policy frameworks (TIME FRAME: + 10 YEARS)

Pillar 2: Catalyzing Priority Investment Projects for Strengthening Climate Resilience in Madagascar:
Project 1: Strengthening Hydro-Met Services (2-10 YEARS)
Project 2: Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo (TIME FRAME: 2 – 10 YEARS)
Project 3: Strengthening Climate Resilience of Coastal Cities (TIME FRAME: 2 – 10 YEARS)
Project 4: Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud" (TIME FRAME: 2 – 10 YEARS)
Project 5: Enhancing Climate- Resilient Agricultural Production and Food Security in the "Grand Sud" (TIME FRAME: 2 – 10 YEARS)
Project 6: Biodiversity and Ecotourism Promotion (TIME FRAME: 2 – 10 YEARS)

(11) Key national stakeholder Groups involved in SPCR design[8]:
• Prime Minister Office • Line Ministries: Ministry of Environment, Ecology and Forests, Ministry of Land Use Planning and equipment, Ministry of Agriculture and Livestock, Ministry of Finances and Budget, Ministry of Economy and planning, Ministry of Public works, Transports and Meteorology, Ministry of Education and Scientific Research, Ministry of Water, Sanitations and Hygiene, Ministry of Population, Social protection and Women Affairs • National institutions: CPGU, BNCCC, DGM, National Committee on Integrated Coastal Zones Management, • Other: Municipality of Antananarivo, Catholic Relief Services, Conservation International, Fondation Telma, WWF, National Organization for Environmental Actions, Intergovernmental Group of International Experts on Climate Evolution
(12) Other Partners involved in SPCR:
UN Agencies: UNDP, FAO, FIDA, UNEP, UNICEF. Bilateral agencies: AFD, GIZ, USAID, JICA. MDBs: WB, AfDB.

1. To be submitted together with the full strategy document for endorsement by the PPCR Sub-Committee.
2. Includes preparation grant and project/program amount. This section to be filled out should PPCR funding be available only.
3. Other than PPCR resources
4. To be filled by MDB submitting the project. This section to be filled out should PPCR funding be available only.
5. On-going discussions with BNCCC to seek endorsement from the National Designated Authority for development and submission of a GCF project proposal.
6. Potential interest from AFD has been identified. Dialogue is on-going with no specific potential investment discussed yet.
7. Expected signature of loan/grant agreement between government and implementing agency.
8. Other local, national and international partners expected to be involved in design and implementation of the strategy.

"The development of Madagascar is fully dependent on its climate resilience. Ensuring the former through the latter is our generation's mandate"

—Général Mamy Razakanaivo, Head of Emergency Prevention and Management Unit

Foreword

Madagascar is among the 20 countries in the world most vulnerable to climate change risks. All across the country, the impacts of climate change are affecting the daily life of the Malagasy population, often exposed to cyclones, droughts, high temperatures and heavy rains leading to floods and subsequent landslides. Madagascar is the 8th most vulnerable country in the rank of the Index of Climatic Risks and it ranks 154th in the Index of Human Development.

This situation of extreme social and climate vulnerability highlights the relevance of the Pilot Program for Climate Resilience (PPCR) for our country. The on-going preparation phase of the Program has already allowed us to develop the Strategic Program for Climate Resilience (SPCR) of Madagascar as well as the proposed Investment Plan related thereto.

The PPCR is of great importance to facilitate policy decisions at all levels and create the necessary conditions for the implementation of the key priorities and strategic investments to build Madagascar's climate resilience.

The approach chosen for Madagascar's PPCR aims to identify the country's climate resilience challenges in three temporal dimensions (short, medium and long term) and to propose priority projects addressing multiple challenges: strengthening the hydro-meteorological system, building the resilience of communities and climate-proofing public infrastructure as well as coastal cities, agriculture and ecosystem management.

Given that the document aligns and contributes to the achievement of the provisions and guidelines defined by the National Development Plan of Madagascar and other national framework documents, the SPCR is now a key country reference framework on climate resilience and will facilitate convergence and cooperation with technical and financial partners.

Thus, in the face of a regained political stability, a rebounding economic context and a positive outlook for Madagascar, the financial support and the consistent commitment of CIF and other donors will continue to be instrumental for the implementation of the PPCR's proposed Investment Plan. It is hoped the PPCR will provide great opportunities for the country in addressing the multiple and serious challenges imposed by climate change and in achieving our ambitious sustainable development goals.

MAHAFALY Solonanadrasana Olivier
Prime Minister of Madagascar

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PART II

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Acronyms

AFD	*Agence Française de Développement*, French Development Agency
AfDB	African Development Bank
BNCCC	National Bureau for Climate Change Coordination (French acronym)
BNGRC	National Bureau for Disaster and Risk Management (French acronym)
BNGRC	National Bureau for Disaster and Risk Management (French acronym)
CatDDO	Catastrophe Deferred Drawdown Option
CIF	Climate Investment Funds
CNGRC	National Council on Disaster and Risk Management (French acronym)
CPGU	Emergency Prevention and Management Unit (French acronym)
CRIC	Reflection Committee for DRM Stakeholders (French acronym)
CSOs	Civil Society Organizations
DGM	Meteorology General Directorate (French acronym)
DRM	Disaster and Risk Management
EU	European Union
FAO	Food and Agriculture Organization
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GFDRR	Global Fund for Disaster Risk Reduction
GIZ	*Gesellschaft für Internationale Zusammenarbeit*, German Development Agency
GoM	Government of Madagascar
GT-CC	Thematic Group on Climate Change (French acronym)
HDI	Human Development Index
IDA	International Development Association
INDC	Intended Nationally Determined Contribution
IDSR	Integrated Disease Surveillance and Response
IP	Investment Project
IPCC	Intergovernmental Panel on Climate Change
JICA	Japanese International Cooperation Agency
LDC	Least Developed Country
MDB	Multilateral Development Bank
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NAPIHMS	National Action Plan for the Improvement of Hydro-meteorological Services

NDC	Nationally Determined Contribution
NDP	National Development Plan
NGO	Non-Governmental Organization
NHMSs	National Hydro-Met Services
NPCC	National Policy for Climate Change
PANGIZC	National Action Plan on Integrated Coastal Management (French acronym)
PGE	Policy General of the State (French acronym)
PNASS	National Plan on Adaptation in the Health Sector (French acronym)
PPCR	Pilot Programme for Climate Resilience
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDGs	Sustainable Development Goals
SNAP	National Early Warning System (French acronym)
SNGRC	National Strategy for Disaster Risk Management (French acronym)
SPANB	Strategy and National Plan for Biodiversity (French acronym)
SPCR	Strategic Programme for Climate Resilience
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention for Climate Change
UNISRD	United Nations International Strategy for Disaster Reduction
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United Nations Agency for International Development
WB	World Bank
WHO	World Health Organization

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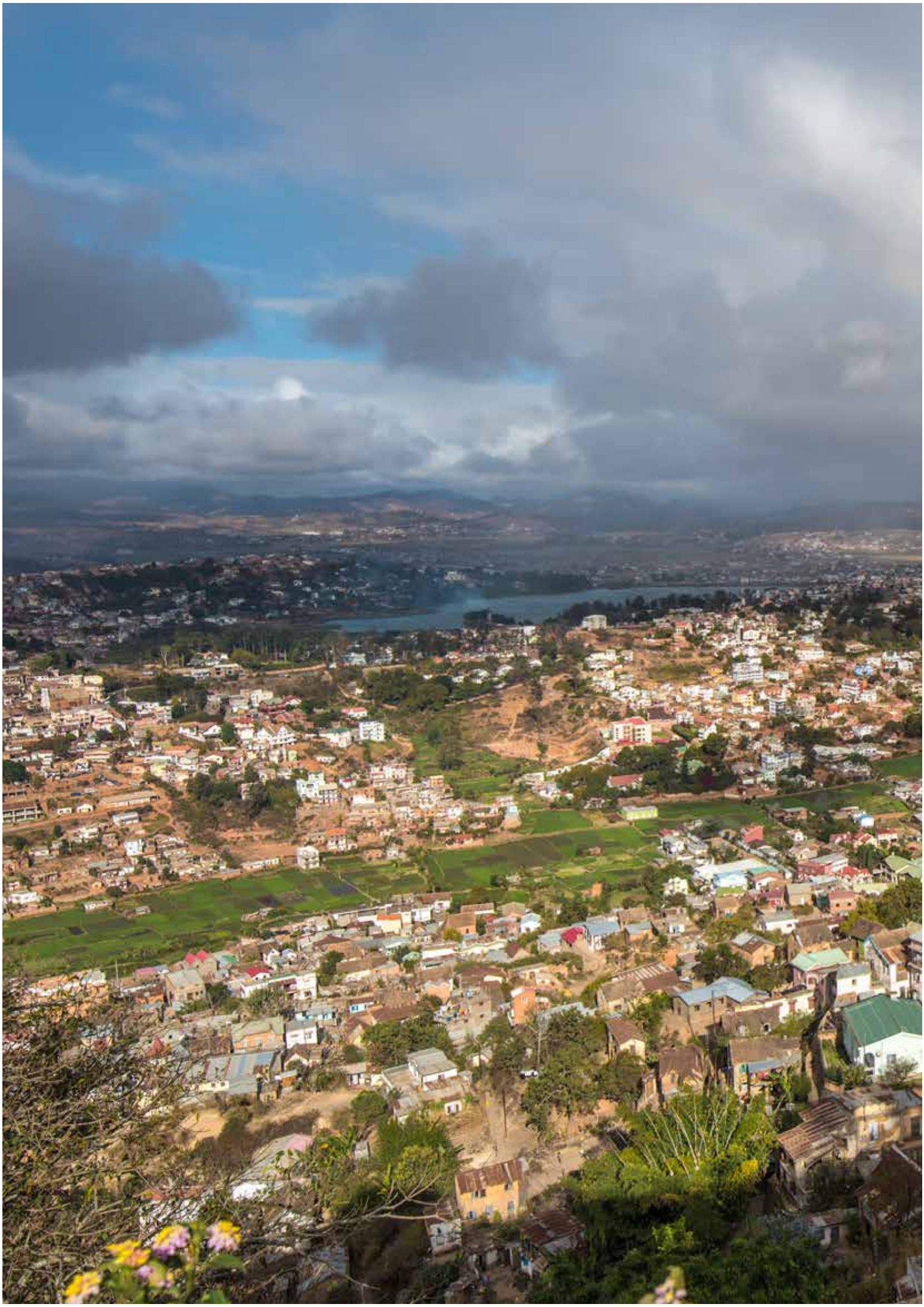

PART 1
BACKGROUND AND JUSTIFICATIONS

Panoramic view of Antananarivo city.Photo credit: © Javarman | Dreamstime

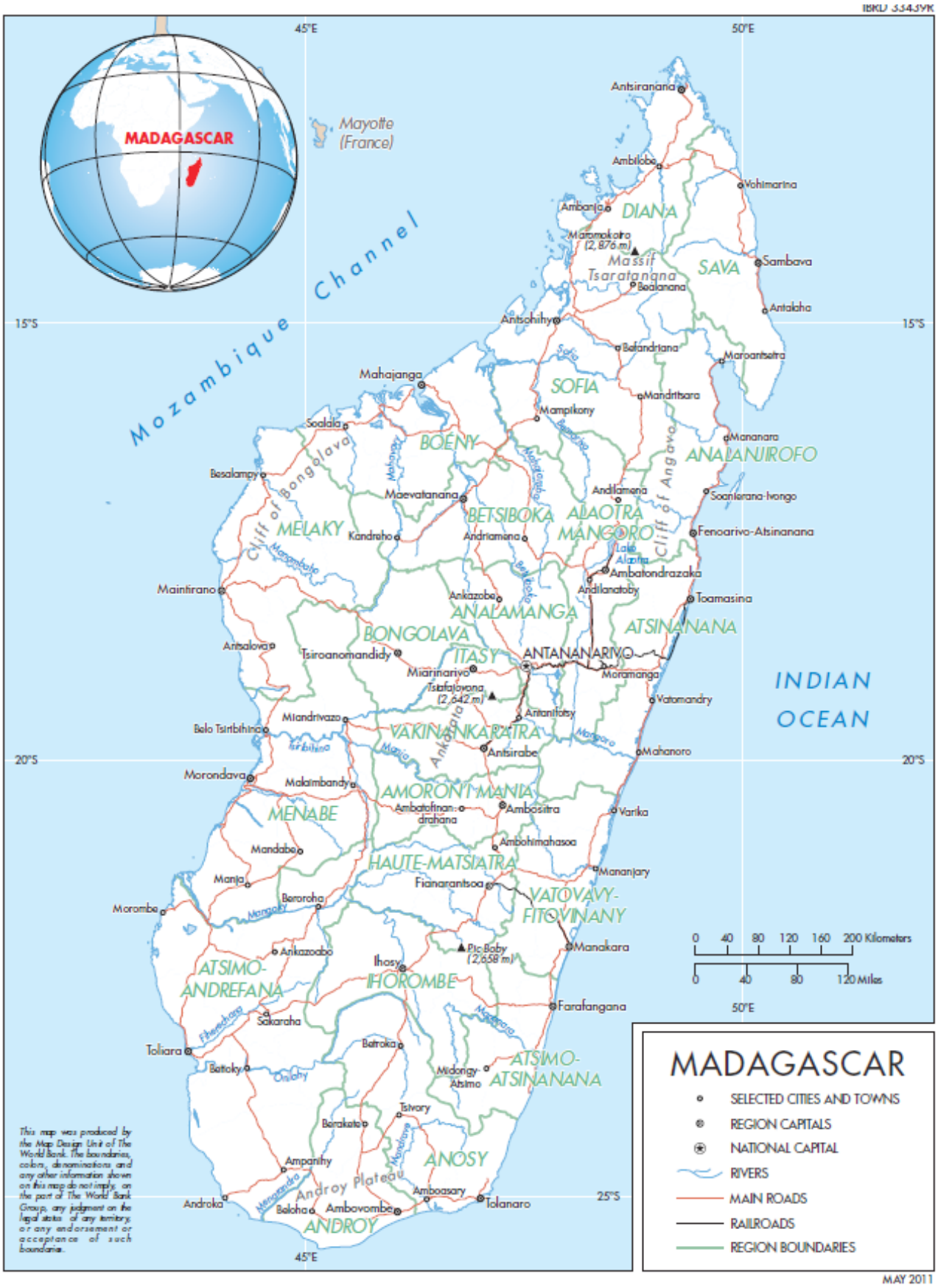

Figure 1: Administrative map of Madagascar

SECTION 1: COUNTRY CONTEXT

1.1 Geography

Situated in the Indian Ocean, Madagascar is the fourth largest island in the world. The country -592.800 square kilometers- is subdivided into 22 regions that comprise a wealth of natural resources and biodiversity resulting from an early split of the island from the Indian peninsula, which led to native species' evolution in isolation -about 90% of Madagascar's fauna is endemic. **The country's unique and diverse ecosystems constitute a key development capital**, yet endangered by the encroachment of unsustainable exploitation practices and a rapidly growing population.

Along the island, in the Eastern coast, runs a steep mountain chain covered by tropical forests. At the center, a wide plateau -ranging from 750 to 1.500 meters above sea level- hosts the capital Antananarivo (1.4 million inhabitants), humid-forest hills and rice cultivation fields: this is the most densely populated area of the country. The Western and Southern parts of the island constitute deciduous forests and semi-arid lands, less populated and particularly vulnerable to climate-related shock. The North of the country is characterized by primary forests and tropical bays constituting a pole of attraction for tourism.

Madagascar's **development potential would stem from a sound and sustainable economic use of its natural resources** (biodiversity, marine resources, arable land, mineral ores) that could employ its young national workforce in sectors like tourism, agribusiness, fisheries, trade, textile or extractive industries.

1.2 Population

Madagascar is blessed with a population of 25 million, of which 64 percent is less than 25 years of age: an increasingly urban, young and relatively literate workforce. Despite the country's development potential, political instability and poor economic growth has led to current poverty rates among the highest in the world (rank 158 in the HDI in 2016[1]). In 2012, **only 30 percent of Malagasy people lived above the national poverty line** and only 10 percent above the international poverty line[2]. Such poverty rates and a fast growing population (2.8 percent increase per year) put pressure on the already limited capacity to deliver basic services and on natural resources.

Close to **80 percent of Malagasy live in rural areas**, where they remain highly dependent on subsistence agriculture and where poverty rates are nearly twice as high as in urban areas. Extreme poverty concentrates in the South of the country, whereas the central region has lower poverty rates.

The incidence of extreme poverty is highest among female-headed rural families (20 percent of all households[3]) that are more vulnerable as they own less productive assets (E.g.: on average they cultivate just over half the acres of land that male heads cultivate and own almost two times fewer small livestock). Gender-related barriers affect women's capacity to cope with shocks, including climate-induced ones. In 2010, when agricultural conditions worsened, women experienced higher rates of unemployment as they experienced more difficulty in securing off-farm jobs (female-headed households also have one year less schooling on average).

1.3 Economy

Political and macroeconomic instability have led Madagascar to recurrent crisis and slow economic growth in the past years. Yet, **since 2014 economic indicators show signs of recovery**: according to Ministry of Economy and Plan and World Bank estimates, GDP growth accelerated to 4.2 percent in 2016, compared to an average 2.6 percent in

[1] UNDP, 2016. Human Development Report. http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf

[2] Most recent data available, drawn from the EMSOD 2012 survey, taken from World Bank, May 2017: Country Partnership Framework for the Republic of Madagascar 2017-2021. http://documents.worldbank.org/curated/en/725881498788115661/pdf/Madagascar-CPF-FinalBoardapprovalJune5-2017-06052017.pdf

[3] Ibid.

the period 2011-2015[4]. The intensification of public works, transport and trade, a recovery of the agricultural sector (boosted by increasing prices of vanilla, Madagascar's main export) and positive prospects in the tourism sector have fueled the recent macroeconomic rebound and are expected to spur growth in the mid-term.

In a country with the vast majority of the population living in rural areas and reliant on subsistence agriculture, translating the economic recovery into poverty reduction will imply increasing agricultural productivity while also creating off-farm economic activity and development opportunities. Connectivity to urban centers and markets, education levels and access to electricity remain the main challenges to the expansion of the economy. Transport, tourism and mining sectors could provide further opportunities for diversification of livelihoods and economic growth, provided some key policy reforms are put in place. There is a need to create an enabling policy and institutional environment for investments, but also to ensure that the national and subnational governance structures are geared toward pro-poor expenditure of the incomes generated, to job creation and to sustainable management of resources.

1.4 The toll of climate impacts

Madagascar is one of the most vulnerable countries to extreme weather events (rank 8th in the global Climate Risk Index and 4th amongst African countries[5]), with an average of three major climate-related disasters per year (cyclones, flooding and droughts). Tropical cyclones annually cause loss and damage to infrastructure, livelihoods and life in the country. In 2017 Enawo cyclone affected over 430,000 people with a potential economic loss equivalent to 4 percent of GDP[6]. The country's resilience is constrained by the physical exposure of the population and its assets as well as its socioeconomic vulnerability and the weakness of the public infrastructure and services.

Extreme weather events constitute an important driver of persistent poverty in Madagascar. Climatic shocks, combined with ecosystem services' degradation (and other factors: low agricultural yields, deficient water and sanitation and health services) have been identified as a cause for aggravation of poverty in rural Madagascar. In 2012, as much as 28 percent among the most vulnerable households reported being most adversely affected by drought, cyclones, and erratic rains. The severe drought that has affected the South for the past three years has led to food insecurity for 1.1 million people[7]. Slow onset events (sea level rise, salinization, desertification) could further threaten development and stability since competition for access to natural resources (E.g.: water resources and arable land) could be a source of social conflict, particularly in the South.

Disaster risk reduction and climate adaptation are of paramount importance to poverty reduction in Madagascar. Since extreme weather events are expected to have the largest impact on the poor and it is predicted that those events will increase and intensify with climate change, **it is critical for Madagascar to develop and implement strategies to manage climate risk and to mobilize resources to finance priority actions**.

[4] World Bank, 2017. Macro poverty outlook indicators: http://pubdocs.worldbank.org/en/533251492188163114/mpo-mdg.pdf
[5] Germanwatch, 2017. Global Climate Risk Index. https://germanwatch.org/en/download/16411.pdf
[6] World Bank, May 2017. Country Partnership Framework for the Republic of Madagascar 2017-2021. http://documents.worldbank.org/curated/en/725881498788115661/pdf/Madagascar-CPF-FinalBoardapprovalJune5-2017-06052017.pdf
[7] FAO, 2017. Global Report on Food Crises. http://www.fao.org/fileadmin/user_upload/newsroom/docs/20170328_Full%20Report_Global%20Report%20on%20Food%20Crises_v1.pdf

SECTION 2: DEVELOPMENT CHALLENGES AND CLIMATE RISKS

2.1 Development prospects at stake

Madagascar faces significant risks imposed by an increasingly variable and changing climate. Cyclones, droughts and floods are all recurrent occurrences in the country. These events are becoming increasingly frequent and intense, affecting food security, drinking water supply and irrigation, public health systems, environmental management and development prospects overall.

Loss of human live, destruction of houses, damage to agricultural, social and administrative infrastructures, water shortage and crop losses are some of the impacts that threaten not just food security but also the population's health and schooling. In a country of predominantly rural and vulnerable population, **climate change is expected to disproportionately affect farmers and make their livelihoods even more precarious**. Malagasy smallholders, especially female-led households, are particularly at risk owing to their high dependence on rain-fed agriculture, chronic food insecurity, physical isolation and the lack of access to social safety nets. This combination of factors in rural settings has started to lead to climate-induced migration and unplanned settlement in peri-urban areas.

Female-led households and rural women are further at risk to climate impacts since they are usually in charge of fetching water for drinking and domestic use: with water shortages, prolonged drought and salinization, women and girls are forced to walk longer distances to procure water for their households (in some areas, with the additional risk of rural roads insecurity). As climate impacts makes women burden heavier, lack of access to resources (land, cattle) and credit limits their coping capacity[8].

The South of the country epitomizes how existing environmental, social and economic tensions could be accentuated by climate change and fuel conflict: increasingly limited access to resources and livelihoods, coupled with years of underinvestment in social services is making illegal trafficking (mostly cattle but also gems and gold) flourish and gangs' violence and insecurity rise.

Close to 7 million Malagasy live today in urban areas, compared to 2.8 million in 1993. The rate or urbanization in Madagascar increased from 22% in 1993 to 37% in 2012 and is expected to reach 50% in 2036[9]. It is estimated that by 2040, as much as half of the population could live in urban areas[10]. **This rapid urbanization is mostly driven by a strong rural-urban migration and occurs mostly informally: with virtually no settlement or land-use planning**. As in many other African countries, over 70 percent of settlements in the capital Antananarivo are informal, below living standards and located in risk-prone and environmentally degraded areas[11]. Dwellers are often unskilled laborers with precarious revenues and scarce economic opportunities. With an increasingly dense pocket of urban population put at risk in new and hazardous settlements in the absence of opportunities planning, and increasing pressure on social services, social unrest is mounting in poor neighborhoods. In such conditions, urban expansion creates important risks to the country's stability.

The unplanned and unmanaged nature of the rapid expansion of cities and the increasing frequency and intensity of weather events is a risk-multiplying equation. While erratic and intense rainfall is expected to increase, water drainage and sanitation systems in cities are damaged or not fit to the increasingly extreme storms. While the rural poor are expelled from their land and climate-induced migrants seek alternative livelihoods in cities, urban plans and building codes are not in place or not enforced and new settlements sprout in areas prone to flooding and/or landslides.

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[8] World Bank, 2014, Face of poverty in Madagascar Poverty, Gender and Inequality Assessment. http://documents.worldbank.org/curated/en/538821468271809604/pdf/781310PRIORITYOEnglishOApr900MayO12.pdf

[9] UN-Habitat, 2014. Madagascar Country Report in preparation for Habitat III Conference. http://habitat3.org/wp-content/uploads/Madagascar-National-Report-in-French.pdf

[10] UN (revised 2014). World Urbanization Prospects. https://esa.un.org/unpd/wup/publications/files/wup2014-highlights.Pdf

[11] World Bank, 2013. Building resilience: integrating climate and disaster risk into development planning: the World Bank Group Experience. http://documents.worldbank.org/curated/en/762871468148506173/pdf/826480WPOv10Bu0130Box379862000U0090.pdf

The intensification of risks requires for the authorities to adapt their rural and urban development strategies and implement policies that are more resilient. Historically, Madagascar has focused on ex-post response and recovery efforts, but the country has grown aware of the need to invest in disaster preparedness, mitigation and prevention. While the country is building its early warning systems and has improved construction standards for key infrastructure (irrigation, roads, schools) more could be done to better equip national institutions, to develop sector-specific responses and integrate climate risks into planning and to build the financial resilience of national and subnational governments.

Recurrent major natural disasters that affect increasing numbers of vulnerable people and that result in large-scale impacts on productive and social infrastructure, on productivity and income, necessarily imply significant loss and damage to the national economy thus compromising the country's financial projections and stability. **Natural disasters create major budget volatility, especially in the short term**, as Government needs to finance emergency assistance and early recovery activities. In 2008, during which three consecutive cyclones hit Madagascar, an economic loss equivalent to 4 percent of GDP and a decrease of 0.3 percent of the growth in real GDP were recorded, including damages and losses worth US$103 million in the agricultural sector, US$127 million in the housing sector and public administration, and US$46 million in the transport sector. Recovery was estimated at approximately US$155 million[12]. In the context of climate change, **fiscal resilience needs to be built in Madagascar to protect macroeconomic stability** and the necessary long-term investments in basic services.

2.2. Country climate profile

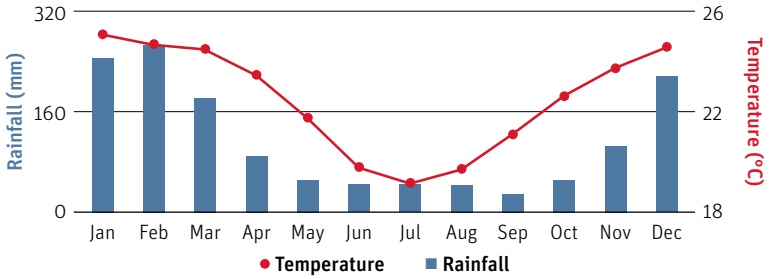
Madagascar ranges from a humid part in the Northeast and a semi-arid part in the Southwest. Due to its geographical position, its topographic diversity, maritime influence and wind conditions, Madagascar's climate is highly varied. A hot and rainy season (from November to April) and a cooler and dry season (May to October) are clearly distinct, but there is great variation in a country where different meteorological *phenomena* manifest.

The ITZC movement drives rainfall and cyclones during the hot and rainy season, which intensity is also influenced by sea surface temperatures in the Indian Ocean. The West and East coast of the country are respectively dry (leeward climate) and humid (Windward climate) during the cooler and dry season. The trade winds in the East coast bring generous precipitation while the cyclical El Niño impacts on the severity and duration of droughts in the South (receiving an average 400 mm precipitation/year).

Temperature ranges also vary significantly across the country due to topography and differences between the West and East coasts: the average annual temperatures along the coast are between 23°C and 27°C and between 16°C and 19°C in the central mountains and plateau. The Western coast temperatures are 1°C to 3°C higher than Eastern coast temperatures, averaging 36°C with some days significantly hotter than average.

[12] World Bank, 2013. Madagascar Country Environmental Analysis (CEA). Taking Stock and Moving Forward. http://www.sifee.org/static/uploaded/Files/ressources/contenuecole/antananarivo/bm/Banque_mondiale_Country_EA_Mada_2013_en.pdf

Figure 2: Average monthly temperature and rainfall in Madagascar



Source: WB Climate Change Knowledge Portal[13]

2.3 Recent climate trends

The *Direction Générale de la Météorologie* (DGM, meteorological services) indicates that **temperatures in Madagascar have been consistently increasing since 1970**14. Between 1961 and 2005, 17 of the 21 weather stations recorded statistically significant increases in daily minimum temperatures across all seasons, and several stations also indicated daily maximum temperature increase. This seems to constitute a trend, since DGM registers an average temperature increase of 1% every year. Warming, which started in 1950 in the South (0.2°C warmer by 2000) and gradually expanded to the North of the country, is particularly reflected by the increase of extreme temperatures. DGM also indicates that **rainfall patterns are increasingly variable and that drought has become more frequent**. Average precipitation in the last decade has been in the range of 1000-1200 mm. The frequency of cyclones has remained virtually steady but their intensity has increased and they have affected larger areas. Sea level rise is registered particularly in the South-West of the country.

The character of rainfall across Madagascar has changed significantly and there has been a lower volume of precipitation nationally, but an obvious trend in rainfall could not be established with available records. Since 1950, the relationship between temperature and rainfall has varied greatly across Madagascar: increasing temperatures yielded a decrease in rainfall in the northern areas and the opposite occurred in southern areas. A reduction in winter and spring rainfall has been detected in most parts of the country. In the Central and East coastal regions, rainfall was on a steady decline between 1961 and 2005, accompanied by increases in the length of dry spells. Precipitation patterns have become unpredictable for a majority of population reliant on rain-fed agriculture.

2.4 Climate change projections

According to DGM's projections, by 2050 the mean annual temperature in most regions of Madagascar will increase in 2°C, compared to the average in 1960–90. Erratic rainfall is expected to increase in a large part of the country, thus aggravating the risk of flooding, except in the East, where rainfall would decrease from July to September. The trend of ever more intense cyclones is expected to continue[15].

Future temperature changes in Madagascar have been projected using a regional climate model based on 13 Global Climate Models (GCM) that project to the period 2046-2065. For the Sahel region as a whole, the Intergovernmental Panel on Climate Change (IPCC) uses a suite of GCMs to produce a regional climate model. Based on this, as well as a collection of 23 downscaled stations across the country, climate projections have been developed for Madagascar (available from the Climate Systems Analysis Group at the University of Cape Town[16]). **Climate models predict**

[13] World Bank, 2017. Climate Change Knowledge Portal. Madagascar. http://sdwebx.worldbank.org/climateportal/index.cfm?page=country_historical_climate&ThisCCode=MDG

[14] Ministère de l' Enseignement Supérieur et de la Recherche Scientifique, 2015. http://www.recherches.gov.mg/IMG/pdf/PDR_ENVIRONNEMENT_LIE_CHANGEMENT_CLIMATIQUE.pdf

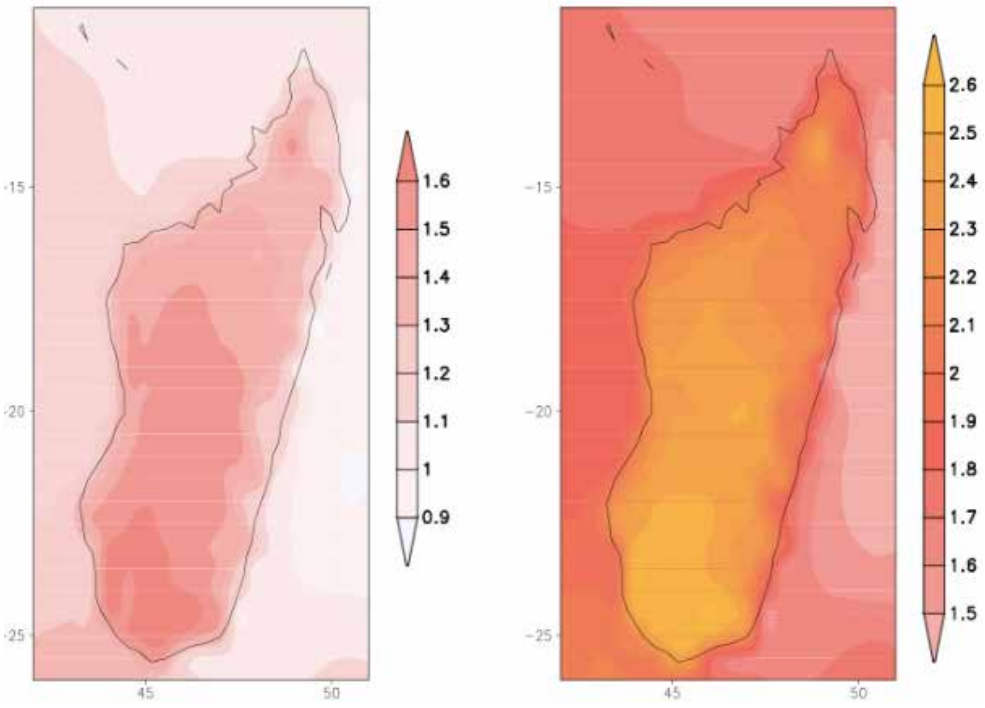
[15] Raelinera Nimbol, DGM, 2011. Le climat de Madagascar.

[16] N.B.: All future scenarios are for the IPCC A2 SRES scenario (which assumes that society will continue to use fossil fuels at a moderate growth rate, there will be less economic integration and populations will continue to expand) for the period 2046-2065.

warming across the island (with regional differences) and areas of both increasing and decreasing precipitation. More precisely:

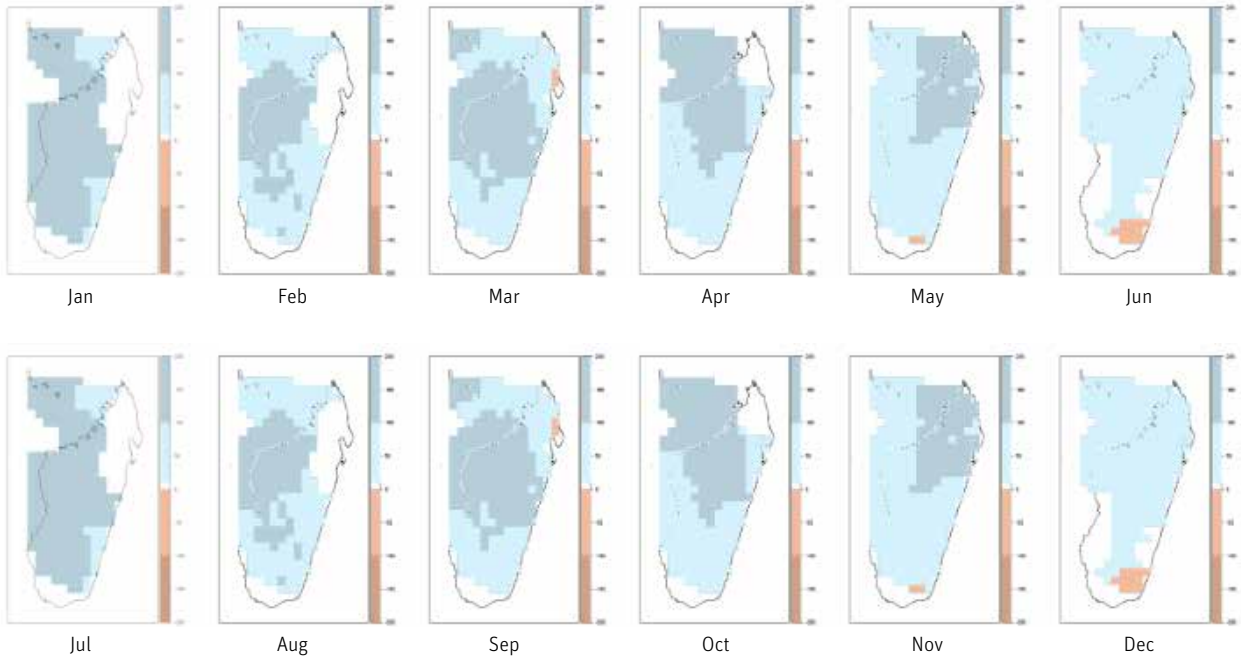
- By 2065, temperatures are projected to increase between 1.1°C and 2.6°C, with the lowest projected increases along the northern coastal regions and the highest projected increases for the southern part of the country. Southern Madagascar is projected to have the greatest warming (2.6°C) by 2055.
- Rainfall intensity is predicted to increase during the rainy season. Changes in precipitation were predicted based on six downscaled GCMs and the projected median rainfall will increase throughout the summer months (November to April). During the winter months (June to September), the Southeast rainfall will decrease by 2050.
- Models predicted that the likelihood of cyclones forming during the early part of the main season would not change. **Cyclone intensity, on the other hand, is projected to increase by 46% and shift northwards**, with implications for agriculture, food security, and infrastructure.

Figure 3: Minimum and maximum projected change in annual mean surface temperature (0C), 2055 centered[17]



[17] Mark Tadross, Luc Randriamarolaza,, Zo Rabefitia, Zheng Ki Yip. University of Cape Town, 2008. Climate change in Madagascar: recent, past and future. (Based on Multi-model (13 GCMs) projection for the period centered in 2055). http://www.csag.uct.ac.za/~mtadross/Madagascar%20Climate%20Report.pdf

Figure 4: Median change in total monthly rainfall (mm month), 2055 centered[18]



2.5 Major climate impacts

Madagascar's persistent development challenges impinge on the country's ability to adapt to such a variable and changing climate. From 1980 to 2010, 53 natural hazards (including droughts, earthquakes, epidemics, floods, cyclones, and extreme temperatures) affected Madagascar and caused economic damages of over US$1 billion[19]. High poverty rates and institutional weaknesses increase the country's vulnerability to climatic hazards such as cyclones, droughts, floods, sea level rise and other. In turn, the impacts of such extreme weather and slow onset events are exerting pressure over economic sectors that should drive the country's development.

CYCLONES Madagascar has one of the highest cyclone risks among African countries, with an average of 3 to 4 cyclones affecting the country each year. Cyclone season (November to March) consistently results in serious impacts: crop loss, severe flooding and waterborne diseases' outbreaks, coastal degradation and disruption of marine ecosystems, damage to critical infrastructure and services such as water and electricity and, sometimes, human casualties. In the last years, several damaging cyclones have hit the country. In 2004 cyclones Elita and Gafilo caused an estimated 2.3% loss in GDP[20]. In 2017, cyclone Enawo affected over 430,000 people with a potential economic loss equivalent to 4 percent of GDP. Recent research suggests that **while the frequency of cyclones will not change along this part of the southern Indian Ocean, their intensity is projected to increase, and could severely impact the country**.

FLOODS Intense rainfall caused by **strong storms and tropical cyclones, coupled with increasing deforestation and poor land use practices lead to extensively damaging floods across the country**. Floods cause damage to key infrastructure (roads, bridges, houses) and crops and put the lives of hundreds of people at risk: recurrent floods, deficient drainage systems and weak health services are a combination leading to outbreaks of water-borne diseases. Over 30 floods or heavy rainfall events affected Madagascar in the past 30 years, killing hundreds of people and affecting thousands. The most damaging floods were those caused by tropical cyclone Elita, which killed 363 people and affected one million, causing economic damages of over US$250 million[21].

[18] Ibid. (Based on 6 downscaled global models for the period centered in 2055).
[19] Vulnerability, Risk Reduction and Adaptation to Climate Change. Madagascar Country Profile. GFDRR, 2011. http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdrr_climate_change_country_profile_for_MDG.pdf
[20] Ibid.
[21] Ibid.

DROUGHTS. Droughts are common in the south of Madagascar: the hottest and driest part of the island receiving less than 400 mm of rainfall per year. Prolonged dry periods are driven by large-scale disruptions in atmospheric circulation and their impacts are exacerbated by poor land use and water management practices. Droughts rapidly lead to water shortages and crop loss and pose a severe threat to rural households' food security. According to the World Food Program in Madagascar, over the past years droughts have caused widespread failure of maize crops in the southern regions affecting more than 230,000 children under five years of age[22]. **The prolonged nature of droughts observed in recent years, particularly in southern Madagascar stresses the need to enhance coping strategies of the most vulnerable, to diversify livelihoods, and to strengthen social protection.**

SEA LEVEL RISE. **Sea level rise is already causing coastal erosion and threatening vital infrastructures such as ports and roads as well as unique ecosystems in Madagascar** (sandy beaches, littoral forests). Coastal erosion as measured in 1997 was between 5.71 and 6.54 meters, and this is projected to increases exponentially by 2100[23]. Associated with sea level rise, the salinization of arable land and groundwater, particularly in low-lying areas of the West and South of the country aggravates water shortage and has become an increasingly serious concern.

LOCUST PLAGUES. Increased climate variability could be favoring locust plagues in Madagascar. According to FAO, the serious locust plague that sprout in 2012 left 60 per cent of the Malagasy population at risk of food insecurity[24]: locusts infested more than half the cultivated land and pastures and the government declared a national disaster. Temperature determines the life cycle periods of locust while the degree of humidity (related to rainfall patterns and vegetation) delimitate the areas for seasonal breeding. Unless prevented by control, drought or migration, locust plagues can form. Increasingly erratic and changing weather patterns could contribute to *Acrididae* proliferation compromising subsistence agricultural crops that are fundamental to food security (rice, maize, cassava).

2.6 Overview of the most vulnerable sectors

AGRICULTURE. Agriculture (with livestock, fisheries and forestry) is a key sector of Madagascar's economy, representing 25% of GDP and employing 80% of Malagasy. Rain-fed subsistence agriculture (rice, beans, cassava, banana) dominates but some export cash-crops are also fundamental to the national economy: vanilla, coffee, cloves, sugarcane, cocoa. Smallholders' traditional cultivation practices persist in subsistence agriculture while export-oriented exploitations are introducing modern apparels. Agricultural land was already under stress in Madagascar by land tenure challenges[25], soil erosion and deforestation (as a result of the expansion of exports-oriented exploitations and of the use of fuel-wood in poor households). Climate change comes to add further negative impacts on soil fertility in highlands (increase of intense rainfall will contribute to soil washing especially in deforested areas), on water availability for irrigation and for livestock in drylands and on farming practices generally (traditional local knowledge on farming cycles and suitable species no longer apply to new –more unpredictable and extreme- climate conditions). Impacts on food security are immediate. Such impacts risk affecting women-led households more intensely as a result of their dependence on natural-resources intensive livelihoods.

FISHERIES. As a result of climate change, the increase of sea temperature and the alteration of rainfall cycles inland (that increases runoff of sediments into rivers and then into the sea) are having a negative impact on marine resources in Madagascar. Coupled with over-fishing, **climate-related stresses are increasing the vulnerability of coastal livelihoods**. Fish stocks are depleting in the traditional and most accessible catching sites and fishing communities have to travel longer distances (thus increasing their costs), migrate to further grounds and turn into agricultural farming as a source of food and income, thus increasing the pressures on arable land. Coral reefs are also depleting

[22] Vulnerability, Risk Reduction and Adaptation to Climate Change. Madagascar Country Profile. GFDRR, 2011. http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdrr_climate_change_country_profile_for_MDG.pdf

[23] GFDRR, 2011. Vulnerability, Risk Reduction and Adaptation to Climate Change. Madagascar Country Profile.. http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdrr_climate_change_country_profile_for_MDG.pdf

[24] FAO, 2013. Madagascar Locust Crisis. Response to the Locust Plague: three-year Programme 2013-2016. http://www.fao.org/emergencies/crisis/madagascar-locust/intro/en/

[25] World Bank. 2010. Madagascar: Reforming Land Administration and Management for Equitable Growth and Social Cohesion. Washington, DC. World Bank. https://openknowledge.worldbank.org/handle/10986/27894

as a result of water acidity and habitat degradation from more intense cyclones. As fish species migrate, coastal communities see their protein intake diminish, thus aggravating food security concerns.

WATER RESOURCES. With heavy rainfall over the summer and mighty rivers, the northern and eastern parts of Madagascar have their water demand for human usage, agriculture and power generation satisfied. The conditions in the southern part of the country are the opposite: semi-arid Madagascar receives just about 400mm/year of precipitation and experiences severe water shortage problems impacting on human health and agriculture productivity. The country's water management systems and institutions are inadequate to articulate responses to these regional contrasts and Madagascar experiences serious issues in water access (only 20% of the population has access to piped water and irrigation systems for agriculture remain a challenge particularly in the South) and water quality (poor sanitation and drainage pose serious challenges to public health). **The alteration of rainfall patterns and watershed ecosystems as a result of climate change present further challenges to regulate the water cycle in the island.**

COASTAL RESOURCES. With over 5.600 kilometers of coastline, Madagascar is a country rich in coastal and marine ecosystems (coral reefs' biodiversity and fisheries' stock that are key for nutrition) and mangroves and wetlands (offering costal protection, food-stuff, wood-source for fuel and construction and biodiversity). Coastal areas constitute a central piece of Madagascar's development capital and host over 60 per cent of its population. Negative effects of climate change put this natural wealth at risk: the increase of temperatures and ocean acidification lead to coral bleaching and alter the lifecycle of fisheries. Projected increases in the intensity of cyclones (along the East coast in particular) will exacerbate coastal erosion and habitat destruction while sea level rise could further erode fertile soils in the West coast. **Coastal communities and urban settlements in the coastline face increasing risks of flash floods and erosion to infrastructure.** Damage to roads, ports and other infrastructure also put the development of the tourism sector at stake.

HEALTH. Climate change could be a multiplying factor of the challenges faced by public health in Madagascar: high rates of poverty, under-nutrition and malnutrition among the population and inadequate water supply and sanitation systems constitute vulnerability factors, further aggravated by an insufficient deployment of healthcare facilities which often become inaccessible or inoperable in extreme weather or catastrophe situations. In this fragile context, increasing flood episodes can rapidly translate into food insecurity crisis due to crop loss, diarrhea or cholera (which struck in the country in 2000 for the first time) outbreaks and other water-borne diseases. The difficulties posed by water shortages and water and sanitation issues are frequently more challenging for women, since they are usually in charge of the providing potable water to the household and of taking care of the children and the elderly (both particularly vulnerable to water-borne diseases) and of the sick members of the family. Malaria, which remains a serious challenge to the health authorities, also risks to expand its geographical scope to higher zones with the increase of temperatures and humidity and inadequate water drainage systems which favors mosquitos, the vector to this and other tropical diseases, such as Chikungunya or dengue. Infectious respiratory diseases, the primary cause of mortality in children under five, are also exacerbated by the temperature increases expected as a result of climate change[26]. There has been considerable research undertaken on the health impacts of climate change in Madagascar, linking climate to environmental drivers to health impacts- all in the context of other social determinants. Nevertheless, it is important to translate this research into policy and investment action.

URBAN. Flooding is one of the most frequent and severe natural hazards in urban settings. In areas with steep slopes, sudden heavy rainfall is also associated with landslides. In coastal areas, cyclones and erosion, aggravated by seal level rise, pose further challenges to urban infrastructure. All such *phenomena* are at the increase in Madagascar as a result of climate change. With a rapid urbanization process and unfit land-use planning, informal settlements in risk-prone areas proliferate, thus magnifying vulnerability to climate impacts in urban settings. Madagascar is exposed to cyclonic disturbances and long heavy rainfall. Furthermore, the country's topography, with mountains, slopes and

[26] The Government of Madagascar in finalizing its Third National Communication (TNC, to be launched in the run up to COP23 in November 2017). Personal communications with Government officials in charge of the TNC at the BNCCC, indicate that within the "Vulnerability Assessment" for the health sector: it is expected the prevalence of malaria and diarrhea would remain stable (at 4% and 8% respectively), mostly due to the specific programmes implemented to control these diseases. Yet, infectious respiratory diseases are in constant increase trend and could reach a prevalence rate of 100% by 2015 as a result of climate impacts. (TNC to be published by the Government of Madagascar, with support from UNEP, by November 2017).

hills in the center, exposes the capital city Antananarivo and its –increasingly large- metropolitan area to orographic rainfall. **Despite the risks, climate impacts in urban setting have not been sufficiently studied or addressed so far.** Flood modeling studies in the Antananarivo area exist, but climate risks in urban settings in coastal zones, where the population is increasing and where tourism infrastructure tends to concentrate have gone largely unexplored so far.

BIODIVERSITY and FORESTRY. Madagascar's biodiversity is among the most remarkable in the world. The country ranks number one in percentage of endemic species among all biodiversity hotspots: more than 92% of the island's mammals, 90% of plants and 97% of reptiles and amphibians[27] are endemic species. The country also encompasses a diversity of ecosystems within mountainous areas, highland plateaux and low-lying coastal zones. Although the country's ecosystems have been degraded due to logging and agriculture, Madagascar's forests and mangroves host a unique diversity of flora and fauna. Yet, a high level of human dependence on agriculture, and wood-fuel for energy sourcing pose a direct threat to the very ecosystems that host the country's biodiversity wealth. Slash and burn agriculture has been identified as a prime factor of habitat degradation and forest loss. The lack of adequate infrastructure and alternative livelihoods contributes to the perpetuation of risk-prone agricultural practices that make the ecosystem and its inhabitants even more vulnerable to climate impacts (floods, droughts, storm surge and sea level rise).

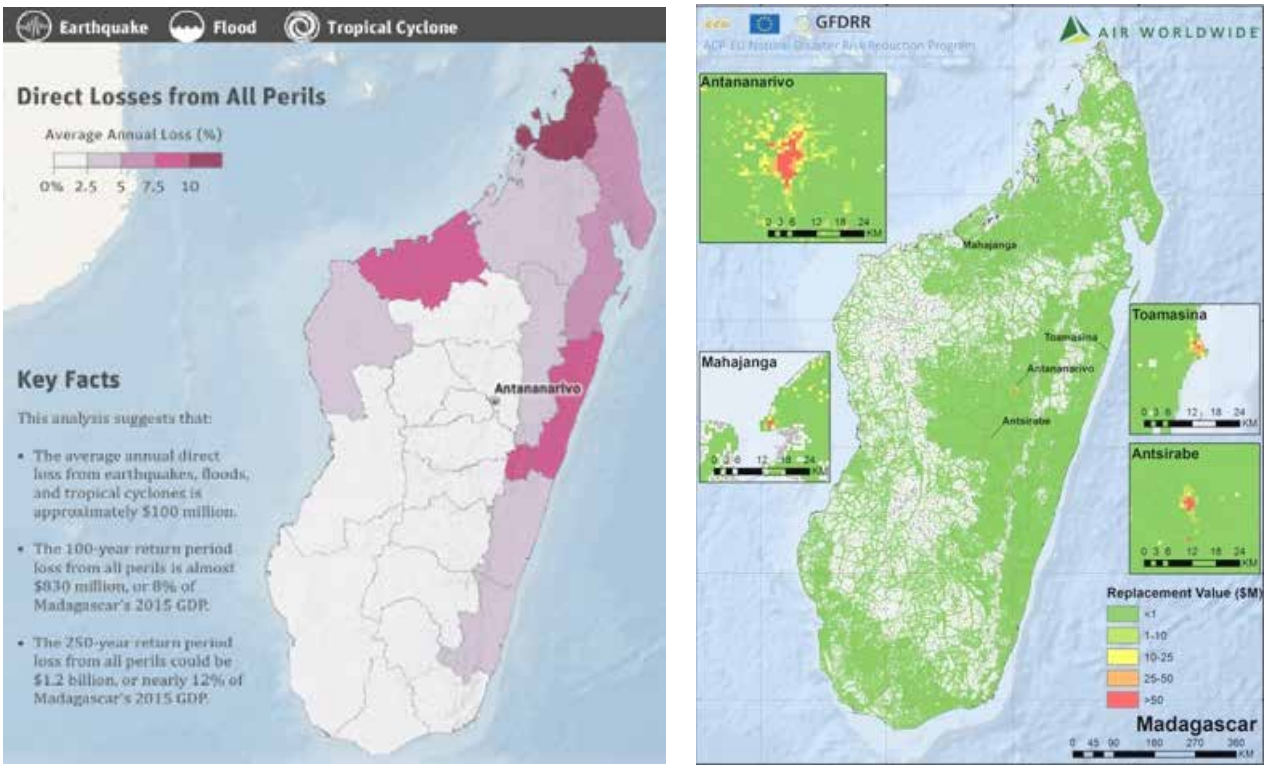
INFRASTRUCTURE. Cyclones and floods inflict the largest toll on critical infrastructure in Madagascar. In urban and hilly areas —like the central plateau— and in the mountainous east coast, landslides pose an added risk to infrastructure. In 2016, the Global Fund for Disaster Risk Reduction and the World Bank published a "Disaster Risk Profile of Madagascar[28]", as part of the Southwest Indian Ocean Risk Assessment and Financing Initiative. The profile is based on risk modelling in three hazards: cyclones, floods and earthquakes. Data on exposure of infrastructure (including public facilities, residential construction and transport infrastructure –roads, ports, airports, etc.—) were combined with data on hazards and vulnerability provided by the GoM to produce results on risk analysis and make these available to end-users in an open data geospatial risk platform.

The analysis suggests that, on average, Madagascar experiences over USD 100 million in combined direct losses from earthquakes, floods and cyclones each year. Tropical cyclones are by far the most significant risk in this study, causing approximately 85% of the annual average loss. Flooding is the second largest risk, accounting for 13%. At national level, the highest loss takes place in the Toamasina region (concentrating 30% of annual loss from combined hazards). It is estimated that 86% of direct losses from flooding are from the residential sector. In terms of assets' replacement value, Antananarivo concentrates the greater flood risk of economic loss and also concentrates the largest population in urban areas and a 60% of GDP[29].

TOURISM. Madagascar is one of the world's most biologically diverse countries, which also constitutes its main tourism assets. Wildlife tourists seeking to explore lemurs, birds, orchids and pleasant beaches in the North of the country are seen by national planners as a potentially important source of income to the national economy. With regained political stability, in 2016 the island experienced a 20% increase of tourists landing. Ecotourism is regarded as a sector to be nurtured for its capacity to create jobs and diversify livelihoods at community level, as well as its potential to sustainably exploit Madagascar's natural capital and cultural heritage (including several Unesco World Heritage sites). The development of tourism in Madagascar will be dependent on the preservation of its biological diversity and the development of adequate infrastructure (roads, communication, hotels, facilities in coastal areas, etc.). Yet, with extreme weather events on the increase, the incipient development of tourism infrastructure is at risk. And with unsustainable management of natural resources (overexploitation of forests, coastal and marine resources, etc.) the country's biodiversity is also at risk. Increased frequency and intensity of climate impacts (cyclones, landslides, flash-floods, water scarcity, etc.) are posing further challenges to this potentially critical sector of the economy.»

[27] USAID, 2008. Assessing the impacts of climate change on Madagascar's biodiversity and livelihoods. http://pdf.usaid.gov/pdf_docs/Pnadw661.pdf
[28] GFDRR-WB, 2016. Madagascar Disaster Risk Profile. http://documents.worldbank.org/curated/en/119311492590083804/pdf/114366-WP-PUBLIC-disaster-risk-profile-madagascar.pdf
[29] Ibid.

Figure 5: Loss in infrastructure derived from combined cyclones, floods and earthquake risk in Madagascar.



Source: Madagascar Disaster Risk Profile. GFDRR-WB, 2016.

SECTION 3: OVERVIEW OF CLIMATE RELATED ACTIVITIES AND POLICIES

3.1 Strategic national planning and its connection to climate change

The above-mentioned challenges related to poverty reduction, food insecurity, environmental degradation and climate risks are acknowledged by the GoM. The country has ratified most of the major international environmental conventions including the United Nations Framework Convention on Climate Change (UNFCCC, ratified in 1998) and the Paris Agreement (ratified in April 2016) as well as the Sendai Framework for Disaster Risk Reduction (2015-2030). Madagascar has developed a variety of official documents related to climate risk management, including a quantified Intended Nationally Determined Contribution (INDC), submitted to the UNFCCC and translated into a Nationally Determined Contribution with the entry into force of the Paris Agreement in 2016.

The GoM has also developed and established several institutions, policies and plans that seek to improve climate risk management and to reduce the country's vulnerability to natural hazards, in particular cyclones and droughts. Some line-Ministries have developed specific strategic documents that are intended to inform future planning. Two of the earliest sectors to develop climate strategy documents were the Ministry of Agriculture, Livestock and Fisheries and the Ministry of Public Health. Some key planning documents and tools include the following.

General Policy of the State

The General Policy of the State was presented to the General Assembly in February 2015. Its overall objective is to promote inclusive and sustainable development based on economic growth, enhanced governance and poverty reduction.

In accordance with Article 55 paragraph 6 of the Constitution, the President announced at the start of his mandate the main lines of the Policy General of the State (PGE, by its French acronym). This policy must take into account the SDGs and the Post-2015 development agenda of Abuja, treaties and international agreements and regional organizations in which the country is engaged. One of the challenges identified in the General Policy of the State is to develop agronomic research and to take climate change into account through the modernization of factors of production, the development of cultural alternatives and family farming, training and professionalization of producers, intensification and agrarian extensification.

National Development Plan

The PGE is to be articulated through a National Development Plan (NDP or PND in its French acronym) for the period 2015-2019. The NDP provides a framework including executing modalities and operationalization guidelines. It refers to international commitments and adopts the SDGs framework and targets. Within its strategic objectives, the NDP contemplates "the valorization of natural capital and resilience to natural disasters" and, as part of its action plan, it points at the "integration of climate change actions in the promotion of a resilient national economy". Therefore, this strategic planning instrument is pointing at the need to address the negative effects of climate change and reduce the vulnerability of communities and ecosystems (the number of policy instruments developed to this end, is one of the target-indicators of the NDP). Sector-wide implementation programs and action plans fall within the competence of the line Ministries and Institutions.

3.2 Climate mainstreaming in sector-wide planning

The National Determined Contribution that Madagascar submitted to the UNFCCC in 2015 (see details in next section), identified some adaptation policy measures in sectors considered key to the prospects for climate resilience

in Madagascar. Some of these sectors have started to mainstream climate adaptation measures in their planning instruments.

AGRICULTURE

Madagascar has adopted a strategy and policy to address climate change challenges in the Agriculture, Livestock and Fisheries sector. Its vision: "By 2015 Madagascar will be in a sustainable development path, with the Agriculture, Livestock and Fisheries sector acting as a pillar to the green economy, resilient to climate impacts, significantly contributing to GDP and guaranteeing food autonomy of rural and urban populations, expanding to external markets, based on a participatory approach and using modern techniques, environmentally friendly and socio-culturally aware". Such vision is articulated in two main objectives: (i) to lay the technical, social, economic and finance foundations according to national circumstances and in the goal of reducing the vulnerability of the sector to climate impacts, and (ii) to integrate climate change considerations (vulnerability reduction, building resilience and mitigating greenhouse gas emissions) across all the actions of the Agriculture-Livestock and Fisheries sector.

Through this strategic approach, Madagascar will seek to face the "already apparent and unavoidable" impacts of climate change on this productive sector and to reduce the risks associated with further projected climate impacts by introducing adaptation measures in both technical and socio-economic practices. In parallel, Madagascar will seek to tap on the finance mechanisms and development co-benefits of climate mitigation schemes, such as carbon market mechanisms. Conservation agriculture will be adopted as an approach to mitigate the sector's emissions and to improve food security and the sector's contribution to the national economy.

COASTAL MANAGEMENT

Madagascar has developed a national strategy for sustainable development of coastal and marine zones, further developed by a National Action Plan on Integrated Coastal Management (PANGIZC, in its French acronym) and articulated by a National Committee on GIZC. The strategic vision is that "the management of coastal and marine zones of the island, rich in natural resources and biodiversity but fragile, is improved so they can prosper for current and future generations". The general objective of the plan is to promote sustainable development in coastal and marine zones through an integrated coastal management approach. The three strategic components for this sector are: (1) To strengthen the governance of coastal and marine zones, (2) To improve the socio-economic environment of coastal communities and (3) To ensure the protection and conservation of natural resources and coastal and marine ecosystems. Under this overall framework, the PANGIZC includes as part of its expected results "the mainstreaming of climate adaptation measures in coastal ecosystem protection and conservation" and anticipates key priority actions to this end: (i) strengthen the coral reefs monitoring system, (ii) undertake coastal vulnerability studies to develop a better understanding of climate impacts, (iii) implement preventive risk management measures and (iv) install coastal climate observation centers, in collaboration with the meteorology services.

ENVIRONMENT/ FORESTRY /BIODIVERSITY

Both the PGE and the NDP have stressed the relevance of ENVIRONMENTAL protection amongst the priority sectors for the sustainability of Madagascar's development. A number of policy instruments seek to contribute to this goal, including the National Policy for ENVIRONMENT and Sustainable Development and the Environmental Program for Sustainable Development, that seek to confront the pressures (both anthropogenic and climate-related) on natural resources (land, water, air, ocean, fauna, flora, etc.), environmental services and ecosystems. The overall objectives of the environmental policy is to: (i) Maintain Madagascar's stance as a biodiversity hotspot, (ii) Ensure the sustainable management of natural resources, terrestrial, aquatic, marine and coastal ecosystems; (iii) Promote a healthy environment for the population, (iv) Increase the contribution to the national economy from environmental goods and services and finally (v) Engage all relevant sectors in a common vision of environmentally sustainable management of resources.

Within the FORESTRY sector, the restoration of forests and forested areas should rehabilitate ecosystem services and the productivity of land, thus contribute to build resilience to climate impacts. The policy directives on forestry recovery include "green infrastructure": natural or semi-natural resources that can be favored through adequate land-use planning and that would enhance the environmental services and bounce-back capacity of the ecosystems. "Green infrastructure" would include green aquatic areas in rural or urban settings, coastal and marine areas. The forestry sector is seeking to coordinate and tap synergies between reforestation plans, climate mitigation actions (through REDD+ in particular) and climate adaptation at community level. Forested areas are key to build spatial resilience across the country.

Madagascar's Strategy and National Plan for BIODIVERSITY (SPANB, in its French acronym), states as one its strategic objectives: «By 2025, the ecosystem's adaptation capacity and the contribution of terrestrial biodiversity, freshwaters and marine ecosystems to mitigation and adaptation to climate change are strengthened, including the restoration of at least 15% of the degraded ecosystems and the combat to desertification. The plan's strategic objectives include: (i) establish mechanisms for the restoration of degraded ecosystems (coastal, marine, humid and terrestrial) to contribute to address the impacts of climate change and desertification, including land degradation and (ii) ecosystems' conservation (including genetic diversity and species) to comply with commitments issued from the Convention of Biological Diversity and to contribute to the regulation of the global carbon cycle and to climate adaptation.

HEALTH

With technical and financial support from the World Health Organization (WHO), the Ministry of Health recently went through a national assessment of climate impacts, vulnerabilities and adaptation measures for the health sector in Madagascar (key results are summarized in the WHO's "Climate and Health Country Profile -2015[30]"). Ensuing this assessment, the GoM also developed policy and planning instruments: it has developed a National Plan on Adaptation in the Health Sector (PNASS in its French acronym) and has mainstreamed climate risks identified in epidemiology and contingencies' planning instruments (E.g.: the national Integrated Disease Surveillance and Response (IDSR) system now includes early warning and response systems for climate-sensitive health risks). As part of the PNASS implementation, and with support from the WHO, the Ministry of Health is building its technical and institutional capacities to formulate and implement adaptation measures across the health sector (e.g.: building the resilience of health infrastructure).

Despite significant progress so far, the country has also identified opportunities for further action. For example: further mobilization of authorities and development partners for the implementation of policies and to develop a legal and technical framework for implementation of interventions related to health and climate adaptation.

In response to this call from the GoM and in the framework of its "Approach and Action Plan for Climate and Health", the World Bank (in partnership with Climate Analytics) is currently launching a pilot "Health Stress Test" project with national stakeholders to undertake a systematic diagnostic to assess key climate and health risks facing Madagascar and to design a methodological approach to address country capacity and readiness to manage them. For further details on this on-going efforts, please see Annex X.

3.3 Climate change specific planning

The National Policy for Climate Change

Developed in 2011, the National Policy for Climate Change (NPCC) results from the implementation of the UNFCCC and states the following objectives: (a) To promote appropriate national measures to reduce climate change vulnerability and carbon emissions and (b) To nurture behaviors contributing to the fight against climate change at all levels. The policy seeks to encourage five development pillars: (i) The strengthening of climate change adaptation activities, taking

[30] WHO, 2015. Climate and Health Country Profile, Madagascar. http://apps.who.int/iris/bitstream/10665/246140/1/WHO-FWC-PHE-EPE-15.40-eng.pdf

into account the country's current needs; (ii) The implementation of mitigation actions with co-benefits development; (iii) The integration of climate change at all levels (accountability of relevant institutions in the fight against climate change; strengthening the integration of climate change into sectors' plans; dissemination of information, education and communication on climate change); (iv) Development of sustainable financing instruments; and (v) Promotion of research, transfer of technology & adaptive management.

Building on this sound identification of key priorities to ascertain the national capacity to impulse sustainable development, a detailed implementation plan addressing each of these pillars would benefit the follow-up of this key policy instrument for climate action.

The National Communications. The submission of National Communications is part of the obligations of Madagascar under the UNFCCC. The National Communications depict the general climate evolution and related phenomena at the national and local levels. They are expected to produce an inventory of current greenhouse gas emissions, to reflect climate projections based on emissions, to identify climate mitigation measures and to provide a database on observed impacts of climate change. Associated to the latter, the National Communications also reflect the adverse impacts of climate change, assess vulnerability and identify potential adaptation measures. These vulnerability assessments were used for the preparation of the National Adaptation Program of Action (NAPA) and the identification of its priority projects. Orientations for adaptation actions at national level are based on data from the First and Second National Communications (2003 and 2010 respectively). Under leadership of BNCCC, with engagement from line Ministries and Institutions and technical support from UNEP, Madagascar's Third National Communication is nearly completed and expected to be published in late 2017.

National Adaptation Program of Action. Developed in 2006 under the leadership of the GoM (with support from GEF/WB), the National Adaptation Program of Action (NAPA)'s main goal was to identify priority actions to meet urgent and immediate needs and concerns of grassroots level communities to cope with to the adverse effects of climate change. The NAPA lists 15 priority projects covering 5 priority sectors identified as vulnerable in the country: agriculture and livestock, public health, water resources, coastal zones and forestry. The projects selected were designed to favor adaptation measures targeting the most vulnerable groups in the population. The NAPA also introduced a strategic objective to align climate programming with sustainable management of biodiversity and with the fight against desertification. For this reason, coordination efforts were made to tap on synergies between the Multilateral Agreements on the Environment, in particular with the UN Convention on Biological Diversity and with the UN Convention to Combat Desertification. Yet, the NAPA was developed on the basis of limited availability of climate data and knowledge of Madagascar's vulnerability to specific impacts. With other competing policy priorities at national level and a limited support from the international community, the priority actions identified within NAPA were only partially implemented. Four projects have been reported as being implemented, including: (i) a 5-year project on rice and climate change in the Alaotra Mangoro Region, funded by the Adaptation Fund (ii) a 5-year project on coastal zones and climate change in pilot sites, funded by the LDCF/GEF (iii) a project on water, health and climate change in the South financed by the AfDB - (iv) A multi-sectoral project funded by UNDP currently under development.

Nationally Determined Contribution. The NDC (former Intended Nationally Determined Contribution- INDC) was submitted by the GoM to the UNFCCC in 2015, in the run up to COP21 where the Paris Agreement was adopted. As most of the Least Developed Countries (LDCs), Madagascar's greenhouse gas emissions are not significant, but still the GoM has committed efforts to contribute to climate change mitigation. It is nonetheless, the adaptation segment of the NDC that is most relevant to the country's resilience and to the SPCR. Madagascar's NDC identifies three sectors regarded as the most vulnerable to climate impacts and, hence, prioritized for climate adaptation and risk reduction: agriculture, coastal zones management and public health. The NDC also points at ecosystem-based adaptation as an area for exploration and where synergies with mitigation action could be tapped (E.g.: potential to strengthen carbon stocks in forests and mangroves and to address biodiversity and water resources challenges in conjunction with adaptation measures). Box 1 below summarizes actions that are considered as priorities to address climate risks in key sectors, but that are also expected to build resilience at national level and align with the NPCC's strategic goal *to strengthen adaptation to climate change, considering Madagascar's realistic needs*. These priority actions have been taken into account to inform the definition of proposals for investments within the SPCR (see Part 2).

Box 1: Summary of adaptation priority actions identified in Madagascar's NDC

OVERARCHING (policy development, mainstreaming and awareness)

- Intensive awareness raising campaigns concerning climate change impacts and environmental degradation
- Finalization and implementation of the National Adaptation Plan
- Strengthen climate adaptation mainstreaming in all strategic/framework documents
- Effective application of existing or newly established sectorial policies: flood and cyclone-resistant hydro-agricultural infrastructures standards, cyclone resistant buildings standards, flood-resistant terrestrial transport infrastructure standards, local for climate hazard community guideline for Water-Sanitation-Hygiene)

INSTITUTIONAL CAPACITY TO MANAGE CLIMATE INFORMATION/RISK

- Multi-hazard early warning systems primarily that mainly consider cyclones, floods, drought and the public health surveillance
- Contribution to the finalization of the "National framework for climate services" for which Madagascar has committed to the World Meteorological Organization.
- Real-time monitoring of climate information;
- Effective implementation of multi-hazard early warning systems, including cyclones, floods, food security, drought, hunger, health and phytosanitory monitoring;
- Strengthen and upgrade casualty multi-hazard early warning systems including the aspects of phytosanitory, agricultural, drought and food security monitoring;

COASTAL AND WATER RESOURCES

- Formulation and implementation of the National Strategy for Integrated Water Resources Management
- Formulation and implementation of the national policy of the maritime territory of Malagasy, considering climate change;
- Sustainable and integrated water resources management, particularly in sub-arid areas and those vulnerable to drought periods
- Reinforcement of natural protection and reduction of the vulnerability of coastal, inshore and marine areas affected by coastal erosion and receding shorelines progress (Menabe, Boeny, South-west and East)
- Sustainable and integrated water resources management, especially in sub-arid areas and those vulnerable to drought periods

AGRICULTURE

- Development of Resilient Agriculture Integrated Model pilot projects/programs (combination of watershed management, selected/adapted varieties, locally-produced compost, rehabilitation of hydro-agricultural infrastructures, input access facilitation system, conservation agriculture, and agroforestry) or "climate-smart agriculture"
- Widespread application of Resilient Agriculture Integrated Models in major agricultural center, cash crop zones, extensive livestock farming areas, priority areas for fisheries, mangroves, as well as drought hotspots
- Promotion of intensive/improved rice farming system and rain-fed rice farming technique

HEALTH

- Evaluation of links for the climate change and migration of vector-borne diseases, malaria, and others emerging diseases as well as the evolution of acute respiratory infections, in order to identify remedial and/or corrective measures

ECOSYSTEM MANAGEMENT

- Restoration of natural forests and reinforcement of habitat connectivity
- Identification and sustainable management of climate refuge areas inside and outside protected areas
- Implementation of ecosystem-based adaptation to cope with sand-hill progression (multiple causes but phenomena aggravated by climate change) by leveraging research findings and best practices
- Restoration of natural habitats (forests and mangroves: 45,000 ha; lakes, streams, etc.).

National Adaptation Plan. Under the UNFCCC framework, developing countries are expected to produce their National Adaptation Plan (NAP) drawing from the priorities identified in the NDCs and ideally following the Technical Guidelines for the NAP process, developed by the LDC's Expert Group.[31] The NAP is expected to strengthen and complement existing adaptation plans and programs, such as the NAPA. In Madagascar, the design of the NAP follows a multi-stakeholder and consultative approach while relying on the leadership of the BNCCC, in collaboration with a designated "National Committee" and with support from technical and financial partners. The master document is expected to identify priority adaptation needs across key sectors, to assess financial mobilization requirements at country level, and to articulate an implementation strategy in the mid and long terms. Madagascar's NAP is scheduled to be launched in 2019 and it is expected the SPCR design and formulation process will constitute a key input to the NAP elaboration process, in particular with regards to nearer term (the bulk of implementation of PPCR Phase I is expected to occur in 2018).

3.4 Disaster risk reduction planning

The Sendai Framework for Disaster Risk Reduction (2015-2030) was adopted in 2015 at the UN World Conference on Disaster Risk Reduction in Sendai, Japan. Its main objective is to achieve *a substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years*. The Framework outlines specific targets across four key priorities: (i) Understanding disaster risk; (ii) Strengthening disaster risk governance and management; (iii) Investing in disaster reduction for resilience and; (iv) Enhancing disaster preparedness for effective response, recovery and rehabilitation (to "Build Back Better").

In February 2016, Madagascar amended its Disaster and Risk Management Act to include the commitments and directions under the Sendai Framework[32]. The new National Strategy for Disaster Risk Management (2016-2020) was also inspired by the same goals.

The National Strategy for Disaster Risk Management (2016-2030)

The National Strategy for Disaster Risk Management (SNGRC by its French acronym) has adopted a vision «To contribute to build a sustainable and prosperous society, where natural or man-made disasters will have a lesser impact on the environment, on development and on living conditions of the Malagasy people".

The overall objective of this strategy in to enhance the resilience of Madagascar, its national institutions and sub-national authorities when faced to the occurrence of natural disasters with a view to secure acceptable living conditions to the Malagasy population. To this end, the SNGRC sets some strategic priorities for 2020 (see Box 2).

In light of the cross-cutting nature of risk management and in alignment with the PGE and relevant sectoral policies and plans (agriculture, climate change, water management, land-use, forestry, health, et.), the SNGRC assumes the overall national objective to contribute to Madagascar's sustainable development objectives. The SNGRC further acknowledges the need to support and engage decentralized efforts, sub-national institutions, civil society organizations, the private sector and local communities in developing and implementing effective responses to natural disaster risk management.

3.5 Climate risk related activities and analysis of gaps

As part of the formulation process for the SPCR, a stocktaking exercise was jointly undertaken by CPGU and BNCCC to identify the existing Studies, Policies/Strategies, Action Plans and Portfolios in the sectors considered to be potentially more relevant to build Madagascar's climate resilience (see a stocktaking summary table in Annex V). The sectors explored for this preliminary analysis included: Agriculture, Health, Infrastructure, Coastal Management, Urban

[31] UNFCCC, 2012. LEG Expert Group. Technical Guidelines for the NAP process http://www4.unfccc.int/nap/Guidelines/Pages/Technical-guidelines.aspx
[32] UNISDR, 2017. Madagascar Prevention Web Profile. https://www.unisdr.org/archive/53627

Box 2: Strategic priorities for disaster risk management in Madagascar (SNGRC 2016-2020)

1. Effective mainstreaming of RRC and GRC in the national planning instruments (national and sectoral) and enhancement of the legal and institutional frameworks as an expression of decision-makers commitment.
2. Major risks across the national territory are identified and assessed and the capacity of stakeholders to address multi-risks (equipment, staff training, etc.) is strengthened.
3. Knowledge, innovation and educational tools are strengthened to promote a cultural shift towards security and resilience at all levels.
4. Disaster risk reduction actions at national and local level are reinforced to reduce the vulnerability of the population in the face of increasing future risks.
5. Technical instruments and stakeholders' capacities for disaster preparedness are enhanced in the light of increasing risk.

development, Climate services, Disaster Risk Management, Water management, Social Protection and Environment/ Biodiversity/Forestry.

The first conclusion of this exercise was that a more thorough analysis needs to take place (with active engagement from line Ministries) and inform both the preparation phase of the PPCR investment projects and the formulation of the NAP. As part of its support to the NAP planning process, GIZ is currently updating a "Cartography of actors, plans and programmes" relevant to climate adaptation action in Madagascar (an mapping was developed by WWF some years ago but needed updating). Providing support to this exercise is one of the activities planned for PPCR phase 1 (support to institutional coordination component).

In the meantime, some preliminary overview assessment and analysis of gaps has been attempted to inform the formulation of the SPCR. The key observation is that while Madagascar has made steps forward in climate risk management, further technical, financial and institutional support would be necessary to tackle persisting challenges and existing gaps. An initial assessment shows:

RESEARCH/DATA GAPS. Despite measures taken by the GoM to improve climate risk management, some further responses in the short and the long term are currently hindered by information gaps that should be addressed. For example:

- **Existing climate forecasting mechanisms** should be reinforced and information systems standardized to improve early warning and final-user oriented data.
- **Disaggregated data by gender and vulnerable groups** is needed to identify and address assess specific vulnerabilities and develop adequate responses. In particular, further gender-disaggregated data would be necessary in the agriculture, water management, health and social protection sectors to undertake a better assessment of the needs and opportunities to build resilience.
- **Hazards and socio-economic vulnerabilities need to be mapped** and hotspots highlighted. More research is necessary on integrated spatial planning to designate risk-prone areas, and zones where agriculture activity, infrastructure or urban settlements should be avoided or climate-proofed.

GAPS IN POLICY DEVELOPMENT AND ARTICULATION. Despite the insufficient knowledge base, a significant effort has been undertaken by some sectoral Ministries to integrate climate risks into planning instruments.

- Beyond the overarching policies and strategies on climate change (NPCC, NAPA, NDC and ongoing NAP process), the Agriculture/Livestock and Fisheries sector and the Health sector have developed specific climate adaptation plans. These plans still need to undertake costing and a capacity assessment exercises to facilitate implementation, which –so far— has been scarce.

- Other relevant sectors such as Coastal management, and Biodiversity/Forestry and Water and Sanitation don´t have specific climate adaptation plans but have mainstreamed climate resilience into the definition of priorities and (in some cases) activity-level. Here too, climate actions have rarely been budgeted, prioritized or implemented (with the exception of those that have benefited from donor support for implementation).
- Sectors that are heavily impacted by the exacerbation of extreme weather but that have not been prioritized so far in climate adaptation plans, nor developed sector-specific plans for climate adaption include: public infrastructure, urban planning and fiscal planning. Some analytical efforts have been undertaken in these three dimensions, providing a basis for policy/regulatory development that the PPCR will seek to build on during its phase 1 (under its strengthening policy frameworks component).

This preliminary analysis of gaps in knowledge base, policy instrument and investments has served to orient the proposals for the PPCR investments in Madagascar. The Investment Plan proposed in Part 2 of this document stems from this preliminary gaps' analysis, the application of the PPCR "guiding principles", the "multi-dimensional risk management" approach and the application of the set of "selection criteria" for the PPCR (see part 2 of this document for details).

SECTION 4: INSTITUTIONAL FRAMEWORK

4.1 Relevant institutions

INSTITUTIONS RELATED TO CLIMATE CHANGE

The **Ministry of Environment, Ecology and Forests** is the institution mandated to lead on the definition of policies, programs and strategies related to climate change in the country. Under this Ministry, the **National Bureau on Climate Change Coordination** (BNCCC) was recently established (Decree No. 2016-298 of 26 April 2016) with the responsibility to coordinate climate change activities and reinforce climate resilience in Madagascar. Among other responsibilities, BNCCC is expected to:

(1) Coordinate actions to adapt and strengthen climate resilience in Madagascar (projects led by government and non-government institutions and donors),

(2) Coordinate all actions to mitigate climate change,

(3) Contribute to sustainable development in the country and strengthen the integration of the Climate Change dimension at all levels;

(4) Develop a national framework on climate change and other planning instruments including sustainable funding instruments for climate actions in Madagascar;

(5) Ensure the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) —including development of the NAP and submission of National Communications—, to lead Madagascar in the international climate negotiations and, finally,

(6) Coordinate donor funded projects among other responsibilities.

The implementation of climate change related programs in Madagascar is based on the engagement of Government institutions, Civil Society Organizations (including NGOs and the Private Sector) and Technical and Financial Partners (such as the *Agence Française de Développement* (AFD); the *Gessellschaft fur Internationale Zusammernarbeit* (GIZ); the European Union (EU); the Japan International Co-operation Agency (JICA) or the United States Agency for International Development (USAID), among others).

In 2017 and as part of the process to facilitate the formulation of the National Adaptation Plan (NAP), the BNCCC has set up a **NAP Coordination Committee and a NAP Monitoring Committee** where government institutions, technical and financial partners and non-government actors that are active in climate adaptation agendas are invited to participate (see Box 3).

INSTITUTIONS RELATED TO DISASTER RISK MANAGEMENT

Emergencies and Disaster and Risk Management (DRM) issues are under the direct responsibility and supervision of the Prime Minister and his office. Established in 2005 (National Decree No 2005-866), a **National Council on Disaster and Risk Management** (CNGRC, by its French acronym) organizes bi-annual meetings to ensure coordination of actions during the cyclone season and to evaluate activities and undertake financial monitoring during the post-cyclone season. In 2012, the Government of Madagascar established a national contingency fund that aims at reinforcing the coordination of DRM efforts at the national level and at strengthening decentralized administration in DRM capacities.

The **Emergency Prevention and Management Unit** (CPGU, by its French acronym) is a permanent technical body attached to the office of the Prime Minister. The main task of the CPGU is to provide technical assistance to the Prime Minister and to the National Council for Risk and Disaster Management in the fulfillment of their DRM missions. The CPGU is expected to:

(1) Design, develop, oversee and update the National Risk and Disaster Management Policy and Strategy and its Action Plan;

Box 3: Institutional coordination mechanisms associated to the SPCR and NAP processes

CPGU and BNCCC signed on August 2, 2017 a **Memorandum of Understanding** with the objective to clarify the roles and attributions of both institutions during the 18-months SPCR preparation phase. CPGU and BNCCC both commit to ensure the coordination, complementarity and synergy of PPCR and NAP activities, while collaborating through all stages of the preparation phase and communicating regularly on the process evolution (Annex II).

An inter-ministerial SPRC Steering Committee: was set up by Decree No. 13216/2016 on June 17, 2016. The committee's main function is to support the SPCR preparation and its investment plan, and participate to the implementation of the PPCR-Phase 1 technical assistance project, ensuring the complementarity of activities between the various initiatives related to climate change in Madagascar. The committee met for the preparation and validation of the technical assistance request document in 2016, at the first MDBs joint meeting, and during the consultation meeting organized on August 2, 2017 to review the first SPCR draft.

The committee is composed of representatives from the Prime Minister office, the Ministries of: Land Use Planning and equipment, Agriculture and Livestock, Finances and Budget, Economy and planning, Public works, Transports and Meteorology, Education and Scientific Research, Environment, Water, Sanitations and Hygiene, Population, Social protection and Women Affairs, CPGU, BNCCC, National Committee on Integrated Coastal Zones Management, Conservation International, Fondation Telma, WWF, National Organization for Environmental Actions, Municipality of Antananarivo, Intergovernmental Group of International Experts on Climate Evolution (See Annex IV).

A NAP coordination committee

A NAP coordination committee was created in 2016 by BNCCC to serve as a consultative body providing strategic recommendations and as a platform for dialogue to support the elaboration of the National Adaptation Plan (for details see annex III). Members of this Committee include representatives from the most vulnerable sectors and thus considered as priorities for the articulation of adaptation measures (agriculture, health, water resources, coastal zones, infrastructure, forestry and biodiversity, climate services and DRM). Representatives from the Ministry of Economy and Plan, from the Ministry of Education and from BNGRC are also invited, along with members of the Civil Society Organizations (E.g.: ANAE, WWF), of private sector and of the international community (E.g.: UNDP, GIZ, USAID). The Coordination Committee meets every six weeks.

Finally, a **NAP monitoring and evaluation committee** was also created in 2016 to assess progress, effectiveness and gaps in the NAP elaboration process (see annex III). This organ provides technical support to the NAP coordination committee and therefore has technical representation from the same members (at Government and multi-stakeholder levels). The Monitoring Committee meets every three months to follow up on indicators set up by the Coordination Committee.

(2) Promote and integrate Disaster Risk Reduction into sectoral development policies;

(3) Strengthen community and territorial resilience by reducing physical, functional and structural vulnerabilities;

(4) Monitor and evaluate the implementation by public bodies acting in emergency situations of actions included in the dynamics of Risk and Catastrophe Management and adaptation to climate change;

(5) Reinforce prevention and mitigation actions at sectoral and community levels of the effects of hazards that may affect the country;

(6) Support humanitarian emergency response activities

According to Decree No. 2006-904, the **National Bureau for Disaster and Risk Management** (BNGRC, in its French acronym) is the national operational unit in charge of the management, coordination and follow-up of all activities related to DRM in Madagascar under the National Council for Disaster and Risk Management (CNGRC). The main responsibilities of BNGRC are operational: to strengthen the capacity of authorities and local populations in the most vulnerable regions to build resilience, particularly at community level. To do so, the BNGRC is expected to:

(1) Provide technical advice to the CNGRC,

(2) Promote prevention, preparedness and risk mitigation with public institutions and NGOs,

(3) Provide technical support for DRM preparedness as well as trainings and guidance

(4) Coordinate national emergency operations during disasters and,

(5) Implement early warning systems and manage an effective information system pre and post weather events.

CIVIL SOCIETY ORGANISATIONS AND PRIVATE SECTOR

Civil Society Organizations (CSOs) are particularly active in integrating climate change adaptation into their programing. In 2009, a **Thematic Group on Climate Change** (GT-CC) was created as a multisectoral platform for dialogue between the Government, CSOs and technical and financial partners to support the Government's efforts, share knowledge and best practices, and provide policy and strategic recommendations.

In order to better coordinate humanitarian actions implemented by the private sector, the United Nations Resident Coordinator, UNOCHA and the National Bureau for Disaster and Risk Management launched a competition to elect the "Best Humanitarian Actor" under the theme "I was here" on World Humanitarian Day in 2012. The competition also served as an awareness-raising mechanism among private sector companies and led to the launching in December 5, 2014, of the **Private Sector Humanitarian Platform** for a stronger involvement of the private sector in DRM. The Platform aims at identifying the inputs on which each company can contribute, whether in services, provision of materials, equipment, technical, human or financial capital in collaboration with the National Bureau for Disaster and Risk Management to increase the effectiveness of humanitarian aid. The platform develops a clear and precise mapping of what each company is likely to bring in order to best meet the needs identified by the humanitarian community (in prevention, preparedness, response, assessment and reconstruction phases). More than 40 companies are currently identified as members of the platform and activities such as mobile cash transfers and diffusion of meteorological information to population in cyclone-prone areas have been performed.

INTERNATIONAL PARTNERS

In a context of uncertainty about the future replenishment and architecture of the Climate Investment Funds (CIF), the formulation of Madagascar's PPCR needs to explore potential sources of co-finance for the investment projects conceived within its strategy. The operationalization and sustainability of the actions will depend on the ability of the GoM to mobilize international (and/or domestic) resources to trigger implementation. The Green Climate Fund (GCF) is currently expected to channel the bulk of international climate finance from contributing countries and will be explored in PPCR phase II, but interest of other potential financing partners has also been explored during the SPCR formulation phase.

Ensuing political instability the donor community withdrew investments from Madagascar in recent years: the aid landscape (in terms of number of agencies and in of aid amounts) was relatively bare. Yet, since 2014, development partners have progressively firmed up their plans of activities and aid has increased. Currently, the largest multilateral donors are the European Union, the IMF, the African Development Bank, the World Bank and the UN Agencies. The main bilateral donors are France, Germany, Japan, Norway and the US. At the December 2016 Donors and Investors Conference for Madagascar, the main multilateral and bilateral donors committed US$4.3 billion, in addition to their undisbursed commitments of US$2.1 billion.[33]

Each agency's program is focused on a limited set of sectors, but several development partners are currently active in domains relevant to the PPCR strategy:

- Partners active in the climate risk management domain in coastal and rural areas include: UNDP and UNEP (through GEF and Adaptation Fund programming), AfDB, WB, USAID and GIZ.
- Partners active in the rural resilience and ecosystem management include: FAO/FIDA, WFP, UNDP, UNICEF, WB, AFD, GIZ, JICA and USAID.
- Partners active in the infrastructure sector include: ONUDI, AFD, AfDB, WB, EU, GIZ and JICA.

[33] World Bank, May 2017. Country Partnership Framework for the Republic of Madagascar 2017-2021. http://documents.worldbank.org/curated/en/725881498788115661/pdf/Madagascar-CPF-FinalBoardapprovalJune5-2017-06052017.pdf

4.2 Institutional gaps

Several structures coexist and operate to design and implement climate change adaptation and DRM policies and programs in Madagascar. Despite close thematic linkages between climate adaptation and DRM and recent attempts to improve institutional coordination (see, for example the Memorandum of Understanding between BNCCC and CPGU captured in Annex II), the need persists to further integrate these agendas in practice. DRM and climate change responses are rather fragmented with an overall focus being primarily on DRM activities. As a result, some efforts risk to be duplicated and the roles and responsibilities of institutions -particularly the BNCCC and the CPGU- remain unclear in practice.

A comprehensive and thorough analysis of institutional capacities and policy gaps needs to be undertaken to better inform policy developments and assess technical and institutional support needs in Madagascar (see Part 2 for details on how such assessments could be facilitated by phase I of the PPCR and benefit the implementation PPCR and NAP investments). In the meantime, some apparent issues have been identified and acknowledged by the GoM during the formulation of the SPCR:

- A need to **strengthen the coordination between the DRM and the climate adaptation** communities of practice exists in Madagascar, as in many other climate risk prone countries. The key institutions leading policy responses on these fronts -CPGU and BNCCC- have started to deploy coordination mechanisms (see Box 3) and sought to involve national and sub-national institutions as well as the donor community into articulated responses.
- **Local authorities need to strengthen their capacity to implement in climate risk management.** Dispersion of resource and fragmentation of responses seem to be an area to focus efforts on. Decentralization of resources is important for a more effective deployment of risk management tools and for local communities to prepare and respond to future climate-related disasters.
- **The Ministry of Population and Social Protection and Women Affairs** encompasses a "General Direction for the Promotion of Women" and an interest in exploring gender-specific vulnerability to climate impacts has been identified (engagement of Ministry representatives in SPCR consultations at national level and of women associations in regional consultations). Yet, so far, the limited engagement of the Ministry has concentrated on DRM, with very little participation in climate adaptation policy discussions.
- **Mainstreaming of climate risk considerations into the country's planning tools** (National strategies, key sectoral policies and sub-national level plans), and into the budgeting instruments remains an essential challenge to be addressed in light of increasing risks.
- **A more intense coordination between development partners in Madagascar could enhance climate risk responses:** despite some years of detachment (due to political constraints), the donor community is rapidly re-engaging in climate and risk management agendas. For alignment, appropriation, effectiveness and sustainability purposes, an institutional effort from the GoM to coordinate development partners' support would be welcome.
- **CSOs, NGOs and private sector** are actively participating in climate change adaptation and DRM efforts through their programs but there is a lack of integrated supervision and coordination of activities at the institutional level. This results in a limitation of possible collaborations and synergies, particularly in the case of the private sector. Private actors that have been active in DRM response could now further engage in DRM preparedness and climate adaptation measures.

4.3 Institutional arrangements for PPCR

The PPCR is conceived as a multi-sectoral program that will need to ensure a sound coordination between institutions at the national and sub-national level, as well as with international partners, civil society organizations and the private sector active on climate risk management. As part of the overall preparation of the PPCR program, the Multilateral

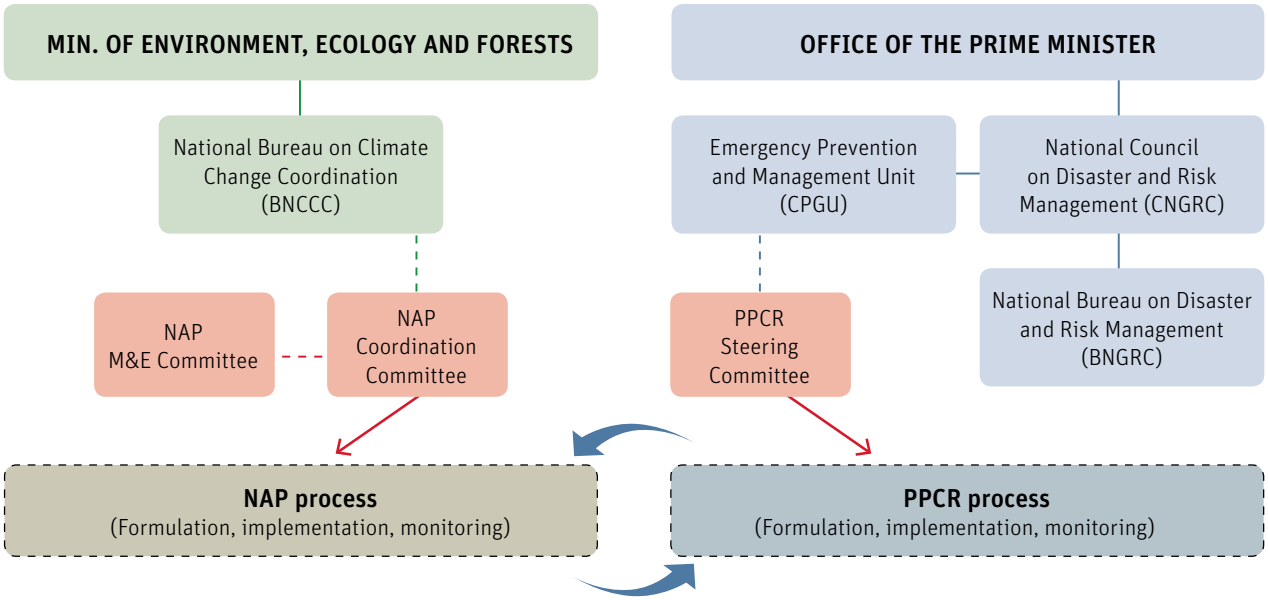
Development Banks will support the GoM in undertaking a comprehensive institutional needs-assessment of relevant government actors to identify gaps, develop a capacity development plan and introduce measures (technical assistance, trainings, management tools, etc.) to increase the program's sustainability.

Paramount to the success of the program will be the effective coordination between the CPGU (with oversight of the implementation of PPCR phase I) and the BNCCC (with oversight of the development of the National Adaptation Program-NAP). In order to proceed with the SPCR design in Madagascar, it was agreed that the two structures would consult each other to clarify the scope of their activities and responsibilities. Box 3 explains the coordination mechanisms that will be instrumental to ensure that duplications are avoided, potential synergies are tapped and collaboration is facilitated between the two climate risk planning processes with national scope.

Figure 6 shows how formerly existing and recently created institutions and coordination bodies will interact in the future to ensure an effective implementation of activities of the PPCR and retrofitting with the formulation and implementation of the NAP in Madagascar:

- Under the Ministry of Environment, Ecology and Forests, the National Bureau on Climate Change Coordination has set up cross-sectoral and multi-stakeholder coordination mechanisms to guide and articulate the NAP process.
- Under the drive of the CPGU, the PPCR Steering Committee (established during the formulation of the SPCR) is expected to ensure and oversee the implementation of the phase 1 activity plan of the PPCR that will also involve cross-sectoral and multi-stakeholder representation.
- The ambition is for the PPCR Steering Committee and the NAP Coordination Committee to coordinate effectively during 2016-2018 (through CPGU's, and BNCCC's technical secretariat functions and with the guidance of the MoU between these two institutions).
- By 2018, when phase 1 of the PPCR is expected to be complete and the NAP formulation process is expected to have delivered its master document, the two coordination bodies could be merged to oversee the implementation of the NAP and (eventually) of a phase 2 of the PPCR (when funds to implement investment projects are mobilized).

Figure 6: Diagram: institutional setting for PPCR implementation and NAP process links



SECTION 5: RATIONALE FOR PPCR SUPPORT AND THEORY OF CHANGE

5.1 Rationale for the PPCR support

Madagascar is one of the world's most exposed and vulnerable countries to climate change, with the poor being most affected. The extreme weather risks are projected to become more acute in the future. A high percentage of the rural population is adversely affected by droughts, cyclones, and the alteration of rainfall patterns. Poorest rural households are typically most vulnerable to such extreme weather events. With increasing urbanization rates, climate-related risks are mounting in metropolitan areas.

Madagascar is at a critical moment to mainstream climate risks into its policy developments and reforms, to build the country's resilience through the piloting of innovative programs that can climate-proof public investments, to strengthen institutional capacities to address climate challenges and to articulate lessons that can shift the national development path into and resilience and sustainability. With a political environment of regained stability and an economic context of incipient rebound and positive prospects, the time is right to embrace a national strategy for climate resilience that should inform policy decisions (at national, sectoral and sub-national level) and to create the conditions to implement it by prioritizing strategic investments.

The PPCR support can bring timely and strategic added value to the government's efforts in leading the country to a climate resilient development path, consistent with its poverty reduction and sustainable development goals. Based on an extensive and ongoing multi-stakeholder consultation process (see section 7), and on an agreed set of selection criteria for investments (see details in Part 2) the PPCR program envisions to deploy actions in key sectors (such as agriculture, public infrastructure or ecosystem management) and in particularly vulnerable zones (such as the Grand Sud and the informal settlements in urban areas) while it also articulates some of the national priorities for enhancing climate resilience at the macro level. The PPCR support will serve the GoM to combine soft investments (such as institutional capacity building and policy instruments) with hard investments (such as climate proofing public works highly vulnerable areas) and social investments (such as scaling up productive safety nets to enhance resilience).

It will be a PPCR top priority to build the capacities of national institutions (through human capital, technological, institutional and financial support), to address immediate needs and ensure long-term sustainability of results **and to serve as a catalyst for a shift in the country's developing path by piloting climate-proofing approaches**.

The realization of such efforts will require mobilizing additional investments from development partners capable to scale-up actions that build climate resilience across the country (through implementation of the NAP priorities and of the PPCR investment plan in phase 2 of the strategy).

5.2 Theory of change of Madagascar's PPCR

The PPCR seeks to contribute to the GoM's objective to build the country's resilience to climate impacts and risks thus favoring a sustainable development path. In Madagascar, as in other vulnerable countries, crises tend to be cyclical and multi-faceted. Thus, reducing the country's vulnerability necessarily implies building resilience across multiple dimensions: political (E.g.: mainstreaming risk management in to policy instruments, articulating policies, implement priority actions, etc.), social (E.g.: strengthening the delivery of services and social safety nets that knit social cohesion), physical (E.g.: protecting the population where it is necessary, retrofitting existing public infrastructure and introducing climate-proofing measures in critical sectors) and financial (E.g.: articulating financial tools that can transfer or smooth fiscal risk: insurance schemes, contingency funds, etc.).

Madagascar's PPCR will combine the multi-dimensional approach to risk management (a concept that was coined by UNISRD in its 2015 Global Assessment Report, see below). The program will also seek to **deliver progressive positive changes in building resilience over time**: it will focus on near term expected outcomes for the proposed

investment plan, but it will not neglect the mid and longer term priorities and will also deliver results that will contribute to set the ground for a more climate-resilient future. The diagram in Figure 7 (below) captures how the PPCR program will articulate its Theory of Change by combining two vectors: a multi-dimensional approach to risk management and the delivery of progressive positive changes across key-sectors and over time. These two vectors can be further defined as follows:

MULTI-DIMENSIONAL APPROACH TO RISK MANAGEMENT

In 2015, the above-mentioned Global Assessment Report on Disaster Risk Reduction[34] introduced a multi-dimensional approach to risk management that is particularly relevant when addressing present and projected climate risks. Rather than "managing disasters" the DRM community has evolved into a "managing risk" concept that encompasses three interrelated concepts:

- Prospective risk management: to prevent or avoid the accumulation of new and future risks. Typically, prospective risk management measures could entail informing decision-makers of climate risk so development choices can be adjusted and/or climate-proofing measures adopted (E.g.: adjustment of post-disaster recovery plans, reconstruction or new infrastructures in risk-prone areas). To be able to inform decision-makers, climate data need to be available and information processed in shape and time that is useful to policy-making.

N.B.1: This is partly of what Madagascar PPCR investment projects "Capacity development to enhance hydro-meteorological services" and "Enhancing the enabling environment for climate resilience" will intend to deliver from the short to the long term.

- Corrective risk management: to mitigate or reduce the currently existing risks by investing in corrective measures. Typically, corrective risk management could entail enhancing risk preparedness instruments (such as early warning systems), as well as promoting climate adaptation measures (for example introducing drought-resistant species in arid areas, adjusting crops' cycle to new rainfall patterns or applying ecosystem-based adaptation approaches). Based on a sound vulnerability assessment (by sector, by region, by social group, etc.) sector-specific risk mitigating strategies can be developed, piloted, and –when successful- scaled up at broader levels and/or at the longer term.

N.B.2: The Madagascar PPCR investment projects proposed for the Antananarivo metropolitan area, for the Grand Sud and for the coastal areas intend to introduce innovative climate risk adaptation measures in sectors and regions that are particularly vulnerable to climate impacts. The expectation is that target populations will benefit that positive changes delivered will be up-scalable nation-wide over time.

- Compensatory risk management seeks to support the resilience of individuals and societies in the face of residual risk: risks that cannot be effectively reduced (such as the crop loss or damage to public infrastructure in large-scale extreme weather events). Typically, compensatory risk management measures could entail introducing risk transfer or risk sharing mechanisms such as agricultural insurance schemes or the establishment of national and regional contingency funds.

N.B.3: Under phase 1 on the Madagascar PPCR, policy dialogue and reforms are expected to reduce climate risks in the future and to develop fiscal resilience mechanisms (such as the CatDDO) that would compensate the risks that have not been mitigated and to protect the national economy in the event of natural disasters. At a smaller scale, social protection and safety nets will be strengthened - particularly in the Grand Sud region- so the most vulnerable populations are better protected and compensated for recurrent climate impacts.

[34] UNISDR, 2015. Global Assessment Report on Disaster Risk Reduction. http://www.preventionweb.net/english/hyogo/gar/2015/en/gar-pdf/GAR2015_EN.pdf

These three approaches to risk management are mutually supportive and allow to break the silos of the *"disaster risk reduction"*, the *"climate change adaptation"* and the *"sustainable development"* communities of practice, thus facilitating a more real and useful approach to building resilience at local, sectoral and national levels. Therefore, it favors the introduction of a paradigm shift in Madagascar will address the multifaceted and multi-scale risks associated to climate change.

DELIVERING PROGRESSIVE POSITIVE IMPACT OVER TIME:

- In the short term: the PPCR will assist the GoM **in sustaining efforts to develop its capacity to identify, measure, map and manage current and future climate impacts to be able to mitigate risks** and avoid potential climate-related loss and damage in the future. Generating, processing and managing climate data, scenarios, vulnerability assessments is a necessary first step to adjust current investments plans, to retrofit existing infrastructure and articulate needs-specific long-lasting adaptation measures in agriculture, health, infrastructure and other sectors. So far, under the National Communications and the NAP formulation process some progress has been made that the PPCR will come to endorse and amplify. The capacities of the national climate services to deliver reliable and timely climate information will be strengthened and will allow the GoM to better protect the population and the country's development capital from future shocks. At the same time, a solid climate change knowledge base will be generated as the first step to mainstream existing, new and future risks into sectoral policies and into ongoing investments.
- In the mid term: Madagascar is experiencing a rapid urbanization. The combination of demographic pressure, low agricultural yields and recurrent climate shocks in a context of vulnerability in rural areas is contributing to expel population towards the urban settings: both to the coastline and to the Antananarivo metropolitan area. The rapid and un-planned migration of the rural poor leads to informal settlements in risk-prone areas. In services-deficient neighborhoods, the population's exposure to floods, landslides and water and sanitation related risks has increased. Urban vulnerabilities are emerging as a long-term development challenge and a focus of increasing concern for disaster risk management. The PPCR will pilot approaches to face these new challenges: climate-proofing of key public works (drainage canals and sanitation infrastructure) will be combined with a community-base approach to integrated urban development and resilience to be tested in project sites (Antananarivo's metropolitan area). These innovative experiences will generate lessons and guide the upgrading of other urban poles along the coast, and to help inform planners and policy makers as they produce national and local development plans.
- In the long term: Building resilience at national level requires reducing vulnerability of the rural poor at the long run. Nearly 80% of Madagascar' poor are smallholder farmers, reliant on agriculture and increasingly exposed to weather events as a result of climate change. With a significant human life toll from extreme events and recurrent food insecurity crisis, protecting the rural poor from climate impacts is at the same time a short, mid term and long- term priority. Building resilience of the rural poor whose livelihoods are so directly related to natural resources means investing in the country's long-term sustainability. Improving productivity, diversifying livelihoods, reverting the unsustainable over-exploitation of natural resources (land, forests, fisheries) and strengthening social safety nets are investments that will deliver beyond the humanitarian response and build long-term resilience for Malagasy households, thus creating more stable conditions for the country's development. The PPCR will also finance risk management instruments to withstand climate shocks at macroeconomic level and build long-term sustainability of development goals.

Two other considerations are paramount to Madagascar´s Theory of Change:

- **The most vulnerable groups will be prioritized.** The most vulnerable population in Madagascar is mostly concentrated in the South, and those particularly impacted by climate-aggravated destabilizing dynamics tend to be women-led rural households. At all times, the PPCR support will keep a focus on the realities of these families and communities in all its interventions: from projects seeking to improve agriculture productivity, to measures seeking to improve the living conditions and service delivery in urban and rural context, to hard

investments in climate-aware infrastructure or initiatives seeking to promote participation of vulnerable communities in the prioritization of development and investment plans and in the extension of social and financial services.

- **Innovative adaptation measures will be piloted and –where possible- up-scaled.** The program will introduce innovative approaches: small-scale green infrastructure to build resilience in urban contexts (Antananarivo and coastal cities investment projects), integrating climate resilience into social protection schemes (Grand Sud investment project), adopting compensatory risk management mechanisms (CatDDO for fiscal protection under phase 1). From the micro to the macro level, from the short to the long term, the investment plan seeks to trigger transformative change at country level. The pilot-based approach is complemented by Knowledge Management efforts (a central piece developed from the start of the program during in phase 1 and overarching the PPCR implementation) that should ensure the systematization and long-term capitalization of technical assistance as well as the up-scaling of interventions delivering positive results, thus nurturing catalytic change.

Figure 7 seeks to capture the different dimensions (multi-faceted risk management and temporal dimension) and the inter-relations in Madagascar's PPCR theory of change.

Figure 7: Theory of change for Madagascar's Pilot Program for Climate Resilience

SECTION 6: ARCHITECTURE OF THE MADAGASCAR PPCR

As agreed by national stakeholders during the inception consultation process, the PPCR program will be articulated based on two pillars, each of them sustaining different components (see Part 2, section 1 for details on PPCR structure):

Pillar 1: Strengthening the enabling environment for climate resilience. Including:

- Technical Assistance: aiming to support the program's implementation, the inter-ministerial coordination, knowledge management, the development and enforcement of regulations, etc.
- Policy Support: policy developments and mainstreaming of climate-proofing measures in key economic sectors to lay the necessary foundations for the use of financial tools promoting fiscal protection at national level in light of climate risks. (E.g.: budget support instruments, policy loans and/or contingent credit line instruments like the CAT-DDO).

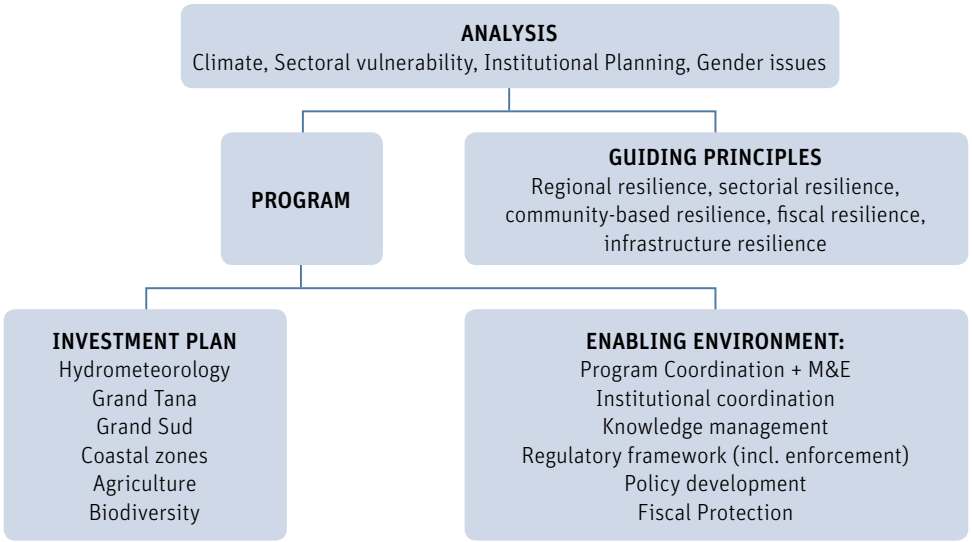
Phase I of the PPCR will support Pillar 1 actions and actively seek coordination and alignment with the NAP formulation process to ensure complementarity and synergies between these two planning and conceptualizing efforts undertaken by relevant national stakeholders and jointly led by the BNCCC and the CPGU.

Pillar 2: Investment Plan in climate resilience. Including:

- Strengthening of National Hydro-Met Systems & Services
- Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo
- Strengthening Climate Resilience of Coastal Cities
- Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud"
- Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition in the "Grand Sud"
- Promoting Ecotourism with Biodiversity protection strategies

PPCR investment projects to be implemented in phase II will be conceived as pilot interventions, targeting the most vulnerable groups and pursuing a demonstration effect with potential for replication. This approach will favor both practice-informed policy developments in the future and the scaling up of transformational impacts triggered by the PPCR operations.

Figure 8: Structure for Madagascar's Pilot Program for Climate Resilience



SECTION 7: PARTICIPATORY PROCESS FOR THE DEVELOPMENT OF THE SPCR

In line with the PPCR guidelines, the design of Madagascar's SPCR was based on a participatory approach involving a wide range of representatives from the Government, Civil Society Organizations (including the Private Sector and NGOs), development partners and local communities' representatives. Key stakeholders involved in the formulation of the SPCR are listed in Annex I.

The broad-based national and regional consultations and workshops contributed to identify the existing challenges, vulnerabilities and gaps with regards to adaptation to climate change in Madagascar and framed how the PPCR could complement existing approaches to climate adaptation and DRM and engage stakeholders' efforts in an inclusive manner.

In order for the SPCR to truly reflect national and local needs, consultations were also undertaken at the regional level in the Southern and Western Regions of Madagascar engaging local government representatives and stakeholders.

The following process was followed to identify key priority areas for PPCR support:

- **Scoping Mission:** A scoping mission was held in Antananarivo from November 30 to December 4, 2015 to: (i) present the PPCR to the Government of Madagascar, (ii) identify key stakeholders directly and indirectly associated with climate change issues; (iii) undertake a stocktaking of existing and ongoing policy, legal and institutional frameworks; (iv) ascertain gaps and prepare a technical assistance proposal for the Government of Madagascar; and (v) set an action plan for the preparation of phases I and II of the PPCR. The mission concluded that the PPCR offers a great opportunity for Madagascar to rethink its climate resilience efforts through a long term and integrated approach extending its priorities beyond extreme climate events in key sectors such as agriculture, environment, fisheries, and cattle breeding. Coastal management, infrastructure resilience, climate services and urban resilience where identified as key priorities. The mission noted a lack of coordination of initiatives undertaken by governmental entities and suggested the implementation of a joint governmental unit (later in the formulation process, an effort from the GoM was noted in coordinating and harmonizing the actions and planning instruments from the climate adaptation and the disaster risk reductions communities of practice, respectively led by the BNCCC and the CPGU.
- **First Joint Mission:** Following the scoping mission, a First Joint Mission was held in Antananarivo from May 11 to May 19, 2017. The mission conducted bilateral consultations with Government, and CSOs & Private sector stakeholders and it also facilitated a multi-stakeholder consultation. The purpose of this process was (i) to provide Government and non-governmental stakeholders with an update on the PPCR process and timeline; (ii) to discuss climate risks and vulnerabilities as well as climate resilience projects and initiatives being undertaken in the country with an emphasis on gender inclusion; (iii) to introduce and agree of the relevance of selection criteria to prioritize investments; and (iv) to organize group sessions to identify strategic pillars and priorities that could be addressed by the PPCR. Through these various consultations (see Annex IV), Government and stakeholders agreed on a number of issues relating the institutional setting in Madagascar, including:
  - A lack of coordination at the institutional level exists: there is a need to better coordinate efforts at the national level and clarify the roles and responsibilities of the CPGU and the BNCCC, the two main governmental units both operating at the national level to build climate resilience. It is to be noted that progress in this direction was made during the process of formulation of the SPCR (see in Annex II the MoU between CPGU and BNCCC).
  - The importance of information sharing, communication, education and knowledge management: the relevance and broad availability of knowledge sharing platforms and mechanisms, as well as the implementation of an effective communication strategy,

  - The identification of strategic pillars: GoM and stakeholders identified strategic pillars for the SPCR, namely: existing policies relevant to building climate resilience, capacity building needs and identification of some investments or planning efforts in climate resilience,
  - The identification of key projects: stakeholders noted the need for strengthening and expanding climate services, of fostering community resilience and livelihoods in the Southern region of the country and envisaged a project on biodiversity resilience.

- **Informal follow-up meetings** were held in May and June 2017 with Government and non-governmental stakeholders to gather additional information on policies, assessments and projects undertaken and further clarify the purpose of the PPCR to guide the design of Phases I and II of the PPCR.
- **A mid-term workshop (national consultation dialogue)** was organized by CPGU on the 2nd of August 2017 to provide an update on the work to date and present a first draft of SPCR to the Government and non-governmental stakeholders in order to create consensus on proposed activities for grant assistance and inform the draft SPCR accordingly (key notes from this workshop are reflected in Annex I).
- **Technical mission and consultations at regional level were held from the 28th August to the 4th September in Fort-Dauphin and Ambovombe (Greater South region).** The mission conducted bilateral consultations with Government, and CSOs & Private sector stakeholders and it also facilitated two multi-stakeholder consultations in the field (see Annex I for key notes and list of participants in regional consultations). The objectives of the mission were to (i) assess advancements on the implementation of the PPCR Phase 1 Grant; (ii) organize technical meetings with the CPGU team and other stakeholders (National Climate Change Coordination Office, African Development Bank and active donors in the field of climate risk management: GIZ, AFD) to consolidate the formulation of the Strategic Program for Climate Resilience; (iii) conduct regional consultations in the Greater South region (with various stakeholders on climate resilience) following the recommendations made by national partners during the consultation held by the CPGU on August 2nd on an outline for the Strategic Program for Climate Resilience.
- **A Second Joint Mission** was held from the 30th September to the 6th October 2017 to review the final version of the SPCR and comprehensively discuss aspects of content, approach and methodology. This mission also included a technical field-trip and a regional consultation in Morondava, in the Western region of Madagascar. It was followed by a national consultation workshop which gave a chance to fortify several issues in the SPCR formulation: integration of gender issues detail arrangement for knowledge sharing, capacity building initiatives, roles and responsibilities of the PPCR implementing agencies and next steps for SPCR submission and approval (see Annex IV for an *Aide Mémoire* with key notes from the Second Joint Mission).
- **Public consultation and communication to the Cabinet:** between the 27th October and the 3rd November, CPGU facilitated access to the Final Draft of the SPCR for public consultation through the institutional website after the publishing of an announcement and a summary of the program in national media. On Tuesday 24th of October the SPCR document was also presented for endorsement to the Government Cabinet.
- It is important to note that a significant and gender-balanced engagement from national stakeholders was sought throughout the consultation process for the formulation of the SPCR in Madagascar. Please see summary table below and Annex 1 for details.

Consultation	Male Participants	Female Participants	Total Participants
First Joint Mission (16th May)	36	35	71
National dialogue (SPCR 1st draft national consultation) (2nd Aug.)	27	8	35
Regional at Grand Sud (Anosy and Androy, 31st Aug. and 1st Sept.)	34	16	50
Regional at coastal zone Morondava, 1st Oct.	11	34	45
Second Joint Mission (4th Oct.)	24	29	53
Total number of participants	132	122	254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PART 2

COMPONENTS OF THE INVESTMENT PROGRAM PROPOSED UNDER THE PPCR

SECTION 8: Approach of the SPCR

8.1 Priority Themes and Guiding Principles of Madagascar's SPCR

Priority themes

In 2006, Madagascar developed the National Action Program for Adaptation to Climate Change (NAPA) with the objective of defining the priority activities that should be implemented to respond to the immediate and most urgent needs regarding adaptation to climate impacts. The NAPA identified five priority sectors, namely, i) agriculture and livestock, ii) public health, iii) water resources, iv) coastal areas and v) forest resources. Out of the NAPA process, fifteen concrete projects were identified within these priority sectors as urgent and of greatest priority for the country (see Annex IX). In 2010, Madagascar also developed its National Policy for Climate Change (NPCC): the policy identified five key pillars for climate action (see Figure 2.1) but an action plan to ensure the implementation of activities was missing and follow up measures were also poorly defined.

More recently, in 2015, Madagascar submitted its Nationally Determined Contribution to the UNFCCC in 2015 (see Box 1). Within the adaptation segment of the NDC, the agriculture, coastal zone management, and public health sectors are highlighted as the most vulnerable sectors to climate impacts, and hence prioritized for climate risk reduction action (see Figure 2.3). Additionally, the NDC also pointed at ecosystem-based adaptation as an area for exploration and where synergies with mitigation action could be tapped.

Acknowledging these references and in light on the national context, Madagascar's PPCR goal is to contribute to climate proofing the Country's National Development Plan (2015-2019), which refers to the need to strengthen the resilience to natural disaster risk, and highlights the priority areas to consider (under its Fifth Strategic Pillar: Valuing Natural Capital and Strengthening Disaster Risk Resilience, see Figure 2.2). The PPCR will seek to contribute to the National Development Plan goals by building climate resilience in strategic sectors, vulnerable geographical zones and key institutions.

Figure 2.1: Objectives and Priorities under the National Policy for Climate Change (NPCC, 2010)

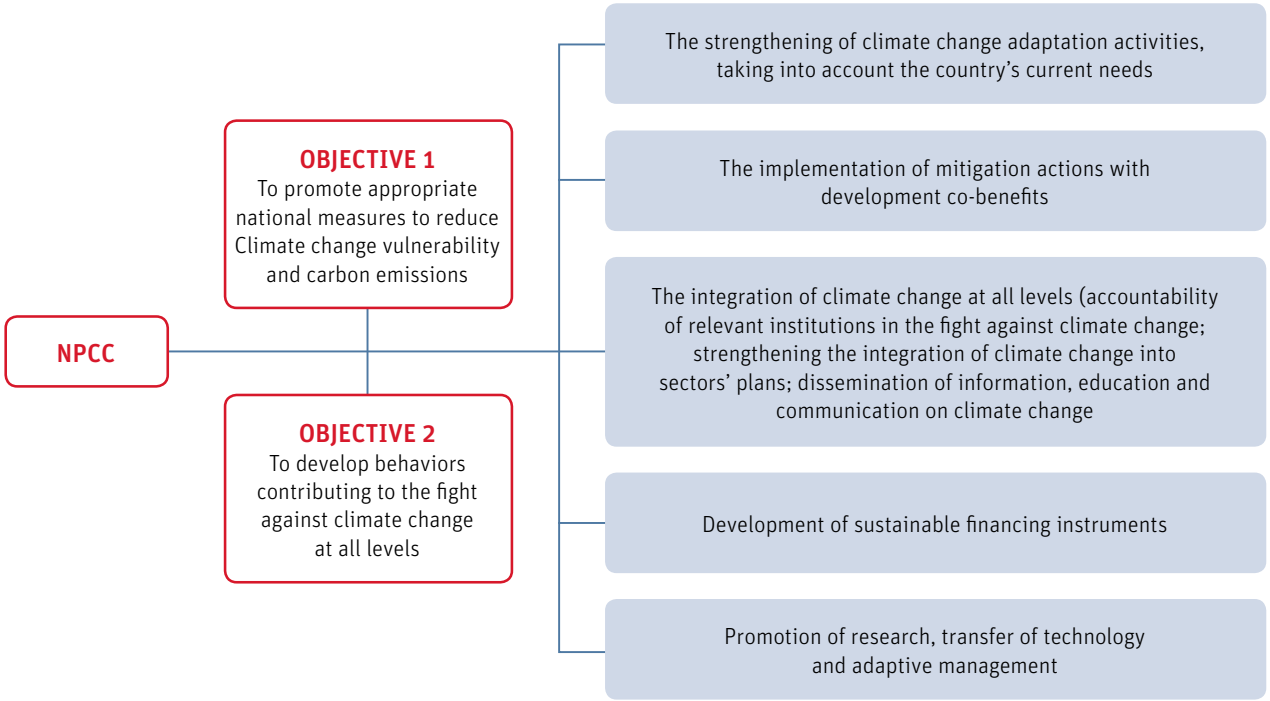


Figure 2.2: NDP (2015-2019) Priorities under Strategic Pillar 5: Valuing Natural Capital and Strengthening Disaster Risk Resilience

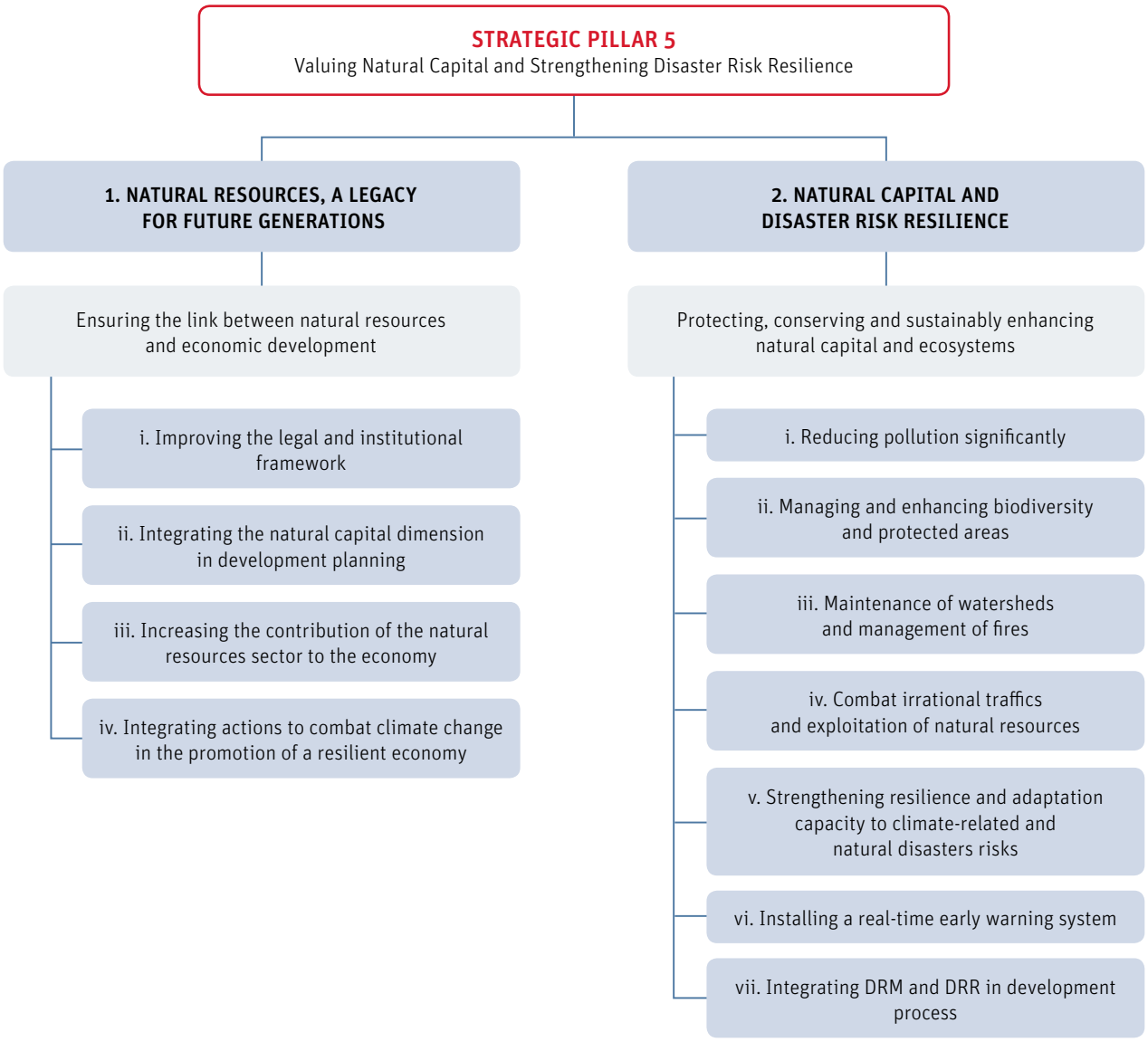
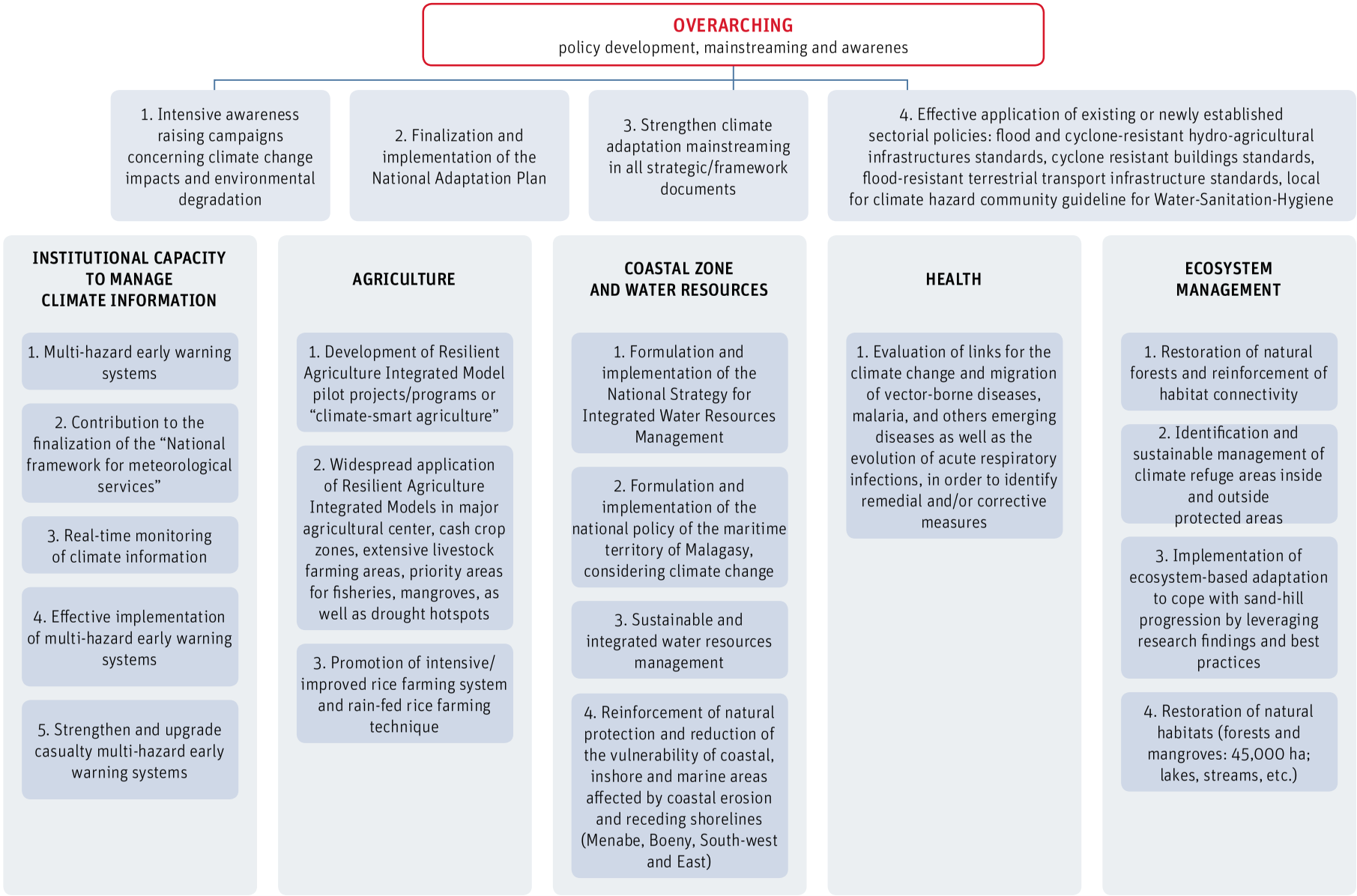


Figure 2.3: Nationally Determined Contribution (2015-2030) Priorities



Madagascar's PPCR goal is to build resilience in key geographical areas, sectors and institutions as a means to contribute to the climate proofing of the Country's National Development Plan.

To address climate adaptation challenges at national level, diverse Malagasy stakeholders have engaged in the SPCR formulation phase (see Annex I for details) and early on in the process they decided to adopt **five guiding principles** that would articulate the conception of investments proposed under the PPCR:

i. **Spatial resilience:** acknowledging the particular challenges of different regions in the country;

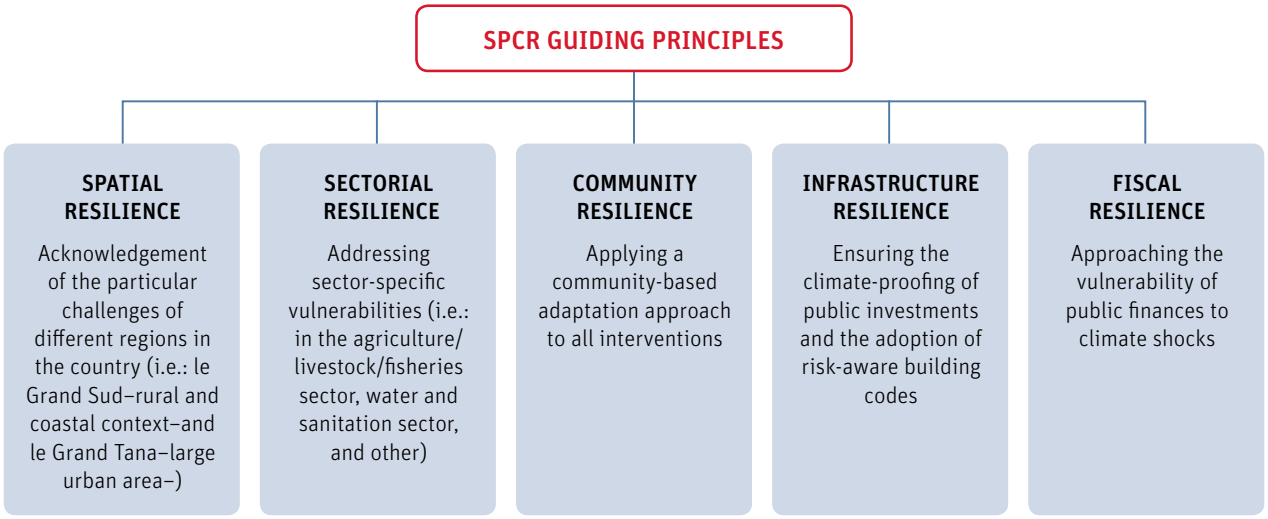
ii. **Sectorial resilience:** addressing sector-specific vulnerabilities in priority sectors;

iii. **Community resilience:** applying a community-based adaptation approaches;

iv. **Infrastructure resilience:** ensuring the climate-proofing of public investments;

v. **Fiscal resilience:** addressing the vulnerability of public finances to climate shocks.

Figure 2.4: SPCR Guiding Principles



Based on the various diagnostics and assessments conducted throughout previous planning instruments (NAPA, NPCC, NDP and onto the NDC) and on further analysis performed during the SPCR consultation and formulation phase, a broad consensus has emerged around the need to:

i. Strengthen the enabling environment through knowledge, information, and institutional capacities across key national institutions; and

ii. Implement a selection of investments to address specific climate challenges at sector and geographical level.

To address its climate adaptation challenges, Malagasy stakeholders have chosen for the PPCR a programmatic approach oriented by the 5 guiding principles as depicted in Figure 2.4 and structured as explained in section 1.2.

8.2 Structure of Madagascar's SPCR

Madagascar's PPCR will be implemented in two phases: Phase I will articulate actions to strengthen the enabling environment for climate resilience and Phase II will see to implement the proposed investment plan (selected projects across sectors and regions).

Phase I of the PPCR was approved in 2015, with a US$1.5 million grant to formulate Madagascar's Strategic Program for Climate Resilience (SPCR) and to provide technical assistance and policy and institutional support to strengthen the enabling environment for climate action and risk management. This phase is expected to run from 2016 to 2018 and it will involve four strategic components:

(1) Supporting the development of Madagascar's Strategic Program for Climate Resilience (through consultation processes and technical support) and the identification of future investments (PPCR Phase II investment projects), including the, feasibility and financeability studies;

(2) Enhancing the climate-science knowledge-base and the management of climate risks at national level (analytical and knowledge management dimensions);

(3) Articulating an enabling institutional environment for the deployment and implementation of PPCR interventions and for the mainstreaming of climate resilience into development planning (Strengthening of policy and institutional framework dimension);

(4) Support to the program's implementation, monitoring and evaluation. (Operational dimension).

In all these components, the CPGU (implementing partner for PPCR Phase I) will actively seek coordination with the BNCCC (in charge of the NAP formulation process) to ensure complementarity, tap synergies and facilitate alignment between the PPCR program and the NAP process.

Considering that CIF funds for the implementation of PPCR's Phase II are not guaranteed, national stakeholders will remain attentive to other international climate funds' availability (GCF financing opportunities in particular). To this aim, a climate "National financing strategy" will be produced as part of the deliverables of Phase I of the PPCR that should also inform the NAP formulation process. Furthermore, PPCR investment projects to be implemented in Phase II will be conceived as pilot interventions, targeting the most vulnerable groups and pursuing a demonstration effect with potential for replication. This approach will favor both practice-informed policy developments in the future and the scaling up of transformational impacts triggered by the PPCR operations.

Strategic pillars of the SPCR

Madagascar's SPCR is underpinned by the same visions expressed in the National Development Plan (NDP) 2015-2019 and the National Policy for Climate Change (NPCC):

Madagascar: a modern and prosperous country
("Madagascar: une nation moderne et prospère")

National Development Plan 2015-2019

To face Climate Change, Madagascar's vision is to have at its disposal all capacities required for the sustainable development of the country
("Pour faire face au Changement Climatique, Madagascar a comme vision de disposer de toutes les capacités requises favorables au développement durable du pays")

National Climate Change Policy (2010)

... and shares the same strategic goal expressed in the National Policy for Climate Change (NPCC):

To strengthen adaptation to climate change, considering Madagascar's realistic needs

↓

SPCR

To achieve the transformational impacts sought at national level, the PPCR will encompass two pillars: Pillar 1 of the program has two main components, while Pillar 2 will encompass 6 investment projects. Figure 2.5 shows the structure of the PPCR in Madagascar.

8.3 Selection and justification of SPCR investments

Consistent with the priority themes identified above, national stakeholders have identified a selection of investments and activities for Phase II of Madagascar's PPCR. A set of 6 projects to be included in the proposed investment plan were selected throughout consultations during the formulation of the SPCR (see section 7 in Part I and Annex I for details on the stakeholders engagement and consultations). The first step of the section process was to agree on a set of prioritization criteria. The following 9 criteria (defined in Table 2.1) were adopted during the PPCR First Joint Mission:

Figure 2.5: SPCR Structure—Strategic Pillars and Activities

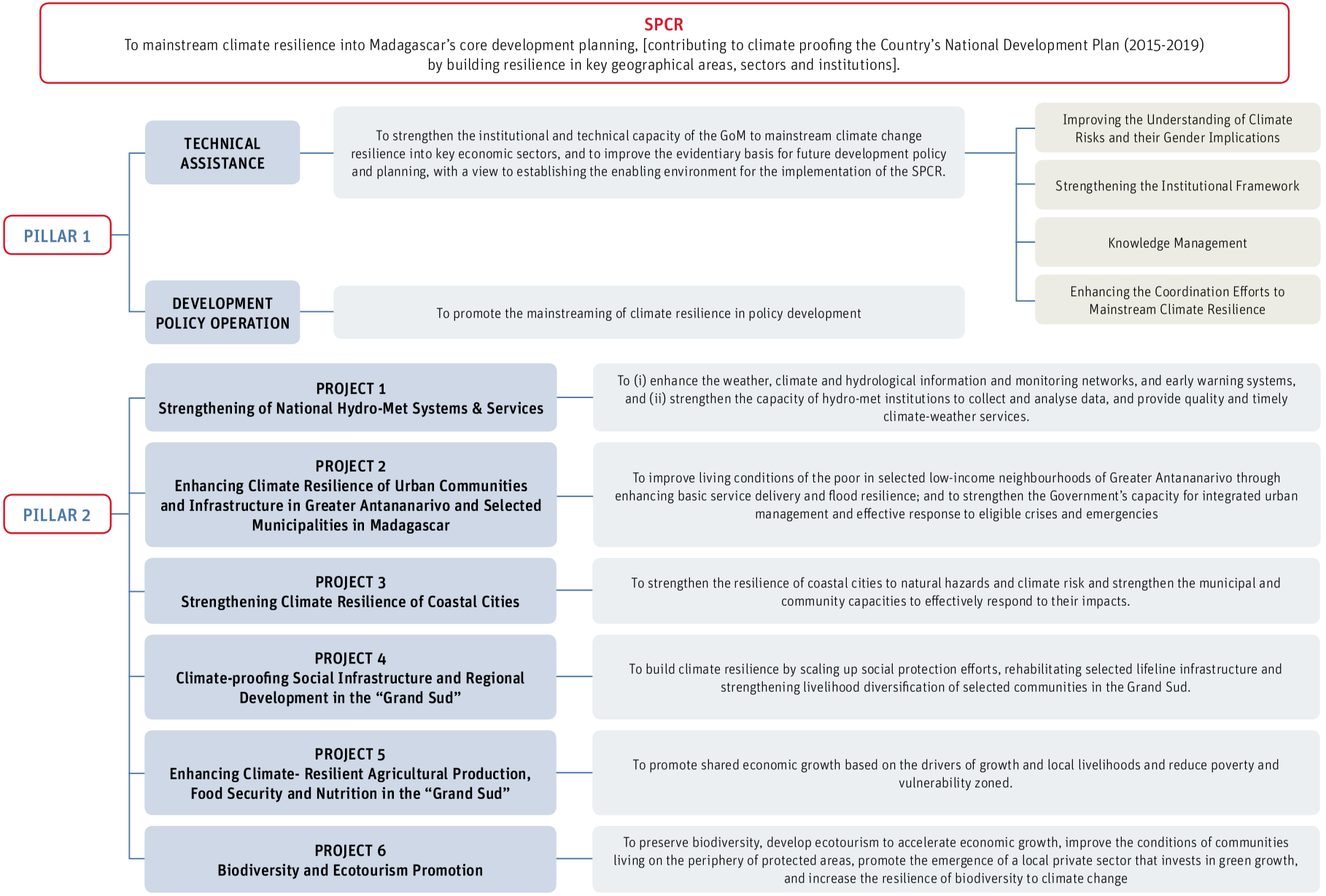


Table 2.1: Operational definition of prioritization criteria[35]

No.	CRITERIA	DEFINITION
1	**Contribution to national strategies and national development plans**	Impact of the proposed investment projects on one or more of the climate resilience targets/ objectives set out in the national strategies and national and sectoral development plans (agriculture, transport, DRM, national climate change communication plan, etc.).
2	**Impact on poverty and distributional issues**	Impact of the proposed investment projects on consumption poverty or food insecurity.
3	**Impact on climate resilience**	At either the household or macro-economic level, impact of the proposed investment on the ability to generate income or prevent the loss of it under different climate change / global warming scenarios.
4	**Cross-sectoral synergies and co-benefits**	Positive impact of the proposed projects on more than one sector, directly or through positive externalities.
5	**Cross-sectoral trade-offs**	Potential negative externalities in one or more other sectors weighted against positive impact expected from the proposed investment.
6	**Value for money**	Cost-effectiveness of proposed investment projects, as measured by expected development results relative to the proposed project costs.
7	**Readiness**	Capacity at all level of governments and across participating institutions to implement the proposed projects on the ground.
8	**Scale-up potential**	Applicability of investment activity across regions in Madagascar and potential to replicate positive impacts.
9	**Social inclusiveness**	Impact of the proposed investment projects on vulnerable groups including women, youth, elderly, disabled, minorities.

Some of Madagascar's set of selection criteria were inspired by the prioritization criteria applied to Ethiopia's SPCR, as these were considered a best practice in the region. They were also thought to be comprehensive and reflect the country's strategic approach to climate resilience and the SPCR guiding principles. These criteria are expected to also be useful to the broader investments' prioritization process that will be developed as part of the NAP formulation process.

The PPCR investment plan proposed in this document reflects choices made by national stakeholders guided by the application of: (i) the Theory of Change for Madagascar's PPCR that combines thematic, temporal and multi-dimensional approaches to climate risk management (see section 5.2 in Part I); (ii) the Five Guiding Principles articulated during the consultation process (see section 1.2. in Part II), and finally the set of 9 criteria for selection of investments described in Table 2.1.

The proposed investment plan (composed of 6 projects under Pillar 2 of the PPCR) has been checked against the set of selection criteria for Madagascar's PPCR to ensure overall compliance. The conclusions from the analysis of compliance are presented next.

Contribution to national strategies and national development plans

"Contribution to national strategies and national development plans" was used as filtering criterion to verify that the proposed investment activity meets the basic requirement of contributing to the Government's national strategies and development plans. Every activity proposed under the SPCR was expected to fulfill this criterion in at least two of the country's strategies/plans (i.e. NPCC, NDP and INDC) or the agreed SPCR guiding principles. The rest of the criteria were subsequently applied to each of the activities to confirm their compliance. Alignment with national planning documents was validated during consultations held during the Second Joint Mission.

[35] Source: Extracted from Ethiopia MSIP for PPCR (May 2017), following "best practice" pointed out by CIF.

Impact on poverty and distributional issues

Compliance wit this criterion most evident under Investment Project 4, "Climate-proofing Social Infrastructure and Regional Development in the Grand Sud", both from the perspective of geographical scope - the South represents the poorest region of the country – and from the perspective of the type of interventions envisioned - social protection activities targeting a segment of the population under the poverty line. The criterion also clearly applies to Investment Project 2, "Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo", as the project targets a large urban center with a large concentration of poor population in informal settlements.

Impact on climate resilience

All activities proposed under this SPCR have the objective of strengthening Madagascar's resilience to the impacts of climate change. In particular, Project 1 is primarily focused on building technical and institutional resilience, while Projects 2, 3 and 4 aim at building resilience at the household and community levels. All of them are also expected to build resilience at the society level.

Cross-sectoral synergies and co-benefits (positive impacts)

Madagascar's SPCR seeks to identify synergies across sectors to accelerate the building of climate resilience. The cross-sectoral synergies and co-benefits of the proposed initiatives are multiple. First, the benefits of Investment Project 1, the hydro-met project, are cross-sectoral (the long-term climate and weather forecasts that are a featured part of this project will improve decision making across all the other projects enhancing their outputs). Secondly, the green infrastructure measures that will be proposed under Investment Projects 2 and 3, will also contribute to the enhancement of urban infrastructure, both in coastal and non-coastal cities (Investment Project 2 focuses on supporting the urban poor in Greater Antananarivo, addressing at the same time environmental concerns of the areas located within the large natural flood plain in the city's outskirts). Investment Project 3 seeks to address at once poverty, natural resources, and climate change vulnerability linkages in coastal areas (tropical storms and cyclones risk physical damage to coral reefs, sea-grass beds and mangrove forests on which the local communities depend). The social protection activities proposed in the South as part of Investment Project 4 are designed to address the vulnerability of the rural poor, who are primarily reliant on rain-fed agriculture and increasingly exposed to extreme weather events, and will also improve the resilience of the social vulnerable groups to the impact of climate change.

Cross-sectoral trade-offs (negative impacts)

All investment projects have been conceptualized to provide a positive impact either at the local, regional or at the national level. An initial analysis of the activities envisioned under each project has been performed, and no negative externalities have been identified. Notwithstanding this aspect will be taken into consideration during project preparation.

Value for money

Some of the priority investments have been designed to blend with existing or pipeline investments within the portfolios of Multilateral Development Banks (AfDB and World Bank) to encourage co-financing opportunities for the implementation of PPCR Phase II. Investment Project 1 could be implemented under the umbrella of the ongoing *Sustainable Landscape Management Project* (P154698), whereas Investment Project 2, would be implemented under the umbrella of the World Bank financed *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756), which is currently under preparation and that will benefit from a US$70 Million IDA allocation. This will enable PPCR funds to mainstream climate change into larger investment projects, thus achieving impacts at scale. This blending will also help to reduce overall transaction costs during processing and implementation and thus ensure that investments deliver value for money. In addition, Projects 2 and 3 will seek the application of cost-effective solutions

by means of nature-based or hybrid measures, to reduce the impact of floods in coastal and non-coastal urban areas. A thorough cost benefit analysis (CBA) at project level will be undertaken under each the projects' preparation phase when technical specifications and costing data will be available.

Readiness

Several of the initiatives included in Madagascar's SPCR will be benefiting from alignment with past or ongoing operations, or operations under preparation. For instance, some projects are proposed for implementation as part ongoing operations being financed by the World Bank or the African Development Bank. Investment Project 1, for example, will be implemented under the umbrella of the ongoing *Sustainable Landscape Management Project* (P154698), an operation that is being co-financed by the World Bank, AFD and a GEF Grant, and implemented over a period of five years, starting in 2017. The project has already a lead implementing agency identified, and, in addition, the necessary studies and assessments have already been recently carried (NAPIHMS, 2017). Thus, this project is in an advanced state of preparation (from the institutional and technical perspectives) and implementation would be swift once funds become available. Similarly, Investment Project 2, will be implemented under the umbrella of the World Bank financed *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756). This project is currently under preparation and is benefiting from a US$2 Million Project Preparation Grant. Given that technical studies to be undertaken have been identified and that the lead implementing agency has also been selected, Investment Project 2 would also be technically and institutionally on an advanced state of preparation for rapid implementation as soon as funds become available.

As for the other projects in the Investment Plan, implementation should build on past or ongoing successful initiatives and seek implementation by existing institutional structures with demonstrated capacity to facilitate swift and streamlined arrangements for project execution.

Scale-up potential

Following PPCR goal to "pilot" climate risk resilience approaches, Madagascar's SPCR has sought to identify successful approaches that could be rapidly scaled-up by extending them to other geographical zones/regions. In order to articulate resilience at program level interventions, it is paramount to invest in management of climate knowledge, which is also essential for disaster risk management. Investment Project 1 will therefore cover the need to scale up climate information collection, analysis and efficient delivery to end-users at national and regional levels. The green measures to be adopted for increasing urban resilience in Greater Antananarivo as part of Investment Project 2 will serve as a pilot with replication potential in other urban settings. Similarly, it is expected that the approach undertaken to increase the resilience of selected coastal towns as part of Investment Project 3, will be replicated in broader coastal settings.

Enabling environment activities proposed under the Technical Assistance within Pillar I (e.g. strengthening institutional capacities, knowledge management tools, etc.) partly aim at scaling up the outcomes achieved through the piloting of climate proofing approaches tested by the PPCR.

Social inclusiveness

In Madagascar, the vulnerable social groups include women, children, people with disabilities, low-wages workers, malnourished, ethnic minorities, the elderly, pregnant women, and people living with HIV/AIDS. The PPCR will support the implementation of activities that enable some of these vulnerable social groups to anticipate, cope with, resist and recover from the impacts of climate change and variability. Early warning systems and disaster preparedness (under Investment Project 1) will be supported to reduce extreme vulnerability at community level. Under Investment projects 2 and 4, social cohesion and social safety nets will be promoted through strong neighborhood systems that are instrumental to minimize vulnerability of individuals, households and communities.

As seen in Table 2.2 (in red), all of the proposed SPCR activities under 2 (Investment Projects) previously described, fulfill the criteria in two or more of the national strategies/plans/policies. Table 2.2 also shows how the rest of the proposed SPCR activities also contribute to the fulfillment of the rest of the criteria (in blue).

Table 2.2: Application of selection criteria to Madagascar's SPCR proposed activities and investment projects

		PILLAR 2 PROPOSED INVESTMENT PROJECTS					
No.	**CRITERIA**	**IP1:** Strengthening Hydro-Met Services to Support the Modernization of Madagascar's Hydro-Met System	**IP2:** Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo	**IP3:** Strengthening Climate Resilience of Coastal Cities	**IP4:** Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud"	**IP5:** Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition	**IP6:** Biodiversity and Ecotourism Promotion
1	**Contribution to national strategies and national development plans**	✔	✔	✔	✔	✔	✔
	NPCC (2010)		✔	✔	✔	✔	
	NDP (2015-2019)	✔	✔	✔	✔	✔	✔
	INDC (2015-2030)	✔		✔	✔	✔	✔
2	**Impact on poverty and distributional issues**	✔	✔	✔	✔	✔	✔
3	**Impact on climate resilience**	✔	✔	✔	✔	✔	✔
4	**Cross-sectoral synergies and co-benefits**	✔	✔	✔	✔	✔	✔
5	**Cross-sectoral trade-offs**	✔	✔	✔	✔	✔	✔
6	**Readiness**	✔	✔	✔	✔	✔	✔
7	**Scale-up potential**	✔	✔	✔	✔	✔	✔
8	**Social inclusiveness**	✔	✔	✔	✔	✔	✔

SECTION 9: Environmental and Social Due Diligence of the Program

During individual project design, environmental and social assessments will be carried out following both GoM and MDB requirements. Once the source of funding has been identified, it may be necessary to comply with additional requirements following the environmental and social safeguards policies of the specific funding institution.

For investment projects with potential direct impacts o communities, a Strategic Environmental and Social Assessment (SESA)[36] may be required, integrating a resilience strategy and taking into account the project's components and its geographical scope. This assessment would involve communities that would be potentially affected and evaluate their degree of vulnerability and their adaptation capacity.

An Environmental Social Impact Assessment (ESIA) may also be carried out for the investment projects, depending on the potential risk identified. The Ministry of Environment, Ecology and Forests would be responsible for the review, management of comments and overall approval.

While the proposed SPCR investment projects are environmentally and socially beneficial, following the standard operating procedures, those projects financed or co-financed by MDBs will be subjected to a full social and environmental risk evaluation to ensure the project's positive impacts and benefits to the society and the environment and to activate safeguards, when need be.

[36] Assessment generally focused on: i) the regulatory and institutional framework for environmental management and land acquisition, and for dealing with social vulnerable groups; ii) the capacity, track record and performance of institutions to review and clear projects and programs, included projects financed by MDBs; and c) providing recommendations for filling gaps.

SECTION 10: Enabling environment for Mainstreaming Climate Resilience – Pillar 1

The GoM is deploying and—increasingly—coordinating efforts to enhance institutions, policies, and information that can help build and mainstream climate resilience. Pillar 1 of the PPCR is designed to support such efforts by focusing on "Strengthening institutional and policy frameworks for climate resilience". To this end, PPCR Pillar 1 will concentrate on the following objectives:

i. Improving the understanding of climate risks and their gender implications;

ii. Strengthening institutional and policy frameworks for climate resilience;

iii. Enhancing the coordination efforts to mainstream climate resilience.

The key components to achieve these goals are described below.

10.1 Improving the Understanding of Climate Risks and their Gender Implications

Climate Information

Madagascar's SPCR has been developed based on existing available information related to the key climate impacts nation-wide, on the analysis of vulnerabilities at sector level and on the consideration of climate impacts on the country's economy, society and ecology. However, improved data and down-scaling of information on climate risks are necessary to guide decision-making, resources' allocation and project design. Enhancing the climate-science knowledge-base and the management of climate risks at national level is paramount to build resilience in Madagascar. The PPCR will therefore provide assistance to undertake climate vulnerability and risk assessments to improve the understanding of hazards and climate risks in critical areas and sectors.

Gender Issues

A transformational change in Madagascar will not only require that the country becomes more productive, but also that vulnerable groups (women, youth, elderly, disabled, minorities) become more resilient to climate shocks. Despite some efforts from the GoM to consider gender and age issues in the development of policies and social programs, there are still large differences between men and women, and particularly stark differences by region, in aspects key to build resilience such as the access to extension services, to inputs and to finance.

PPCR investment projects have sought to integrate a gender lens, that is, taking into account the differential impacts of climate change on women and girls (see description Investment Projects 1, 2, 3, 5, and 6). Furthermore, Investment Project 4 is specially designed to address the impacts of climate shocks on the most vulnerable groups (including female-headed rural households). However, a better understanding of the gender-specific issues in each of the proposed investment projects is required to increase the extent to which resilience-building activities can benefit this particularly vulnerable segment of the society. The PPCR will address the need to undertake a sector-wide gender-specific vulnerability assessment with a view to better inform future policy developments (including the NAP) and to also enhance the implementation of the proposed investment projects.

10.2 Strengthening institutional and policy frameworks for climate resilience

Madagascar currently has limited financial resources to face the diversity of challenges that climate change poses to national development goals. This forces the GoM to undertake a very efficient planning and to avoid the unsustainable exploitation of natural resources that exacerbate acute poverty and climate risks in the country. Climate change poses threats to virtually every sector of the economy and addressing them requires effective coordination across sectoral institutions and coherent policy and legal frameworks.

Building climate resilience will also require the deployment of more robust planning tools, as well as the implementation of new instruments, regulations, policies, and programs. Therefore, Madagascar's PPCR will seek to impulse development and of some critical reforms at the institutional and policy levels.

Strengthening the Institutional Framework

In light of the institutional gaps identified during the formulation of the SPCR (see Part I, section 4.2 for details), the PPCR proposes to strengthen the institutional framework for climate resilience through a three-fold strategy:

i. To support for the development of a comprehensive institutional capacity development needs' assessment;

i. To support the formulation of Madagascar's NAP its cross-sectors' action plan, and

i. To support the development of a National Financing Strategy for Climate Resilience.

Support an institutional capacity development needs' assessment

The PPCR is a multi-sector scope program, which highlights the importance of a sound coordination between institutions active on climate risk management (at the national and sub-national level) as well as with international partners, civil society organizations and the private sector. It is paramount for the program to articulate an institutional environment that sets the ground for the effective implementation of PPCR investments, that favors the alignment with the formulation of the NAP and that facilitates the mainstreaming of climate resilience into development planning.

To this end, a comprehensive and thorough institutional capacity development needs' assessment needs to be undertaken to identify gaps and introduce the necessary mitigation measures (E.g.: technical assistance, trainings, planning tools, etc.) to support the implementation of the investment projects proposed as well as for future investment plans.

Support for the Formulation of the NAP and climate resilience action plans

The PPCR will actively seek to provide support to the formulation of climate resilience plans at sector level. More specifically, it will support the formulation of Madagascar's NAP through technical assistance, institutional support, articulation of coordination mechanisms and promoting synergies and complementarity between the PPCR proposed investment plan and the NAP (future) action plan.

Support for the Development of a National Financing Strategy (NFS)

In parallel to this support, and equally as important, is the provision of support to the Ministry of Finance for the development of a National Financing Strategy (NFS) that can ensure the implementation of Madagascar's climate resilience plans. This would entail the identification of sources of financing and co-financing for the investment projects proposed under the PPCR as well as funds or financing tools to mobilize public and private, international and national investments in the short, medium and long terms. This is especially relevant in the current context, where the availability of CIF funds for PPCR Phase II (when the investment plan would be implemented) is not guaranteed.

A NFS that includes CCA and DRM considerations and is developed in partnership with stakeholders, (the private sector, the donor community, etc.) would help mobilize resources to scaled-up investments. The public sector can offer policy incentives and regulations along with finance risk-mitigation instruments through MDBs, international climate funds (in particular the Green Climate Fund) or others in the form of guarantees, concessional loans, grants and equity, in order to mitigate risks for private sector engagement[37].

In summary, this SPCR will endeavor a close coordination with the NAP formulation process to both support the development of climate resilience strategies and appropriate financing mechanisms to implement them.

[37] http://e3g.org/docs/E3G_Designing_smart_green_finance_incentive_schemes_FINAL.pdf; http://e3g.org/docs/E3G_Strategic_national_approaches_to_climate_finance_FINAL.pdf

Strengthening the Policy Framework

Madagascar has started to design and implement policy frameworks that encourage a shift toward climate-resilient development in line with their development needs and international climate commitments. Country strategic planning, at the national, subnational, local, or sector level, should be supportive of achieving overarching climate and development goals, and public budgets and fiscal policies must carefully integrate climate change and disaster risk management with other development concerns. Changes in policy frameworks may also be needed to incentivize private sector investments or remove barriers.

The ultimate objective of the Policy Support activity under Pillar 1 is to promote the mainstreaming of climate resilience in national development. This will encompass the development of relevant policy reforms to mainstream climate-proofing measures into key economic sectors to lay the necessary foundations for the use of financial tools promoting fiscal protection.

As stated in the previous section, one of the activities proposed under this SPCR is a multi-sectoral institutional and policy gap assessment. One of the objectives of this assessment is the identification of policy gaps to better inform policy developments. The outcomes of this assessment will therefore inform the selection of the most appropriate policies to be targeted.

Some of the most critical policy reforms could target the following topics:

i. *Fiscal resilience*. Understanding the financial and fiscal impact of disaster is a first critical step in mainstreaming climate resilience into public finance. Through the development of a financial protection strategy, dedicated disaster risk financing instruments will be identified and proposed to reduce the vulnerability of public finance to climate risks.

ii. *Infrastructure resilience*. The accelerating impacts of climate change and extreme weather pose new significant challenges for the built environment and infrastructure. To address these challenges, design professionals and developers in both the public and private sectors ought to take the necessary steps to design buildings and infrastructure that go beyond minimum life-safety requirements and incorporate the principles of resilient, performance-based design. Madagascar has already done critical works in revising and updating Building Codes and Standards. However, resilience cannot remain an individual measure but needs to be institutionalized more holistically across the country.

iii. *Urban Resilience:* the growing urbanization of Madagascar presents some risks but also offers opportunities to plan the development of cities with adequate consideration of climate risks. Reforms are needed to ensure that Urban Development Plans integrate climate resilience and that municipalities are strengthened in their capacity to apply planning instruments and enforce construction standards;

iv. *Social Resilience*. Poor and marginalized people and, in general, the most vulnerable social groups, are more severely affected by natural hazards and climate extremes. Major studies show a persistent gap between national policy and local action related to disaster risk management and show that when a supportive government is open to partnering with communities and local organizations, risk reduction policies are more likely to have an impact at the local level. In order for national progress to reach the frontline, poor households and communities need to be empowered and supported to manage disaster and climate risk. National governments need to work at a scale greater than ever before, and need to get support for building resilience to the ground level where the effects are being felt the most. The UN's 2009 Global Assessment Report on Disaster Risk Reduction (GAR09) identifies the need to adopt an approach that is supportive of local disaster risk reduction initiatives. *Emergency response as part of Social Protection*. Social protection provides an important vehicle for directly reaching millions of poor people facing increasing disaster risk. As part of the governments emergency response plan, the GoM could reach the most vulnerable population, while at the same time strengthening its national capacity to respond to emergencies and to build up resilience, by using existing social protection systems to implement emergency cash transfers.

Policy Reforms for Longer-Term Climate Resilience

Fundamental to strengthening the country's resilience to climate change is a clear long-term strategy. The country must mark this shift in the prioritization of adaptation actions. Thus, complementing the critical multi-sectoral policy reforms previously mentioned, there should be a focus on policy reforms for longer-term climate resilience. The GoM is currently in the process of formulating its National Adaptation Plan (NAP). This brings an opportunity for reviewing, updating and adopting/ratifying some of the existing policies, strategies and standards. Some of these policy-related actions for longer-term climate resilience could include:

(a) Reviewing and updating the technical standards for road construction;

(b) Reviewing and updating, and adopting/ratifying the Climate Change policy, and the National Strategy for Disaster Risk Management (*Stratégie Nationale de Gestion de Risques et Catastrophes*, SNGRC, 2016-2020)

(c) Integration of climate risk considerations in sectoral budgets and investment projects of line ministries, through: i) Establishment of a mechanism for optimization of selection of project implementation sites, by means of Urban Development Plans or other more simplified tools; ii) Support to the development of the National Spatial Plan for the next 30 years; iii) Improvement of land management of public areas at risk (e.g. in coastal strips, lakes, rivers, areas adjacent to dikes, etc.); iv) Update of construction standards or development of new standards for relevant sectors; v) Integration of climatic parameters in Regional Land Use Planning Schemes; vi) Strengthening the monitoring and control system for public infrastructure works.

10.3 Knowledge Management

The formulation of this SPCR has benefited from successful information sharing among stakeholders through the several national and sub-national consultations, as well as bilateral meetings with key stakeholders. This process of information sharing will have to be continued and further developed during implementation of phase 1 and the preparation of projects in the investment plan.

The GoM together with MDBs will engage in documenting and highlighting lessons learnt and best practices arising from the Technical Assistance program proposed under Pillar 1, the implementation of projects as part of Pillar 2, and on-going monitoring and evaluation. The GoM will work with MDBs, and national stakeholders in consolidating and harmonizing information sharing, fostering collaboration, reducing costly fragmentation and enhancing coordination. This will require strong institutional capacity to manage, share and disseminate information.

This SPCR proposes a Knowledge Management strategy to be undertaken at two levels, i) the national/local level, and ii) the Africa Region and international level. The proposed approach is described next.

Knowledge Management Opportunities at National and Local Levels

At the national level, the GoM will seek to further enhance the capacity to generate and share end-user friendly climate information among key stakeholders in Madagascar. Possible initiatives include the continued dissemination of information and lessons learned, the establishment of cross-sectoral synergies and the development of a SPCR Knowledge Management System.

Dissemination of Lessons Learned

(1) The results of analytical studies and vulnerability assessments undertaken as part of the Technical Assistance Program under Pillar 1, will be used to strengthen the design of the PPCR projects as well as additional technical assistance programs and potential Development Policy Operations (see section III.5.2). Sharing the outcome of this studies will also be relevant to the NAP formulation process, as well as to other stakeholders and project developers as they design adaptation and mitigation strategies over time.

(2) Similarly, results from implementation of the projects developed under Pillar 2 (with MDB or other financial support) will be documented. All projects will be subject to monitoring and evaluation and sharing of lessons

learnt as well as best practices. Knowledge Management has therefore been incorporated as a component under each of the investment projects proposed. Evaluation exercises will stimulate reflection, adaptive programming and iterative learning about what works and what does not work by engaging with project managers and stakeholders as well as assessing outputs and outcomes. In particular, lessons and best practices arising from Phase 2 of the PPCR (2017-2025) will be highly relevant to the review of Madagascar's NDP in the future and other relevant policies and programs (NPCC, NAP, etc.).

Workshops at national and sub-national levels and regional conferences and the elaboration of methodological and technical guidelines, where relevant will be key in disseminating lessons learned from PPCR implementation.

Cross-sectoral Synergies

(3) Links between projects will be further explored and developed in order to tap on synergies and favor a programmatic approach to the PPCR implementation. For instance, the output from the activities in Investment Project 1 (hydro-met) will contribute to the on-going project development and implementation of the other projects in the SPCR.

SPCR Knowledge Management System

(4) A SPCR Knowledge Management System (KMS) will be developed throughout the implementation of Pillars 1 and 2. This KMS will serve as repository of all data, information and products developed during the implementation of the SPCR. The development of such an instrument will bring the GoM the opportunity of scaling up the system into a National Risk Information Platform, where all disaster and climate risk related data would be stored and made available to users.

Knowledge Management Opportunities at Africa Regional Level and International Levels

Beyond the national level, the GoM will also explore opportunities for knowledge management within the Africa Region and at the International level in general. Specifically:

- The GoM proposes to undertake regional knowledge exchanges with other African countries participating in the PPCR program. In addition, it will also be relevant to explore knowledge exchange opportunities with other SIDS also participating in the PPCR program, to learn from their experiences in specific fields relevant to the Malagasy context (e.g. countries that are piloting nature-based solutions in coastal or urban contexts, such as Jamaica).
- Madagascar is also a member of the Indian Ocean Commission; thus, within this forum, the GoM will also seek to identify possible opportunities to share lessons from the PPCR.
- Further, the GoM will explore opportunities for South-South exchange with other PPCR countries on specific thematic areas (such as increase climate resilience through social protection programs).
- Finally, the GoM will also seek to benefit from the CIF Evaluation and Learning Special Initiative. This possibility will be evaluated during the implementation of the Technical Assistance program.

10.4 Enhancing the Coordination Efforts to Mainstream Climate Resilience

Addressing climate change impacts is by nature a cross-cutting task and requires effective coordination across sectors, actors and institutions involved, and the inclusion of all social groups. Thus, coordination mechanisms should be strengthened between institutions active on climate risk management at the national and sub-national level, as well as with international partners, civil society organizations and the private sector. This will be especially important at the sub-national level, since most regions have not yet created mechanisms for inter-sectoral coordination. The specific approach to enhance coordination efforts is described next.

Strengthening the Coordination between the DRM and CCA Communities of Practice

With a view to **strengthen the coordination between the disaster risk management and the climate change adaptation communities** of practice, the key institutions leading policy responses on these fronts—CPGU and the BNCCC—have started to deploy coordination mechanisms and to seek to involve national and sub-national institutions as well as the donor community active on these fronts into articulated responses (see Section 4.3 and Box 3 in Part I of this document).

From an operational point of view, and for coordination and complementarity purposes, the BNCCC and the CPGU are currently developing a "state-of-affairs" exercise compiling studies and activities to be undertaken by each entity over the 18-months grant implementation period, with a view to ensure that the studies funded under the PPCR are consistent with the NAP process and that the use of the grant funding (US $1.5 Million) available can be maximized at the national level (for preliminary results of this stock-taking see summary table in Annex V).

Inter-ministerial Coordination

In keeping with the aim of strengthening the inter-ministerial and cross-sectoral coordination, some of the actions taken in parallel included:

(1) Project Steering Committee. A Project Steering Committee was established to bring together different ministry representatives to support the formulation of the SPCR as well as its investments plan. This PSC is comprised of government officials at the Director-General level from ministries in charge of planning, economy and finance, and the environment and meteorology, amongst others. These include: the Prime Minister's Office, the Ministry of Environment, Ecology, Sea and Forests, the Ministry of Economy and Planning, the Ministry of Finance, the Disaster Risk Management Bureau (BNGRC) and the National Committee for integrated coastal management (CNGIZC) as well as ministries in charge of public infrastructures, land use planning, agriculture, water-sanitation-hygiene, and population. The PSC will also provide guidance on (i) planning, monitoring and evaluation, (ii) the mobilization of funds and technical resources within the State; (iii) mobilization of international funding; and (iv) the production and use of scientific and socio-economic information on climate and development to be incorporated in the design, preparation and implementation of programs and projects.

(2) Expert Working Group (EWG). A (Technical) Expert Working Group will also be established under the supervision of the CPGU and the PSC, to oversee the technical aspects of the grant implementation during its 18-month duration and support the preparation of individual PPCR investment plans. This Expert Working Group will be headed by a Technical Coordinator to be appointed within the CPGU and will be comprised by focal points designated within relevant ministries. Initially, five focal points have been designated at the Ministry of Agriculture, the Ministry of Territorial Management, the General Directorate of Meteorology, the Ministry of Environment and at the Ministry of Finance.

Supporting the Coordination Efforts

Support to the SPCR and grant preparation process will be provided through the various activities envisioned as part of the Technical Assistance (see Section III.5.1). In light of the broad needs to make the country climate resilient, it is recommended that the technical assistance program be continued during phase 2 of the PPCR as well as the institutional support to promote synergies climate change adaptation and DRM agendas.

Acnowledging the need for coordination between the CPGU and BNCC, as well as between ministries and institutions and the donor community, support to coordination will include:

i. Consultancy services to strengthen management, coordination and monitoring/reporting capacity;

ii. Capacity Building Activities in Targeted Sectors. The specific needs and training areas will be identified on the basis of the outcomes of the institutional capacity development needs assessment that will be undertaken as part of the Technical Assistance.

iii. Workshops at national and sub-national levels.

10.5 Implementation of PPCR Pillar 1

The program described above for the implementation of Pillar 1 of this SPCR will be delivered through a blend of Technical Assistance and Development Policy Operations, the details of which are described next.

Technical Assistance

TA PROGRAM ROLE	INSTITUTION		
Lead Implementing MDB	World Bank		
Technical Agency(s)	CPGU; BNCCC		
Lead National Entity	CPGU		
Supporting National Implementing Entities	Various entities will support the TA program throughout its components including the Primature		
Short Program Name	N/A		
Country /Region	Madagascar – National Level		
Project Development Objective	To strengthen the institutional and technical capacity of the GoM to mainstream climate resilience into key economic sectors, and to improve the evidence base for future policy developments, with a view to establish an enabling environment for the implementation of the SPCR."		
Status Summary		**Source**	**Contribution**
Total Project Cost	**USD 1.5 million**	**PPCR**	**100%**

Madagascar will benefit from a US $1.5 Million preparation grant from the PPCR to support the overall structure of the technical assistance program during phase 1. This grant will be implemented during 2017 and 2018.

This technical assistance is proposed to encompass 4 components:

Component 1: Improving the Understanding of Climate Risks and their Gender Implications

Following from Section III.1, this first component of the Technical Assistance program aims at providing more reliable, accessible and timely early warning and climate information to users. Activities under this component take stock of all studies related to risk analysis, climate modeling, risk mapping and sectorial as well as territorial vulnerability studies, and thematic studies in the field of hydrometeorology, early warning system and the resilience of infrastructure and public finances. Activities can be categorized in two sub-components:

Sub-component 1.1: Strengthened Climate Information that will comprise the following activities:

i. Conducting a diagnostic of existing studies and vulnerability analyses. Take a stock of studies and analyses that have been conducted or are still in progress, including research studies regarding the links between adaptation to climate change and sectors such as agriculture, food security and nutrition.

ii. Building knowledge of climate risks and hydrometeorology through the development of vulnerability and risk assessments. This component aims to (i) model climate risks and their impacts (socioeconomic and environmental), primarily in the project sites; (ii) finalize and disseminate the atlas of climate risk targeting sensitive sectors and regions; and (iii) drive hydro-meteorological studies for better watershed management, plains development, and measurement of water.

iii. Developing knowledge on the vulnerability of public infrastructure. The socio-economic development of the country depends on the coverage and sustainability of its infrastructure. Therefore, this component seeks to (i) conduct an assessment of public infrastructure vulnerability (road, agriculture and water resources); and (ii) further the preparation of studies about standards related to the resilience of different types of public infrastructure.

iv. Support the formulation of Feasibility Studies for the proposed investment projects.

Sub-component 1.2: Mainstreaming gender equality into disaster risk reduction and climate change that will comprise the following activities:

i. Sector-wide Gender Assessment: that will enhance and mainstream the participation of women in the formulation and resilience building activities proposed under each of the investment projects proposed.

Component 2: Strengthening Institutional and Policy Frameworks for Climate Resilience

This component will aim at strengthening the national institutional and policy frameworks for climate resilience, thus providing the basis for long-term transformational change. Under this component, the following four sub-components are envisioned:

Sub-component 2.1: Institutional Support to National Climate Change Program, comprising the following activities:

i. Institutional capacity development needs' assessment: including organizational setup, internal and inter-sectorial coordination, and implementation capacity;

ii. Support to the preparation of the Madagascar NAP and multi-sectoral climate change action plans;

iii. Conduct an analysis of economic and financial impacts of disasters and climate change, which constitutes an important element to better inform policies and assess the comparative costs of adaptation actions.

iv. Support for the development of a National Finance Strategy: support the Ministry of Finance in the development of a Climate risk finance strategy to strengthen Madagascar's climate resilience.

Sub-component 2.2: Supporting Policy Development, comprising the identification and preparatory activities of the most critical policy reforms as well as the necessary policy reforms for longer-term climate resilience. The specific policies to be targeted will be identified on the basis of the outcomes of the institutional and policy gaps assessment performed as part of component 2.1.

Component 3: Knowledge management and evidence building

The importance of information sharing, communication, education and knowledge management was raised by stakeholders during the SPCR consultations, highlighting the relevance of open access to knowledge sharing platforms and mechanisms, as well as the implementation of an effective communication strategy. Capacity development and knowledge management at all levels (institutional, community-based and individual) of the Malagasy society are key requirements to build resilience to climate change at the national level. This component of the Technical Assistance program will allow the government to collect, systematize and disseminate lessons learnt from the various assessments undertaken during the implementation of the TA program, and fill knowledge gaps in a number of important sectors. This will be achieved through two sub-components:

Sub-component 3.1. Dissemination of Lessons Learned. Following the various assessments that will be carried out throughout the Technical Assistance program, this sub-component will aim at sharing the lessons learned through activities such as:

i. Dissemination Workshops at regional, national and sub-national levels;

ii. Preparation of methodological tools and technical guidelines for relevant sectors;

Sub-component 3.2. SPCR Knowledge Management System. The activities envisioned under this sub-component would include:

i. Design and implement a Knowledge Management System that would function as a repository for the PPCR and,

ii. Addressing evidence gaps.

Component 4: Support for SPCR implementation, coordination and M&E

This component will support the Implementing Agency to enhance its capacities for project implementation, monitoring and evaluation. Under this component the necessary resources will be provided (including staff to coordinate activities related to climate change coordination across government) to ensure the formulation of the SPCR, monitoring and management of phase 1 activities and capacity building activities as needed. It will strengthen the capacity of the government to manage the PPCR effectively and efficiently.

The implementation unit for PPCR phase 1 will be housed at the "Cellule de Prévention et Gestion des Urgences" (CPGU), and will be guided by a Steering Committee, chaired by the Prime Minister's Office and co-chaired by the Ministry of Environment, Ecology, Sea and Forests (in charge of climate change action) and the Ministry of Economy and Planning.

Recognizing the need for coordination between the CPGU and BNCC, as well as the need for alignment of the PPCR with the NAP formulation process and to ensure complementarity and synergies between these two planning processes, this component will aim at supporting the capacities of both CPGU and BNCCC, by supporting the following activities:

i. Consultancy services to strengthen management, coordination and monitoring/reporting capacity,

ii. Training and capacity building in targeted sectors,

iii. Workshops at national and sub-national levels,

iv. Incremental project management costs, and

v. Monitoring and evaluation (M&E) activities.

Capacity Building in Targeted Sectors

On the basis of the outcomes of the institutional capacity development needs' assessment, sector-specific trainings will be undertaken. Training programs will target key stakeholders (including high-level officials) in the development of climate resilience at their sector-level. In addition, the SPCR will capitalize on activities implemented within the broad PPCR program as a basis for peer-learning and knowledge transfer. Pilot experiences will be systematized and the replication of successful initiatives and good practices will be fostered.

Possible training areas include: i) Development of regional climate projections, modeling and "downscaling", ii) Integration of issues related to climate change in budget planning, iii) Financing in the context of climate resilience, iv) Land use planning associated climate-related risks, (v) technical adaptation and protection of coastal areas, and vi) Training sectorial experts (Disaster Risk Reduction and Management, Water Resources, Research, Land Use Planning, Energy, Food Security, Agriculture-Livestock-Fisheries, Transport, Tourism, Coastal Zones, and Environment).

M&E will be carried by the CPGU with the assistance of BNCCC and the PPCR Steering Committee, as part of the project management and coordination component of the Technical Assistance (TA) Program. Table 2.3 provides the outcomes of the TA program and possible indicators to be used for monitoring purposes. The TA Results Framework, will provide a framework for accountability of progress towards the objective of strengthening the institutional and technical capacity of the GoM to mainstream climate change resilience into key economic sectors.

Table 2.3: Expected Results and Indicators for the Technical Assistance Program under Pillar 1

EXPECTED RESULTS/OUTCOMES	PROPOSED INDICATOR(S)
Component 1: Improving the Understanding of Climate Risks and their Gender Implications	
Strengthened knowledge of climate resilience and climate risk management in Madagascar	Number of sectoral hazard, vulnerability and risk assessments developed
	Study to identify key evidence gaps on building resilience to climate impacts developed
	Sectoral and technical assessments and studies completed on key resilience information gaps
	Atlas of climate risk targeting sensitive sectors and regions finalized and disseminated
	Sector-wide gender assessment developed
Component 2: Strengthening Institutional and Policy Frameworks for Climate Resilience	
Strengthened national institutional capacity and framework for climate resilience	Institutional Capacity Development Needs' Assessment developed
	Analysis of economic and financial impacts of disasters and climate change developed
	Multi-sectoral climate change strategy developed in support to the NAP process
	Climate Risk National Finance Strategy developed
Strengthened policy frameworks for climate resilience	Development Policy Operation targeting the most critical reforms for climate resilience prepared
Component 3: Knowledge management and evidence building	
Enhanced Knowledge Management mechanisms for strengthened climate resilience	Dissemination Workshops undertaken to share lessons from studies carried out through the TA program
	Relevant sector guidelines prepared
	Knowledge Management System designed and established for population under Phase II of Madagascar's PPCR
Component 4: Support for SPCR implementation, coordination and M&E	
Enhanced coordination and networking on climate action among state and non-state actors, and between sectors	Network of climate change actors exchanging climate information
Functioning and harmonized cross-sectoral mechanisms to effectively coordinate and manage climate change issues in the country	TBD
Strengthened national, regional and local capacity for climate resilience	Number of government staff from central, regional and local authorities, and local community representatives that engage in trainings on targeted sectors (disaggregated by gender)
	Number of institutions with capacity to manage climate change programs

Development Policy Financing

As previously noted, specific reforms would be necessary to mainstream climate resilience into policy development. Policy reforms could address, but not limited to, the following areas: i) fiscal resilience, through the development of a financial protection strategy and establishment of dedicated financial protection instruments (disaster and/or climate resilience fund; insurance; etc.); ii) infrastructure resilience, through the updating of building codes, standards and practices to include climate resilience considerations; iii) social resilience, through the development or scale up of emergency response activities using existing social protection systems (e.g. cash transfers); and iv) urban resilience, through the preparation and adoption of urban plan and other territorial planning instruments. Policy reforms could also address the institutional environment and include the review, update, and adoption of climate and disaster resilience policy instruments.

To complement the Technical Assistance Program presented above, these reforms could be supported through a Development Policy Operation (DPO) or similar policy lending instrument. A DPO is a type of assistance provided by the World Bank to its clients, in the form of a loan, grant or credit, which provides rapidly-disbursing financing against policy and institutional actions. As part of the new IDA cycle, the World Bank also offers a new instrument for IDA countries: a Development Policy Loan with a Catastrophe Deferred Drawdown Option (Cat DDO), which is a contingent financing line that provides immediate liquidity to countries to address shocks related to natural disasters and/or health-related events. It serves as early financing while funds from other sources such as bilateral aid or reconstruction loans are being mobilized.

While Cat DDOs enhance countries' capacity to plan for and manage crises by securing access to financing before disaster strikes, they also support DRM or climate resilience related policy reforms. It is approved prior to the disaster and disburses quickly once the event occurs and the drawdown trigger is met.

Section 11: Pillar 2 – Catalyzing Priority Investment Projects for Strengthening Climate Resilience in Madagascar

11.1 Proposed Investment Project 1: Strengthening Madagascar's Hydro-Meteorological Services (Indicative cost: US$ 25 million)

INVESTMENT PROGRAM ROLE	INSTITUTION		
Lead Implementing MDB	World Bank		
Technical Agency(s)	General Directorate of Meteorology		
Lead National Entity	General Directorate of Meteorology		
Supporting National Implementing Entities	Ministry of Agriculture; Ministry of Environment, Ecology and Forestry; National Disaster Management Agency (BNGRC); Ministry of Public Works; Ministry of Water, Transport and Meteorology; etc.		
Short Program Name	Madagascar HydroMet Project		
Country /Region	Madagascar / Africa		
Project Development Objective	The PDO of this project is to (i) enhance the weather, climate and hydrological information and monitoring networks, and early warning systems, and (ii) strengthen the capacity of hydro-met institutions to collect and analyse data, and provide quality and timely climate-weather services.		
Status Summary		**Source**	**Contribution**
Total Project Cost	**USD 25 million**	**PPCR Request** **GoM** **Co-financing**	**USD 25 million** **–** **–**

Background

An integrated assessment of the hydro-met services in Madagascar was conducted in 2016 under the "Assessment on the State of Hydrological Services and Recommendations for their Improvement in Selected Countries in Africa" project[38]. The study focused on the assessment of climatological, meteorological and hydrological services. It also included an assessment of users' needs and priorities for hydro-meteorological services and an assessment of the socio-economic benefits of modernized Hydro-Met services. The assessment highlighted on one hand, the severe deficiency of the hydro-meteorological network, and the weather and hydrological forecasting systems and service delivery; and on the other hand, the low institutional capacity to generate and manage relevant climate change information.

On the basis of the key recommendations provided in this assessment, a National Action Plan for the Improvement of Hydro-meteorological Services (NAPIHMS) was prepared in 2017. This plan showed the need for:

- Modernizing and sustaining technical services. This covers modernizing the meteorological and hydrological observation networks and monitoring equipment to support disaster management and needs of selected socio-economic sectors sensitive to weather, climate and hydrology; establishing weather and hydrological forecasting (flood and drought) operations and service delivery; and modernizing data and communication systems.
- Developing the institutional capacity to generate and manage climate change knowledge, an essential starting point to strengthen climate resilience. The specific needs in terms of institutional capacity development relate to the establishment of adequate premises, effective IT, network maintenance capacity in the regions, and training for current and new staff.

[38] Technical Synthesis Report. Assessment on the State of Hydro-Meteorological Services and Recommendations for their Improvement. Madagascar. World Bank and GFDRR (January, 2017).

The National Action Plan for the Improvement of Hydro-meteorological Services (NAPIHMS)

The NAPIHMS report indicates that the cost of the modernization of the national Hydro-Met services in Madagascar is $58.5 million (see Table 2.4 for a breakdown of the estimated costs). This includes i) the improvement of the hydro-meteorological observation systems (an estimated $25.8 million for monitoring network equipment and related civil works), ii) weather and hydrological forecasting and service delivery, operations and maintenance ($5.0 million for forecasting setup and O&M), iii) research and development, training, and capacity building ($2.2 million), iv) national hydro-meteorological services users group (NHMSUG) establishment and training ($0.2 million), and consulting services for the design and implementation support of the NAPIHMS activities ($4.4 million). The program is planned for implementation in three phases for a total duration of 10 years. Phase 1 covers years 1-2, Phase 2 for years 3-5, and Phase 3 for years 6-10. The total costs associated with each phase gradually ramps up as capacity is developed.

Table 2.4: Summary of Activities proposed in the NAPIHMS and estimated costs

ACTIVITY PROPOSED	ESTIMATED COST				
	Phase 1 (years 1-2)	Phase 2 (years 3-5)	Phase 3 (years 6-10)	O&M (years 11-15)	Totals
MONITORING NETWORK EQUIPMENT					
Hydrological observation network	$531,250	$1,593,750	$3,187,500		$5,312,500
Groundwater observation network		$403,200	$604,800		$1,008,000
Meteorological and climatological observation network	$263,135	$726,405	$1,011,810		$2,001,350
Radar		$6,000,000	$6,000,000		$12,000,000
Volunteer rainfall network	$3,305	$9,915	$19,830		$33,050
Vehicles	$96,000	$288,000	$576,000		$960,000
Water quality lab equipment	$26,600	$79,801	$159,601		$266,002
Discharge measurement equipment	$63,000	$189,000	$378,000		$630,000
Field equipment	$215,625	$646,875	$1,293,750		$2,156,250
Data Management	$2,715	$8,145	$16,290		$27,150
Rehabilitation of the DGM Hydromet instrumentation laboratory.	$150,000				$150,000
Installation of new Hydromet stations	$111,510	$384,930	$744,660		$1,232,700
SUB-TOTAL	**$1,463,140**	**$10,330,021**	**$13,992,241**		**$25,777,002**
FORECASTING AND SERVICE DELIVERY					
HQ & regional hydrological forecasting center O&M	$72,000	$781,714	$1,508,571	$1,560,000	$3,922,286
HQ & regional hydrological forecasting center capital investment	$207,000	$346,000	$185,000	$155,000	$893,000
Weather forecasting equipment and Software	$150,000	$50,00	$50,000		$250,000
SUB-TOTAL	$429,000	$1,127,714	$1,743,571	$1,715,000	$5,065,286
OPERATIONS & MAINTENANCE					
Monitoring network	$582,369	$2,362,314	$7,494,225	$7,494,225	$17,933,133
Stations rehabilitation works	$11,250	$26,250			$37,500
Stations rehabilitation equipment	$109,500	$255,500			$365,000
Research & development		$992,008	$1,488,012		$2,480,020
Training & capacity development	$222,300	$666,900	$1,333,800		$2,223,000
NMHSUG training	$100,000	$100,000			$200,000
Consulting	$1,760,000	$1,320,000	$1,320,000		$4,400,000
Total by Phase:	**$4,676,720**	**$17,228,187**	**$27,366,810**	**$9,209,225**	
				Grand Total:	**$58,480,941**

The plan also includes an assessment of the socio-economic benefits of this investment indicating that the modernization of the Hydro-Met services will yield a benefit/cost ratio ranging from 1.7 to 7.6. This demonstrates that the proposed investment will be sound in terms of the socioeconomic payoff. However, the plan also noted that in order to realize the potential benefits of the proposed investment, it is imperative that the annual budget (whether from central government budgets and cost recovery fees) for operations and maintenance be adequately increased.

Justification—Rationale for Investment and Link to National Strategies

The most effective strategies for adaptation to climate change essentially stem from a greater understanding and management of climate information. The availability of reliable climate data together with the development of technical and scientific skills to generate and process knowledge on climate change are essential to understanding and effectively responding to development challenges in a vulnerable context like Madagascar.

Currently, there is insufficient knowledge of climate risks to enable long term planning in Madagascar. Given the expected increase in the frequency and severity of climate related weather events such as floods and drought, it is important to increase the quality and availability of meteorological and hydrological forecasts and early warning systems. In addition, there is very limited support for potential private sector measures like insurance that can help reduce the government's disaster response burden.

The modernization of the hydro-met services and systems was already identified as one of the priority and urgent project concepts (Project 5) in Madagascar's NAPA (2006), and has been subsequently included as a priority need in Madagascar's NAP process, currently under development. The real-time monitoring of climate information was also flagged as a priority action in Madagascar's NDC (2015), and the development of an early-warning system was also one of the objectives of Axe 5 of the NDP 2015-2019. However, no investment in the field has been implemented yet.

Project Description

The proposed investment project under the SPCR "Strengthening Madagascar's Hydro-Meteorological Services" aims at building resilience by improving weather, climate and hydrological information systems and services in the country, as well as by building capacity for climate data generation, storage and use.

The project will support the priorities identified in 10-year National Action Plan for the Improvement of Hydro-meteorological Services (NAPIHMS, 2017). As part of the SPCR, this project will cover Phases 1 and 2 of the NAPIHMS, that is, almost 40% of the total investment cost. The approach will be three-fold:

(1) Strengthen climate and hydrological monitoring networks through the rehabilitation of important Hydro-met stations and installation of stations targeting priority geographical areas and reference monitoring stations to meet the needs for climate trend analysis and land use planning, as well as the reinforcement of communications links.

(2) Strengthen weather and hydrological forecasting systems and service delivery through a) the upgrading of weather forecasting tools and associated software and the improvement of the communication systems for the enhancement of the weather forecasting services, and b) the setting up and implementation of a forecasting system, establishing an HQ and two Regional Centers, developing the necessary databases and communication systems.

(3) Strengthen national and local capacity in climate modeling, forecasting and early warning systems through training and strengthening of dedicated forecaster workstations.

Project Objectives

Development Objective

The Project has the dual objective of (i) enhancing the weather, climate and hydrological information and monitoring networks, and early warning systems, and (ii) strengthening the capacity of hydro-met institutions to collect and analyse data, and provide quality and timely climate-weather services.

This project will contribute to the transformation of the hydro-meteorological services and systems in the country leading to improved delivery and utilization of hydro-meteorological data. In addition, the capacity of the hydro-meteorological institutions will be strengthened to provide timely, quality and adequate data for planning management activities that are influenced by the effects of climate variability and change. Enhanced planning will contribute to more efficient and effective design and utilization of early warning systems. The level of awareness about climate variability and change will be enhanced, including the preparedness to respond.

Specific Objectives

The specific objectives of this project will be:

- Objective 1: Modernizing the hydro-meteorological observation network and equipment, weather forecasting and hydrological forecasting systems, to support disaster management and the needs of selected socio-economic sectors sensitive to weather, climate and hydrology.
- Objective 2: Promoting a credible and viable institutional basis for the collection, archiving, processing/standardization, and analysis of data, as well as for the dissemination and provision of specific information for different users.
- Objective 3: Closing the technical capacity gap to generate and process climate knowledge through the establishment of a training program and an internationally supported academic curriculum.
- Objective 4: Improving Madagascar's capacity to control hydro-meteorological variables and respond to end-users by anticipating all kinds of variations: short term and long term, linked to climate change in its territory.

Geographic scope

This is a nationwide intervention and will address both national level and region-specific requirements for meteorological data collection, storage and use, and capacity building.

Project Components and Activities

Project Components and Activities

The project is comprised of four components, designed to build capacity as well as deliver services to the Malagasy public, with a total duration of 5 years.

Component 1: Strengthen climate and hydrological monitoring networks ($15 million)

Hydro-Meteorological Monitoring Network
This component will focus on harmonizing and modernizing the hydro-meteorological observing network and modernizing monitoring equipment (including meteorological monitoring, upper air/atmospheric monitoring, marine weather observation, rainfall, evaporation, hydrometric, water quality, sediments, and groundwater monitoring) to support disaster management and the needs of selected socio-economic sectors sensitive to weather, climate and hydrology. The improvement of the hydro-meteorological observation networks need to be gradual and aligned with the human and financial resources of the national hydro-met services (NHMSs).

The first phase covered under this component will have a 2-year duration to establish 10% of the proposed monitoring stations by focusing on:

i. Rehabilitation of important hydro-met stations,

ii. Installation of stations targeting priority geographical areas (users' needs priorities and priority geographical areas were identified by the sector users and are included in Table 2 of the NAPIHMS), and

iii. Upgrading reference monitoring stations to meet climate trend analysis and land use planning needs.

Specific considerations for the sectors' priority needs will be addressed at the design phase of the project.
During the second phase (year 3 to 5), 30% of the proposed hydro-met stations will be established. The component will cover the cost of the equipment (hydrological stations, meteorological stations and field equipment), as well as the corresponding installation and civil works. Each phase of the project will also budget for the operation and maintenance (O&M) of all existing stations, plus the O&M for the new stations and the rehabilitated stations.

Harmonization of the hydro-meteorological data collection and processing is essential for the improvement and sustainability of the NMHSs. Training on the collection and processing of meteorological, climatological, and hydrological data is proposed under Component 3 of this project.

Earth Observation and Remote Sensing
In addition, earth observation services (EO) are also proposed under this component to complement ground based hydrological monitoring systems. Earth observation data is an essential service required for weather forecasting and hydrological forecasting, flood and drought hazard risk management and socio-economic sectors including water resources management, energy (hydropower), irrigated and rainfed agriculture and food security, watershed management, environmental management, climate change resilience, and research and development.

Similarly, it is recommended to build capacity of the DGM on Hydromet earth observation and collaborate with the regional earth observation centers and programs such as the SERVIR-Africa, FEWS-NET, African Centre of Meteorological Applications for Development (ACMAD), environmental monitoring program and security in Africa (MESA), the TIGER initiative. A training program on EO and remote sensing are also proposed within Component 3 of the project.

Component 2: Strengthen weather and hydrological forecasting systems and service delivery ($2 million)

The second component of this project will aim at establishing weather and hydrological forecasting (flood and drought) operations and service delivery, and modernizing data and communication systems. Specific activities under this component are included next.

Weather Forecasting
The current weather forecasting service at the DGM provides only basic qualitative weather forecast such as strong wind, low temperature, high chance of rainfall, low visibility etc. The DGM has no weather forecasting system specifically developed for Madagascar and relies mainly on a model developed by Meteo-France for Africa, The European Centre for Medium-Range Weather Forecasts (ECMWF) model, the United Kingdom (UK) Met Office model, and the Global Forecasting System (GFS) from the United States National Weather Service. The DGM has a weather communication unit that supports broadcasting of weather information and alerts via radio, television, telephone, faxes, and internet.

The DGM needs support for improving the weather forecasting hardware and software as well as for building its capacity in weather forecasting and service delivery to produce reliable weather forecasting and early waning services for disaster reduction and recovery given the high vulnerability of Madagascar to hurricanes and tropical cyclones. Specifically, this sub-component will focus on:

i. Upgrading of the weather forecasting tools, equipment and associate software, to support the upgrade of weather forecasting modeling tailored to Madagascar's meteorological conditions.

ii. Improvement of internet and communication systems for the enhancement of the weather forecasting services;

A capacity building and training program for DGM forecasters in i) accessing, processing, and analyzing weather satellite data and information and ii) weather forecasting and service delivery is also proposed as part of Component 3 of this project.

Hydrological forecasting:
This part of Component 2 will focus on hydrological flood forecasting and early warning operations and service delivery and the modernizing of data and communication systems for Madagascar's DGM with support of its weather forecasting service to meet the needs of the flood risk management sector users.

The elements of the proposed hydrological forecasting system include: a) Observations, b) Meteorological Forecasts, c) Data Communications, d) Data Management System, e) Hydrologic Forecasting System and f) Service Delivery. Specifically, this sub-component will focus on:

i. Establishing and maintaining an HQ and two Regional Centers, including the building construction, purchase of vehicles and radars, and setting up the forecasting system (providing training and initial calibration of the models). Phase 1 will focus on implementing a forecasting system, developing databases and communication systems at the national headquarters, and training of the HQ personnel. Both Regional Centers are planned to start operation in Phase 2.

Component 3: Strengthen national capacity in climate modeling, forecasting and early warning systems ($5 million)

Under this component, the following activities are envisioned:

i. Institutional strengthening and sustainability of the meteorological and hydrological services at the Directorate General of Meteorology (DGM) including recommendations for legal and regulatory support.

ii. Improving the management capabilities and sustainability of the meteorological and hydrological services at the DGM. This includes enhancing the meteorological and hydrological services governance, training and capacity building systems.

iii. Improving financial sustainability and behavioral change through innovative ideas such as public-private partnerships to support improved performance and durability of the meteorological and hydrological services; and development of communication and outreach programs to raise the national hydro-meteorological services (NHMSs) visibility based on the socio-economic benefits of their services.

iv. Capacity development and education through a training plan to build required skills to cope with the modernization and sustainability of the enhanced systems and improve the capability of the sector users to better benefit from the data and information provided by these services. A series of training sessions will be organized during the 5-yr project duration. The proposed training areas include:

   – Surface and upper-air meteorological monitoring, Hydrological and climatological monitoring, Hydrological and meteorological/climatological data checking, validation and dissemination, Aviation meteorology, Marine weather observations, Radar meteorology, Hydro-meteorological database development management, Analysis and modeling tools, Development and dissemination of meteorological and hydrological information products including weather forecasting, hydrological forecasting, and service delivery, Water quality laboratory technologies and Laboratory Information Management System (LIMS), Meteorological and Hydrological services communication and outreach, Earth Observation Products, and Management of meteorological and hydrological services.

v. Support for the establishment of the National Hydro-meteorological Services Users Group (NHMSUG).

Component 4: Project Management, Coordination, Monitoring and Evaluation ($3 million)

This component will comprise the activities related to the management, coordination, and M&E of the project. Consulting services associated with the design and implementation of the project will also be considered under this component.

Value Added and Sustainability

Value Added

The strengthening of Madagascar's hydro-met systems and services, including improvement of the early warning system is considered to be essential for the informed and effective implementation of climate change adaptation activities, strategies, policies and plans in Madagascar.

It has been highlighted as a priority in key country strategies and plans (NAPA, NPCC, NDP, NDC), and, while there have been attempts to intervene in this field at the regional level, limited investment in the field has been implemented.

- Comprehensive and Integrated Approach. Addressing the deficiencies of the hydro-met systems and services in a comprehensive and integrated manner such as has been presented in this project, will provide Madagascar with the relevant and reliable climate data to inform end-users and decision makers so as to ensure that climate-resilience measures can effectively be integrated into the country´s development plans. The level of awareness about climate variability and change will be enhanced, including the preparedness to respond. This will represent a game changer for the country that will trigger a transformational change in decision making.
- Synergies between projects. During project preparation, links between projects will be further explored and developed in order to highlight multi-sectoral dimensions. In particular, the climate data and other output generated as part of this project will inform the formulation and implementation of the other projects in this SPCR.

Sustainability

- The capacity building activities proposed under Component 3 will ensure the sustainability of the project. Moreover, the phased implementation approach proposed will facilitate:
- Alignment with the DGM (Directorate General of Meteorology) meteorological and hydrological services human and capital resources.
- Incremental capacity implementation where each phase prepares program participants for additional responsibility to be received in the next phase.
- Verification that technology implementation satisfies specific benchmarks before moving to the next phase to assure return on investments and avoid investments for which prerequisites have not been met.

Gender Lens

Recognizing the need to enhance and mainstream the participation of women in resilience building activities such as those proposed under each of the investment projects included in this SPCR, the Technical Assistance program that will be implemented as part of Pillar 1 of this SPCR, is programmed to include the development of a sector-wide gender assessment. During the formulation/preparation of Investment Project 1, the outcomes of the initial gender assessment will be analyzed and the need to conduct a more detailed analysis in the hydro-met sector will also be assessed. The gender gaps identified during the analysis will guide the design of the specific interventions, enabling in this way the mainstreaming of gender in each of the project components.

In addition, project implementation is envisioned to start with a gender orientation/training of key stakeholders, particularly the implementing agency, DGM, and the partners in this project including CSOs, private sector and local governments. During implementation, technical backstopping will be sought from the Ministry of Population, Social Protection and Promotion of Women and the Gender Working Groups, to ensure that gender concerns are adequately addressed from the inception of the project. Finally, following MDBs requirements, Environmental and Social Safeguards and project specific ESIA will be undertaken in accordance with Madagascar's environmental legislation.

Synergies with ongoing projects

As previously noted, a good understanding and management of climate information is needed in order to design and plan effective strategies for adaptation to climate change. The relevant and reliable climate data that will become available with the proposed project, together with the development of technical and scientific skills to process this information, will directly benefit projects and programs being implemented or under preparation/formulation in various sectors, by any development partner such as the European Union (EU), the Japanese International Cooperation Agency (JICA), the German International Cooperation (GIZ), the United States Agency for International Development (USAID), the International Fund for Agricultural Development (IFAD), the United Nations Development Program (UNDP), the African Development Bank (AfDB) or the World Bank, amongst others. Thus, foreseeable synergies will be established with projects and programs in several sectors.

Synergies with other SPCR projects

Similarly, synergies will be established with the rest of the investment projects included in this SPCR, which will also directly benefit from the strengthened hydro-met systems and services that will be modernised as part of this project. In fact, equipment installed and timely and quality data collected and analysed will support the understanding of climate risk information in urban areas (i.e. Greater Antananarivo – Investment Project 2), coastal areas (TBD, Investment Project 3) and the Great South (Investment Project 4, 5 and 6), for better planning and coordination of climate change related initiatives. In addition, Investment Project 1 will also contribute to the transformation of institutional capacity for climate change coordination and national level information sharing and utilization in other sectors, and particularly in the various other sectors targeted in the other SPCR projects. The enhanced capacity will contribute to improved resilience of the country to climate change and variability.

Knowledge Management

As indicated in **Section III.3**, knowledge management at all levels is key to building resilience to climate change at the country level. Knowledge Management under Pillar 2 will be undertaken as part of each of the investment projects proposed.

In particular, given the importance of climate data generation, it is expected that Investment Project 1 will enhance multi-stakeholder partnerships that mobilize and share knowledge, expertise and technology between sectors, as well as encourage and promote effective public, public-private, and civil society partnerships. By strengthening hydro-met systems and services, the country will be able to continuously generate high-level scientific knowledge on climate change and its impact on the different national sectors and the population as a whole. This project will provide a platform for knowledge management and sharing as an ongoing activity during both project preparation and implementation. Information and lessons learnt from the implementation of this project will be widely disseminated to stakeholders.

The institutional capacity to monitor and validate basic scientific information and to mainstream climate change into development indicators will be strengthened through the implementation of the activities under Component 3. The need for adequate measuring equipment on climate, including data management and development and expansion of databases as well as capacity development for weather forecast-analysis, will be addressed as part of Components 1 and 2.

Finally, Investment Project 1 will also further contribute to populating the SPCR Knowledge Management System developed under Pillar 1 with the data and information collected, analyzed and processed with the strengthened hydro-met system and services. It is expected that this will be continued even after completion of the activities related to the specific SPCR project.

Implementation Arrangements and Readiness

Anchor Institutions and Partners

DGM will lead the implementation of the project, through a project management unit with relevant expertise in financial management, procurement, safeguards, and monitoring. DGM, working with other departments in the relevant ministries, will prepare bidding packages for the procurements that are specific to it: water measurement instrumentation, training, dissemination studies. DGM, as the lead implementing agency for this project will maintain coordination with District local governments, CSOs, CBOs, media and the private sector in implementing the activities defined in the project.

COMPONENT	IMPLEMENTATION
Component 1: Strengthen climate and hydrological monitoring networks ($15 million)	**Lead: DGM**
Component 2: Strengthen weather and hydrological forecasting systems and service delivery ($2 million)	**Lead: DGM**
Component 3: Strengthen national capacity in climate modelling, forecasting and early warning systems ($5 million)	**Lead: DGM**
Component 4: Program Monitoring & Coordination ($3 million)	**Project Management Unit**

Readiness

The proposed project has been based on the recently developed (2017) *National Action Plan for the Improvement of the Hydro-meteorological Services for Madagascar*. As previously noted, this plan is in turn based on an integrated assessment of the hydro-met services in Madagascar that was conducted in 2016, which includes a detailed description of the network and institutional capacity deficiencies, and provides specific recommendations for strengthening of the hydro-met system and services. Thus, based on the recent assessment performed and Action Plan developed, this project is technically on an advanced stage of preparation for rapid implementation.

Cost estimates

The estimated total project costs, based on the feasibility study included in the NAPIHMS, are US$25 Million. provides the approximate costs per component.

Table 2.5: Estimated Costs per Component for Investment Project 3

COMPONENT	ESTIMATED COSTS
Component 1: Strengthen climate and hydrological monitoring networks	**US $15 million**
Component 2: Strengthen weather and hydrological forecasting systems and service delivery	**US $2 million**
Component 3: Strengthen national capacity in climate modelling, forecasting and early warning systems	**US $5 million**
Component 4: Program Monitoring & Coordination	**US $3 million**
TOTAL ESTIMATED COSTS	**US $25 million**

Project Expected Results and Outcomes

The key results of this project will be:

- Enhanced hydro-met Information and monitoring networks, and early warning systems supporting timely, user-friendly and accurate information available for informed planning and decision-making process
- Strengthened capacity of hydro-met institutions to collect, generate and analyze reliable hydro-met data, and provide quality and timely climate/weather services.
- Improved community preparedness during extreme events

Specifically:

- Malagasy people will receive emergency warnings of heavy rainfall and thunderstorms in time to mitigate damage.
- Flood forecasting will improve on the basis of rainfall-runoff modeling from the radar data.
- Large-scale drought will be noted sooner with the aid of soil moisture sensors that will measure it remotely.
- Forecasts in Madagascar will be provided at higher resolution and will be tuned to the requirements of the economic sectors.
- Madagascar will begin to collect and populate a representative climate dataset that will help the next generation to identify emerging anomalies.
- Forecasts provided to Madagascar from external sources will improve as more data makes its way to external modelers.
- Weather information will be made available to Madagascar's farmers and fishermen, promoting gradual but steady productivity improvements.

Project Beneficiaries

The project impact and beneficiaries will be national.

M&E

M&E will be carried by the Implementing Agency as part of the project management component, and will be part of the overall PPCR Results Framework as included in Section I. provides potential project outcomes and possible indicators. The project Results Framework, will provide a framework for accountability of progress towards local, regional and national objectives of strengthening Hydro-Met services to support the modernization of Madagascar's Hydro-Met system. This will include accountability of the participating agencies and ministries.

In terms of accountability towards citizens, demand-side social accountability of interventions could be captured through a citizen engagement indicator that could also measure gender aspects. The citizen engagement framework would be based on a perception survey and a strong feedback loop. The range of sources of data include: perception survey (citizen engagement), field survey and institutional survey. Data collection would be carried out annually. Central to the M&E approach is a platform for communication of results including dissemination and communication products. The Project would be expected to put special emphasis on mapping of project interventions and results through geocoding of activities and overlay with key indicators.

The M&E activities will be to: (i) generate information on project progress per the results framework; (ii) analyze and aggregate data generated at local and regional level; and (iii) document and disseminate key lessons to all stakeholders.

Table 2.6: Expected Results and Indicators for IP1. Strengthening Hydro-Met Services to Support the Modernization of Madagascar's Hydro-Met System

EXPECTED RESULTS/OUTCOMES	PROPOSED INDICATOR(S)
Component 1: Strengthen climate and hydrological monitoring networks	
Component 2: Strengthen weather and hydrological forecasting systems and service delivery	
Enhanced hydro-met Information and monitoring networks, and early warning systems supporting timely, user-friendly and accurate information available for informed planning and decision-making process	Number of national observational /monitoring network stations (meteorological & hydrological) put in place and/or upgraded to international standards, functioning adequately
	Number of timely and accurate weather and hydrological forecasts for the country
	Number of districts linked to and with operational water resources monitoring capacity
Component 3: Strengthen national capacity in climate modeling, forecasting and early warning systems	
Strengthened capacity of hydro-met institutions to collect, generate and analyse reliable hydro-met data, and provide quality and timely climate /weather services.	a) Number of government institutions with an installed capacity to collect, process, standardize and share climate-related information b) Number of people accessing climate information, disaggregated by gender
	Modelling, forecasting and early warning systems in place and being utilized
	a) Number of national/regional and sectoral climate change scenarios developed and utilized b) Communication and information dissemination capacity enhanced
Improved community preparedness during extreme events	Number of districts utilising early warning systems

Exploring Financing Options

A portion of the estimated cost of this investment project may be met by end user contributions and GoM co-financing. The remainder may be met through a combination of grants and loans from one or a consortium of new and existing international funding sources. The bilateral and multilateral funding institutions listed below have shown potential interest in the overall goal of strengthening hydro-met services to support the modernization of Madgascar's hydro-met system.

Multilateral Banks, Funds and Agencies: i) Climate Investment Funds – Pilot Program for Climate Resilience, ii) Green Climate Fund, iii) The World Bank (IBRD / IDA), iv) United Nations Development Program (UNDP), v) the German International Cooperation, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

11.2 Proposed Investment Project 2: Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo (Indicative cost: USD 100 million)

INVESTMENT PROGRAM ROLE	INSTITUTION		
Lead Implementing MDB	World Bank		
Technical Agency(s)	Ministry attached to the Presidency, in charge of Presidential Projects, Land Use Planning and Equipment (M2PATE)		
Lead National Entity	Ministry attached to the Presidency, in charge of Presidential Projects, Land Use Planning and Equipment (M2PATE)		
Supporting National Implementing Entities	Municipality of Antananarivo (Commune Urbaine d'Antananarivo - CUA) Antananarivo Flood Protection Agency (Autorité pour la Protection contre les Inondations de la Plaine d'Antananarivo - APIPA) AGETIPA (*Agence d'Exécution des Travaux d'Intérêt Public et d'Aménagement*) as the delegated implementing agency for the management of the infrastructure works		
Short Program Name	Greater Antananarivo Urban Resilience Project – ProDUIR		
Country /Region	Madagascar, Antananarivo		
Project Development Objective	The proposed PDO is to improve living conditions of the poor in selected low-income neighbourhoods of Greater Antananarivo through enhancing basic service delivery and flood resilience; and to strengthen the Government's capacity for integrated urban management and effective response to eligible crises and emergencies.		
Status Summary		**Source**	**Contribution**
	USD 100 million	**PPCR Request** **Government of Madagascar Co-financing (IDA)**	**USD 30 million** **–** **USD 70 million**
Status	The GoM has signed a US $2 Million Project Preparation Advance for the preparation of the World Bank (IDA) financed *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756), under which this SPCR project is proposed to be implemented. The advance is financing (i) the preparation of all the Project environmental and social safeguard instruments; (ii) the preparation of all technical studies, engineering designs and bidding documents for priority urban drainage and flood mitigation works; and (iii) the capacity building of Government Agencies and the Municipality for project implementation.		

Background

The combination of demographic pressure, low agricultural yields and recurrent shocks in a context of vulnerability in rural areas is contributing to expel population towards the urban settings: both in the coastline and to the Antananarivo metropolitan area in the central plateau.

Rapid Urbanization

Madagascar and Greater Antananarivo (GA) are witnessing rapid urbanization. The country today houses more than 6.9 million urbanites compared to 2.8 million in 1993. Cities account for approximately three fourths of the national GDP, with the capital contributing by 50% (Defi Urbain report). The *Commune Urbaine d'Antananarivo* (CUA) has a population of about 1.8 million (2011) and is growing exponentially. Due to the lack of recent census, the exact number of new urban dwellers is unknown. However, UN Habitat, amongst others, estimates that the CUA's population is growing at a rate of 5% a year, or by an additional 100,000 new inhabitants. The GA metropolitan area, encompassing the CUA and 36 other communes, hosts nearly 3 million people. This rapid urbanization is driven by both a population growth, and a strong rural-urban migration and urban-urban migration (secondary cities to GA). The lack of employment opportunities for this growing population has, however, led to a concentration of poverty of more than 66% in GA, compared to a national urban poverty rate of about 51%.

Complicating matters is GA's urban growth pattern among 12 hills and on a large natural flood plain, which is expected to receive increasing population densities (with people settling on informally backfilled areas) as well as urbanization over the coming years, thereby significantly altering the natural drainage capacity of the environment. Antananarivo is also highly exposed and vulnerable to floods and the large concentration of people and assets in the flood plain of the city is a major concern.

Failing Infrastructure and Deficient Urban Services

Rapid urbanization is increasing the already acute pressure on a limited stock of existing infrastructure and deficient local services. Challenges and shortcomings can most predominantly be observed across the following sectors:

Urban Water Management and Service Delivery. The growth of the CUA on a natural floodplain explains the great challenge of drainage in an increasingly urbanized area and its particular vulnerability to urban flooding. This is further exacerbated by the country's climate, which has an average rainfall of 1,300 mm per year and intense rainfall events caused by storms and tropical cyclones. The drainage canals in their current state have a greatly reduced ability to discharge surplus water from the urban area due to their poor condition, high pollution levels, lack of regular maintenance, and highly limited capacity throughput (with sediments and waste completely filling the canals in certain places or objects, such as low bridges and buildings, covering the canals and drainage infrastructure). Madagascar also ranks among countries with the lowest access rate to drinking water and sanitation – well below Sub-Saharan Africa average (JMP 2015) – with 12% access rate for improved sanitation and 52% access rate to improved drinkable water source. According to national data, the average access to potable water in urban cities decreased from 63% in 2005 to 61% in 2012. For sanitation, national data shows a decrease in access by 7 percentage points between 2004 and 2012 (from 53% to 46%). This decrease is estimated to be steeper in urban areas (12 percentage points) than in rural areas (2 percentage points). According to the national water and electricity utility JIRAMA, the access rate to drinking water in the CUA is even worse than the urban average at 32%, while the network's technical efficiency is estimated at 61% (suggesting an urgent need for network rehabilitation works). Poor access to drinking water and sanitation facilities has had negative impacts on public health, education, poverty, nutrition as well as the environment. The diarrheal diseases in the country are the second leading cause of death after malaria, and affect 51% of children under 5 years.

Disaster Risk Management. The CUA's high vulnerability to flooding is a significant threat to the high concentration of people and assets in the flood plain. The capital city has experienced a 50% increase of its built environment since 2003 and in some municipalities of GA, up to 50% of the built environment is directly located in flood-prone areas (20-year return flooding). The emergency response capacity mainly relies on 160 firefighters for the entire GA, distributed over 3 stations, which represents about 1 firefighter for more than 18,000 inhabitants (international standards target 1 firefighter for 700 inhabitants). In early 2015, unprecedented flooding caused significant damages in GA, further highlighting the need to increase emergency response capacities, as well as mitigation and prevention interventions. The scarce resources of emergency response services as well as the lack of inter-communality coordination across the GA metropolitan area are also debilitating the city's ability to respond to emergencies and disasters.

Expanding Informal Settlements

The combination of rapid urbanization, high concentration of poverty, failing infrastructure, and deficient service delivery is leading to the massive proliferation of informal settlements on both public and private lands, especially in unsanitary lowland areas that are highly exposed to flooding. Today, it is estimated that about 70% of the CUA's settlements are informal and below standards (Profil Urbain d'Antananarivo, UNHabitat). Slums dwellers are often unskilled laborers with extremely low revenues whose little economic opportunities contribute to perpetuating the degradation of their living environment. This precariousness has led to a range of additional issues, such as the growing phenomenon of crime and violence, which threaten citizens' security and impose huge social and economic costs. Thus, overall, those informal settlements are disproportionately affecting the poor and undermining other poverty reduction and economic development efforts.

Justification – Rationale for Investment and Link to National Strategies

As previously seen, the rapid and un-planned migration being experienced in Madagascar, is leading to informal settlements in risk prone areas in GA, resulting in an increase of the population's exposure to flood risks, water and sanitation issues in services-deficient neighborhoods. Urban vulnerabilities are emerging as a long-term development challenge and a focus of increasing concern for disaster risk management.

Acknowledging this challenging context, Malagasy stakeholders identified GA under the first SPCR guiding principle, *Spatial Resilience*, as one of the geographical areas to be targeted for interventions under the SPCR. The proposed project is also consistent with the Government's Five-Year National Development Plan (NDP 2015-2019) and specifically its strategic areas 1, 4 and 5 which objectives are respectively to (i) build sound public institutions both at central and decentralized levels, (ii) improving access to better services and iii) reinforcing the resilience of the Malagasy economy and communities.

In order to face these new challenges that are emerging in the urban context, the PPCR will pilot approaches that are expected to increase Madagascar's climate resilience in the medium term. An investment project is thus included as part of the SPCR to enhance the climate resilience of urban communities in Greater Antananarivo through the development of green infrastructure solutions to climate-proof key public infrastructure (drainage canals and sanitation infrastructure) combined with a community-based approach to integrated urban development and resilience. This innovative experience for Madagascar is expected to generate lessons and guide the upgrading of other urban poles along the coast, and to help inform planners and policy makers as they produce national and local development plans.

Project Description

Considering the depth and scale of the challenges at hand, both in terms of corrective and preventive measures that must be undertaken, this project is designed as the first phase of a series of projects under a long-term programmatic approach around improving integrated urban development and resilience for Greater Antananarivo, which could be scaled up to other urban areas of Madagascar which are exposed and vulnerable to climate hazards.

Using a two-pronged approach, the project design focuses on: (i) targeting selected neighborhoods that are highly prone to flooding for upgrading basic services and flood resilience; and (ii) initiating key activities that would help the institutions tackle systemic issues of integrated urban development and climate resilience at the metropolitan level. It would thereby finance both corrective (remedial interventions mostly infrastructure and urban upgrading/improved service delivery for existing low-income and highly vulnerable neighborhoods) and preventive actions (covering urban management processes, including land use planning, strategy, inter-communal and multi-stakeholder coordination, and municipal finance) at both the neighborhood and Greater Antananarivo levels.

The project would also help improve institutional arrangements (including potential reforms for solid waste management systems, storm water drainage, and flood protection) and capacities for service delivery at a metropolitan level. It would also seek to enhance citizen engagement across all project activities to support social accountability mechanisms.

Overall, a phased-approach instead of a stand-alone project would allow the Bank to make a more significant impact on the country's urban and resilient development and sustain the required institutional changes. This project would help do the groundwork for future investments by: (i) improving institutional arrangements; (ii) Improving the financial efficiency of local governments to ensure service delivery and the sustainability of infrastructures; (iii) developing detailed studies for large-scale interventions across priority areas, such as solid waste; and (iv) establishing a strong rapport with other development partners and gauge the possibility of co-financing larger investments. The next phase would focus on larger structural investments identified and studied under this first phase, most importantly with the development of a new waste site for GA, as well as financing urban expansion through a "sites and services" approach.

Project Objectives

The proposed PDO is to improve living conditions of the poor in selected low-income neighborhoods of Greater Antananarivo through enhancing basic service delivery and flood resilience; and to strengthen the Government's capacity for integrated urban management and effective response to eligible crises and emergencies.

Geographic scope

The geographical scope of this intervention will be Greater Antananarivo metropolitan area, encompassing the *Commune Urbaine d'Antananarivo* (CUA) and 36 other communes, hosting nearly 3 million people. Priority neighborhoods have been identified in the most flood exposed areas where close to 750,000 poor are estimated to be living.

Project Components and Activities

The project is articulated around the following main components:

Component 1: Improving urban environment, services and resilience in targeted areas ($85 million)

Moving away from narrow sectoral interventions on flood risk management and urban upgrading, this component, and via its integrated design, would invest in resilience building in selected pilot areas of Antananarivo City. More specifically, this component will invest in both (i) flood risk reduction, and (ii) urban upgrading, while ensuring (iii) effective citizen engagement in diverse processes of design and implementation.

The pilot areas where both flood protection and urban upgrading interventions will be focused, were selected in an inclusive manner to ensure a focus on both exposure to natural risks, and poverty. This area, which covers parts of the first and fourth "arrondissements", as well as the extension to neighboring communes, consist of the most vulnerable areas based on most recent flood modeling. In addition, based on diverse poverty assessments, field visits, and NGOs consultations, these areas are considered to be the neighborhoods concentrating highest poverty levels in the city. Further, the selected pilot area, embeds a strong combination of high-dense areas, and fast growing urban spaces.

The project will have the following sub-components:

Sub-component 1.1: Improvements of Canal, Drainage and Sanitation Infrastructure

The objective of this sub-component is to ensure flood risk mitigation through structural measures by financing public infrastructure investments for flood mitigation and drainage improvements. This sub-component will consist of the following two activities: i) *No-regret priority engineering solutions* identified by the Government, including improvements of canal, drainage and sanitation infrastructure and associated management systems as well as rehabilitation works on selected flood protection infrastructure, considering climate change; and ii) *Long-term drainage investments*, following the development of the Drainage and Sanitation Master Plan for Greater Antananarivo that is currently under development by M2PATE with AFD financing, and scheduled to be completed early 2018. This master plan would drive the development of additional feasibility studies and investments to best leverage and ensure complimentary and consistency with other donor engagements.

The sub-component will assess the possibilities and possible effects of a selection of nature-based solutions on flood risk in selected areas of Antananarivo. Solutions could include revitalizing wetlands; re-greening of landslide prone hill sides; designating areas for urban agriculture; green roofs. The assessment will result in estimates of the costs, benefits (monetary and non-monetary; including co-benefits for environment, water, sanitation and recreation), implementation considerations of the options, and the development of an investment plan for the upscaling of these solutions within Antananarivo and possibly other cities. It will also pilot the most promising options in selected communities in the city.

In addition to the works, this component will finance consulting services for the preparation of engineering designs and supervision, and the relevant safeguards instruments.

Sub-component 1.2: Neighborhood upgrading

This subcomponent will finance key urban infrastructure in the selected pilot intervention area. Those interventions will be planned and executed in tandem with drainage investments in sub-component 1.1. While the detailed nature of investments will be identified based on the participatory preparation of the Detailed Urban Plan for the intervention area (see sub-component 2.1), those will primarily target: (i) mobility and accessibility infrastructure such as roads, foot-paths, and street lighting; (ii) social services such as health centers, schools, community development spaces, and public spaces, among others; (iii) public health and hygiene investments such as solid waste management collection, public latrines, collective water fountains, and showers; among others. A logic of safe shelters will be included in the provision of basic services to ensure that some of the structures/spaces can be used as evacuation spaces in times of emergency.

While this sub-component builds on years of World Bank and AFD intervention in the urban sector and specifically urban upgrading in Madagascar, it is sought to lay the foundation for a novel and more durable modality for urban upgrading, based on inclusive detailed planning, and a better understanding of long-term urban integration and upgrading needs, rather than limited quick fixes.

Activities under this component will help boost local Job creation within selected neighborhoods, which will help build increased project ownership and engagement around project objectives. AGETIPA has extensive experience in labor intensive construction techniques. For instance, labor intensive roads upgrading are 15 times more labor intensive than asphalt roads. This will also ensure mobilization and engagement of local neighborhood labor. The residents of the pilot areas, especially women, will be consulted throughout the planning process to ensure that the interventions serve the neighborhood's actual needs. These consultations will build on the outcomes of gender-sensitive engagement, which were carried out during project preparation.

In addition to the infrastructure and service delivery works, this sub-component will finance consultant services for the preparation of the pilot area detailed urban plan, all relevant engineering designs and supervision efforts, and safeguards related instruments.

Component 2: Strengthening institutional capacity for resilient urban governance ($10 million)

In an effort to ensure the sustainability and scalability of interventions under this project, this component would seek to build the capacity of local authorities – the CUA and a selection among the other 36 communes that make up GA – to improve inter-communal governance, municipal finance, planning, and collaboration at both a municipal and metropolitan levels. The objective is to institute an integrated approach to municipal governance and urban development so as to better manage existing settlements and urban growth.

Sub-component 2.1: Strengthening capacity for inclusive and resilient urban management

One of the main drivers to slum proliferation in the greater Antananarivo area, and in Madagascar in general is the deficient and outdated land and housing policies and instruments. To curb that trend, a better understanding of the reality of informal settlements will be needed, in addition to the development of novel policy instruments. This sub-component aims at:

i. Supporting DGAT and CUA to Internalize the recommendations of the Detailed Urban Plan (prepared under Sub-component 1.2), and the urban masterplan prepared by JICA, via developing a monitoring and evaluation instrument for urban growth, and a training and capacity building program.

ii. Prepare an integrated national slum upgrading strategy and affordable housing strategy. This strategy, to be led by DGAT, will aim at reviewing diverse urban upgrading practices, and explore modalities to institutionalize some of them. It will be directly linked and build on the macro recommendations of the Urban masterplan.

Sub-component 2.2: Municipal Management

This sub-component would seek to modernize public financial management (PFM) systems by supporting the implementation of the Public Expenditure and Financial Accountability (PEFA) Action Plan, including: (i) improving local

revenue mobilization; (ii) improving budget strategic planning; (iv) improving budget management and information systems; (iii) rationalizing the use of public funds; and (v) implementing budget transparency, accountability and oversight mechanisms. Though the PEFA focused mostly on the CUA, this project would attempt to expand the scope of support to other communes across GA.

This sub-component would: (i) assess the gap between land information mentioned in the official land registries and current land occupancies; (ii) identify the status and conduct an analysis of urban land tenure in the metropolitan area in order to develop an inventory of the State and Communal domain as well as update the land registry; (iii) define a set of modalities for land tenure regularizations to clarify property rights and to help the slum upgrading process; and (iv) define a strategy for spatial expansion at the metropolitan level, in collaboration with the PUDi for GA under preparation, taking into account land reserves in peripheral communes.

Sub-component 2.3: Capacity Enhancement for Integrated Water, Sanitation, and Flood Risk Management

This sub-component would: (i) improve financing mechanisms for better storm water drainage and flood protection service delivery; (ii) establish clearer responsibilities of the key agencies in managing and operating the city flood control and drainage systems; (iii) enhance the capacity of the SAMVA to provide a reliable secondary waste collection service and proper disposal of the waste collected from local neighborhoods; and (iv) encourage behavioral change through communication at all levels – from decision makers to urban dwellers.

This would involve: (i) support the preparation and adoption by all key stakeholders of a waste management strategy for GA, which would also include the identification of a long-term waste disposal solution for Antananarivo; (ii) help communes achieve economies of scale in inter-municipal service provision by strengthening the capacity of the SAMVA and RF2 as well as streamlining roles and responsibilities; and (iii) support leadership and change management to accompany proposed reforms.

Component 3: Project Implementation, Monitoring and Evaluation ($5 million)

This component would finance the following activities: (i) incremental operating costs; (ii) fiduciary activities; (iii) audit, complaints and grievances mechanism, studies and assessments required under various project components; (iv) communication; and (v) monitoring (including of safeguards processes) and evaluation.

Component 4: Contingent Emergency Response Component - CERC

This component would be providing immediate response to an Eligible Crisis or Emergency, as needed. This would finance emergency works in the case of another disaster event by including a "zero-dollar" Contingency Emergency Response Component (CERC). This would help reduce damage to infrastructure, ensure business continuity, and enable early rehabilitation. In parallel, following an adverse event that causes a major disaster, the Government of Madagascar may request the Bank to channel resources from this component into an Immediate Response Mechanism (IRM). The IRM would enable the use of up to 5% of uncommitted funds from the overall IDA portfolio to respond to emergencies. This IRM has already been established for Madagascar and is now operational. Specific details around this component (including activation criteria, eligible expenditures, and specific implementation arrangements as well as required staffing for the Coordinating Authority) are defined in greater detail in the IRM Operations Manual.

Value Added and Sustainability

Value Added

- *Programmatic Approach towards increasing scale of impact.* This project is intended to be part of a long-term programmatic approach to improve integrated urban development and resilience for GA. In light of the depth and scale of the challenges at hand (both in terms of corrective and preventive measures that must be undertaken), it is not sufficient to improve current conditions for urban dwellers and put in place the much

needed physical and institutional structures required for sustainable urban growth in the long run. Thus, in this context, and considering that the urban development tools required to inform key structural investments (such as the Drainage and Sanitation Master Plan for Greater Antananarivo and the Urban Development Master Plan) are currently being initiated, this project serves as a first phase to help lay the foundation for future investments. Overall, a phased-approach instead of a stand-alone project would allow for a more significant impact on the country's urban development and sustain the required institutional changes.

- *Improved cost-effective investments in flood risk management and urban upgrading*. The adoption of a framework design approach for the umbrella project, the Antananarivo Integrated Urban Resilience Project, effectively sets the "rules of the game" and allows infrastructure investments and urban upgrading interventions to be selected on a dynamic basis following the adoption of the Drainage Masterplan, the Detailed Urban plan, and the strategic city Masterplans. The studies will provide much needed clarity on the future land use and urban development plans for the pilot area, as well as the range of structural and non-structural measures that can be implemented in a cost-effective manner. They will also facilitate the necessary dialogue and buy-in of different government bodies and communities to ensure effective implementation and sustainability.
- *Integrated Urban Resilience Program.* Designing an integrated Urban Resilience Program with both complementary interventions on flood risk management and urban upgrading brings additional value added and impact. Based on a review of many projects funded by the World Bank, AFD, and other donors, the silo approach to dealing with drainage and urban upgrading separately showcased a major missed opportunity for cross fertilization and enhanced impact. This project builds on those lessons learned, and aims, via focusing on a pilot intervention area for both types of intervention, to create maximum synergies and positive externalities of both.
- *Community-based approach to integrated urban development and resilience.* Community participation and relationship building are crucial to project success and sustainability. Evaluations of recent urban upgrading projects have found higher quality and better maintenance of built infrastructure where community involvement in sub-project identification, prioritization and design is strong. A key aspect of community planning activities is that communities own the information and are able to create new relationships that make them integral role players in the decisions that affect their lives. To this end, including beneficiaries in needs at the time of identification and M&E is critical. Lessons learned from the Madagascar Urban Infrastructure Project, which closed in 2005, highlight the importance of prioritizing investment and sub-project selection for municipalities and neighborhoods with strong community involvement.
- *Pilot hybrid and green infrastructure solutions for increased urban resilience.* On the basis of the assessment that will be undertaken on the use of nature-based solutions to flood risk in selected areas of Antananarivo and the relationship between the built and non-built environment, this project will move beyond a focus on the traditional construction-based interventions towards a more transformative approach to urban resilience and the increased exposure to flooding events, by piloting hybrid and green infrastructure solutions. This innovative experience for Madagascar is expected to generate lessons and guide the upgrading of other urban poles along the coast, and to help inform planners and policy makers as they produce national and local development plans.

Sustainability

- *Overall sustainability.* Overall sustainability of the project relies on the full commitment of the Madagascar Government in coordinating and providing guidance on various technical and strategic areas and factors that have been incorporated in the project design to ensure long-term sustainability. This includes proper guidance and ownership of the drainage master plan funded through AFD, the physical master plan funded by JICA, and the Detailed Urban Plan (DUP) funded under the World Bank project. Those planning instruments, among other institutional support TAs planned under this project, ensure a platform for policy and institutional reforms discussions related to flood management and urban upgrading.

- *Ownership*. The M2PATE, and via the DGAT has the overall responsibility for the project, which is needed for a multi-sectoral project. The project design as well as implementation arrangements, especially via the set-up of technical working groups around key critical activities, ensure that all relevant stakeholders, including the CUA, relevant ministerial departments, agencies such as APIPA and SAMVA, drive relevant project components and sub-components. Mainstreaming community participation throughout the project activities will strengthen project ownership at the direct beneficiaries' level and boost community oversight.
- Community participation and relationship building are crucial to project success and sustainability. Evaluations of recent urban upgrading projects have found higher quality and better maintenance of built infrastructure where community involvement in sub-project identification, prioritization and design is strong. The project will therefore ensure that investment prioritization and sub-project selection will target municipalities and neighborhoods with strong community involvement.
- To ensure the sustainability and scalability of interventions, the project will seek to build the capacity of local authorities - the CUA and a selection among the other 36 communes that make up GA - to improve inter-communal governance, municipal finance, planning, and collaboration at both a municipal and metropolitan levels. The objective is to institute an integrated approach to municipal governance and urban development so as to better manage existing settlements and urban growth.
- *Sustainability of investments*. Sustainability of investments mostly depends on the provision of adequate funding for routine and periodic maintenance of flood control assets on one hand, and community urban services management on the other. Resources allocated to APIPA and SAMVA for the operation and maintenance of critical flood management infrastructure are not sufficient. In addition, CUA resources are scarce and do not allow any serious scale-up or maintenance of local services. Institutional assessments are planned under the project's institutional activities to explore long-term sustainability of those institutions. Among others, this will provide an informed maintenance hierarchy and optimize maintenance expenditures to ensure that key assets located in areas of high risk of flooding are maintained effectively. Further the project and under its TA support to CUA, aims at supporting the CUA to enhance its municipal revenues.
- *Economic and financial sustainability*. The project will provide multiple benefits from investments targeted for flood risk mitigation and improving living conditions of residents in the target area. Investments on technical capacity building and new/rehabilitated infrastructure to protect from floods are cost effective in the long run, and would generally improve the city's quality of life, living conditions, and social equity. Citizens will benefit from better resilience to shocks, and improved livelihoods. To address the issue of long-term sustainability of the project investments, the project would assist the Government in assessing legal, institutional, and financial and policy frameworks related to flood risk management, urban upgrading and resource management.

Gender Lens

Recognizing the need to enhance and mainstream the participation of women in resilience building activities such as those proposed under each of the investment projects included in this SPCR, the Technical Assistance program that will be implemented as part of Pillar 1 of this SPCR, is programmed to include the development of a sector-wide gender assessment. During the formulation/preparation of Investment Project 2, the outcomes of the initial gender assessment will be analyzed and, on the basis of relevant country gaps between males and females, the need to conduct a more detailed analysis in the urban areas of Greater Antananarivo will also be assessed.

The gender gaps identified during the analysis will guide the design of the specific interventions, enabling in this way the mainstreaming of gender in each of the project components. The residents of the pilot areas, especially women, will be consulted throughout the planning process to ensure that the interventions serve the neighborhood's actual needs. These consultations will build on the outcomes of the gender assessment.

During implementation, technical backstopping will be sought from the Ministry of Population, Social Protection and Promotion of Women and the Gender Working Groups, to ensure that gender concerns are adequately addressed from the inception of the project.

Synergies with on-going projects

Investment Project 2 will be implemented under the umbrella of the World Bank financed (IDA) *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756). Thus, the outcomes of the various studies and assessments that will be undertaken, as well as the Detailed Urban Plan (DUP) that will be developed as part of this project will be used as the starting point for the preparation/formulation of the SPCR project.

Moreover, the project will aim at maximizing synergies with complementary donor-funded activities. Given the reduced availability of donor funding, the project will be designed to complement donor-funded infrastructure projects so as to maximize alignment and synergies. This is also essential for the following two reasons: (i) in order to capitalize on the work done and lessons learnt by other donors such as the AFD which have been active in the urban space in the past decade; and (ii) providing coordinated technical and financial support will be of the upmost importance to ensure that the Government is able to work in a more strategic and coordinated manner across the central and municipal levels.

Synergies with other SPCR projects

Synergies will be established with Investment Project 1. The relevant and reliable climate data that will become available with the proposed project, and its subsequent analysis and processing, will enhance the understanding of climate risks in the urban areas of Greater Antananarivo, and will support the identification of the most appropriate interventions to improve flood risk management.

Knowledge Management

As indicated in **Section III.3**, knowledge management at all levels is key to building resilience to climate change at the country level. Knowledge Management under Pillar 2 will be undertaken as part of each of the investment projects proposed.

As it relates to Investment Project 2, it is expected that its outcomes will favor replication and scaling up in other urban settings in Madagascar. In particular, guidelines for the use of green infrastructure and hybrid solutions in urban settings in Madagascar will be developed on the basis of the experience of piloting such measures in Greater Antananarivo as part of this SPCR project.

Investment Project 2 will also further contribute to populating the SPCR Knowledge Management System developed under Pillar 1 with the data and information generated during the preparation and implementation of the project.

Implementation Arrangements and Readiness

The project will be implemented under the umbrella of the World Bank financed *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756).

Anchor Institutions and Partners

Ministry attached to the Presidency, in charge of Presidential Projects, Land Use Planning and Equipment (M2PATE) would be the agency in charge of project implementation, and would ensure proper and timely project design and implementation as well as achievement of development objectives. It will work with APIPA, Antananarivo Flood Protection Agency (Autorité pour la Protection contre les Inondations de la Plaine d'Antananarivo) and AGETIPA (Agence d'Exécution des Travaux d'Intérêt Public et d'Aménagement) as the delegated implementing agency for the management of the infrastructure works. The Municipality of Antananarivo (CUA) will also be closely involved.

Readiness

As previously noted, this project is proposed to be implemented as a co-financing to the *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756), expected to be presented to the Board of the World Bank

in March 2018. This project is currently benefitting from a US $2 million Project Preparation Advance (signed with the GoM in February 2017). Amongst other things, this advance is financing the preparation of all technical studies and preparation of bidding documents for priority and urgent urban drainage and flood mitigation works in Greater Antananarivo. Thus, given the technical studies that will be undertaken as part of this PPA, and the already identified lead implementing agency, Investment Project 2 would be technically on an advanced state of preparation for rapid implementation as soon as funds become available.

Cost estimates

Once the target communities in Greater Antananarivo have been selected, specific activities and measures will be identified and defined on the basis of the specific problematic of the areas. The project estimated cost is US $100 Million. The following table provides the approximate costs per component:

Table 2.7: Estimated Costs per Component for Investment Project 2

COMPONENT	IMPLEMENTATION
Component 1 - Improving urban environment, services and resilience in targeted areas	**US $85 million**
Component 2 - Strengthening institutional capacity for resilient urban governance	**US $10 million**
Component 3 - Project Management, Coordination, Monitoring and Evaluation	**US $5 million**
Component 4 - Contingent Emergency Response Component - CERC	**US $ 0 million**
TOTAL ESTIMATED COSTS	**US $100 million**

Project Expected Results and Outcomes

The key results of this project will be:

- Improved climate-resilient urban planning
- Improved climate-proofing of key urban infrastructure
- Cleaner communities with improved health and sustainable waste management systems.
- Standards and codes of practice for climate resilient infrastructure, developed and adopted by municipal governments
- Enhanced capacity of national and local authorities, and civil society for the development of climate-proofing urban infrastructure

Specifically:

- People from GA will be protected from 10-year return period flood. With the interventions proposed under the project, the extent of flooding area is expected to be reduced by almost 80%.
- Approximately 750,000 people in urban areas will be provided with access to “Improved Sanitation” under the project
- People in urban areas will be provided with access to regular solid waste collection under the project

Project Beneficiaries

The project beneficiaries will be the population in the target communities selected for intervention. A harmonized methodology with neighborhood selection criteria would be agreed upon with the Government (M2PATE) and municipalities to identify neighborhoods to be included under the project. The methodology would also be based on approaches recently used by the AFD and UN-Habitat. Those criteria could include, amongst others: (i) level of exposure to flood risk (based on damage assessment from 2015 floods); (ii) priority zones identified in the 2004 urban plan; (iii) potential for complementarity with ongoing or future interventions from other development partners; and (iv) zones with low levels of basic services.

The prioritization of neighbourhoods would also take into account the results from the upcoming household survey, physical characteristics of the zone (as some of them might not be suitable at all for upgrading), and the overall integration of the specific zones into the broader environment (e.g.: if interventions are already carried out in adjacent zones, they would have an impact on the area). It is expected that the selected neighborhoods would be located in the CUA and several other peri-urban municipalities.

Monitoring & Evaluation

M&E will be carried by the Implementing Agency as part of the project management component, and will be part of the overall PPCR Results Framework as included in Section I. provides potential project outcomes and possible indicators. The project Results Framework, will provide a framework for accountability of progress towards local and regional objectives of enhancing climate resilience of urban communities and infrastructure in Greater Antananarivo. This will include accountability of the participating agencies and ministries.

In terms of accountability towards citizens, demand-side social accountability of interventions could be captured through a citizen engagement indicator that could also measure gender aspects. The citizen engagement framework would be based on a perception survey and a strong feedback loop. The range of sources of data include: perception survey (citizen engagement), field survey and institutional survey. Data collection would be carried out annually. Central to the M&E approach is a platform for communication of results including dissemination and communication products. The Project would be expected to put special emphasis on mapping of project interventions and results through geocoding of activities and overlay with key indicators.

The M&E activities will be to: (i) generate information on project progress per the results framework; (ii) analyze and aggregate data generated at local and regional level; and (iii) document and disseminate key lessons to all stakeholders.

Table 2.8: Expected Results and Indicators for IP2. Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo

EXPECTED RESULTS/OUTCOMES	PROPOSED INDICATOR(S)
Component 1: Improving urban environment, services and resilience in targeted areas	
Improved climate-proofing of key urban infrastructure	Number of green infrastructure measures for climate proofing key urban infrastructure in place
	Number and type of urban infrastructure complying with climate resilient standards
	Incidence of seasonal flooding reduced as a result of green infrastructure measures
Component 2: Strengthening institutional capacity for resilient urban governance	
Standards and codes of practice for climate resilient infrastructure, developed and adopted by municipal governments	Guidelines for the use of green infrastructure for climate proofing key urban infrastructure, developed and adopted by municipal governments
	Ecosystem-based adaptation strategies adopted focusing on green measures to improve urban flood management
Enhanced capacity of national and local authorities, and civil society for the development of climate-proofing urban infrastructure	Awareness and training programs implemented for government officials, contractors and regulators

Financing Plan and Funding Strategy

The project is benefiting from a $70 million IDA credit from the World Bank , to be implemented over five years starting in mid-2018.

Parallel financing from the French Development Agency (AFD) is supporting the urban drainage works and slum upgrading interventions in Greater Antananarivo.

Climate financing will be sought to pilot green infrastructure solutions and enhance community based climate resilience.

Project Preparation Grant

The umbrella project, the World Bank financed *Integrated Urban Development and Resilience Project for Greater Antananarivo* (P159756), is being prepared with a Project Preparation Advance of $2 million.

11.3 Proposed Investment Project 3: Strengthening Climate Resilience of Coastal Cities (Indicative cost: US$ 80 million)

INVESTMENT PROGRAM ROLE	INSTITUTION		
Lead Implementing MDB	TBD		
Technical Agency(s)	Secrétariat technique GIZC		
Lead National Entity	CNGIZC		
Supporting National Implementing Entities	Ministry of Public Works; Ministry of Water & Ministry of Environment, Ecology and Forestry		
Short Program Name	Coastal zones resilience		
Country /Region	Madagascar		
Project Development Objective	The PDO of this project is to strengthen the resilience of coastal cities to natural hazards and climate risk and strengthen the municipal and community capacities to effectively respond their impacts.		
Status Summary		**Source**	**Contribution**
Total Project Cost	**USD 80 million**	**PPCR Request** **GoM** **Co-financing**	**USD 30 million** **TBD** **USD 50 million**

Background

Madagascar's Coastal Areas

Madagascar is among the largest Small Island Developing States (SIDS) in the world. With some 5,600 Km of coastline comprising the thirteen littoral regions of its twenty-two regions, Madagascar's coastal areas constitute a central piece of the country's development capital and are home to 65% of the total population of the country. Its coastal ecosystems and resources are of major ecological and economic interest, and constitute one of the pillars of the country's development (especially the fisheries and tourism sectors). They are also fundamental to the survival and development of coastal communities (coral reefs' biodiversity and fisheries' stock, are key for nutrition; mangroves and wetlands offer costal protection, food-stuff, wood-source for fuel and construction, and biodiversity).

Current and Future Challenges of Coastal Areas

The impact of natural hazards and the effects of climate change is clearly evident in Madagascar's coastal areas. Coastal cities are being strongly affected by increasingly severe and frequent tropical storms and cyclones which are exacerbating their already accentuated erosion and flooding issues. Moreover, sea-level rise is contributing to the phenomenon of 'coastal squeeze' between ocean and human infrastructure. This situation is aggravated by deforestation (especially mangroves) and informal urbanization, particularly linked to constructions in flood-prone areas and human activities. The lack of maintenance of the infrastructure (dykes, drainage network, various road networks, etc.) and the precariousness of the materials used for construction further aggravate the cities' vulnerability to weather hazards and climate change, and put also the development of the tourism sector at a stake.

Similarly, sensitive ecosystems such as coral reefs, seagrass beds, mangrove areas, wetlands, etc., on which local communities so intimately depend, are also being severely impacted, exacerbating existing food insecurity and threatening livelihoods. The stronger and more frequent storms and sea level rise are intensifying coastal erosion and ecosystem degradation (aggravated by their overexploitation). Increased water temperatures and ocean acidification are also aiding to the degradation of some of these ecosystems (e.g. coral bleaching) and altering lifecycle of fisheries. Climate change impacts may affect sediment supply in estuarine mangroves and limit the ability of mangroves to keep up with sea-level rise. Where physical infrastructure prevents the beach and wetlands from retreating landwards

in response to coastal erosion, such ecosystems may deteriorate further. Areas close to major cities and large agglomerations are increasingly affected by uncontrolled and / or unregulated activities (fishing, wood exploitation, tourism or industrial activities). These habitats, vitally important to fisheries, also act as natural physical barriers that reduce the impacts of extreme weather events and climate hazards; damage to these critical ecosystems leads to increased coastal vulnerability to sea level rise, strong winds, waves, and storm surges.

Justification—Rationale for Investment and Alignment to National Priorities

As previously noted, hosting about 65% of the country's population, and some of the most important natural environments in the country, coastal areas are extremely important for Madagascar. However, coastal communities and urban settlements along the coast, as well as coastal and marine ecosystems, face increasing risks from extreme weather events, including sea-level rise and storm surge flooding, coastal erosion and ecosystem degradation. Evidence suggests that these threats will intensify due to the effects of climate change with mounting social and economic impacts. Coastal communities in Madagascar are therefore in need of urgent interventions. To this end, the GoM has decided to include as part of its SPCR, an investment project aimed at strengthening the resilience of coastal areas.

The project is aligned with the National Adaptation Programme of Action (NAPA), which already in 2006 highlighted the coastal areas of Madagascar as one of the 5 priority sectors for intervention. In addition, the project will be further supporting other priority objectives under the National Development Plan (NDP), 2015-2019, such as strategic Axis 3, *Inclusive Growth and Territorial Anchoring of Development, and Axis 5, Valuing Natural Capital and Strengthening the Resilience to Disaster Risk*. Axis 3 calls for different parts of society, sectors, and territories to work in synergy and achieve optimal use of natural resources and physical assets, taking into account key constraints such as land, skills, and technical instruments. Investment project 3 is expected to support Objective 3.2, *Strengthen support and structural infrastructure*, with a specific attention to the coastal areas. Axis 5 will focus on the development of a mechanism and corresponding appropriate and targeted strategies to preserve natural capital, reduce the negative effects of climate change, and strengthen the resilience of the populations and territories concerned. The two specific objectives considered under this Axis are Objective 5.1, *Ensure the link between natural resources and economic development*, and Objective 5.2, *Protect, conserve and sustainably use natural capital and ecosystems*.

The project also supports the National Policy for the Integrated Management of Coastal Zones (*Politique de Développement Durable des Zones Côtières et Marines de Madagascar,* 2010) and the National Strategy for Sustainable Development of Coastal and Marine Areas (SNGIZC, by its French acronym) and associated Action Plan (*Stratégie Nationale de Développement Durable des Zones Côtières et Marines de Madagascar*, 2010). Finally, the project will also seek to align to the corresponding Regional Development Plan for the region where the target coastal city is located.

The SPCR program brings an opportunity to set the ground for a programmatic approach that incorporates integrated and sustainable solutions aimed at increasing the resilience of coastal areas, and can be scaled up to other priority coastal areas.

Project Description

Investment Project 3, "Strengthening Climate Resilience of Coastal Cities" is being conceived as a pilot project that will use an integrated approach to increasing the resilience of coastal cities to extreme weather events and the effects of climate change, with a view to scaling up successful activities in the rest of the priority coastal areas identified in the SNGIZC.

Project Objectives

Project Development Objective

The PDO of this project is to strengthen the resilience of coastal cities to natural hazards and climate risk and strengthen the municipal and community capacities to effectively respond their impacts.

Specific Objectives

The proposed operation is expected to support the GoM in implementing a program that strengthens the resilience of coastal communities by:

- Objective 1: Improving the capacity of government institutions to generate and use oceanographic data, as well as hazard and risk information to shape the development of coastal communities;
- Objective 2: Reducing the disaster and climate vulnerability of coastal areas through appropriate resilient infrastructure (hard measures), ecosystem-based or hybrid measures;
- Objective 3: Strengthen the capacity of national and local government, as well as that of communities to implement ecosystem-based and hybrid coastal interventions with a view for scaled-up investment at further coastal sites.

Geographic scope

The geographic scope of the project has not yet been established. The coastal areas where interventions are to be implemented will be identified and selected during project preparation. The target areas will be chosen within the priority areas of intervention identified in the National Strategy for Sustainable Development of Coastal and Marine Areas of Madagascar (2010), on the basis of issues recognized as crucial at national and local levels.

Potential Priority Areas

These priority areas (see), within each of the 13 coastal regions in Madagascar, include: Fort-Dauphin, Nosy Be, Toliara, Morondava, Antalya-Vohémar, Antongil Bay, Antsiranana, Ile Sainte Marie, Manakara, Mahajanga, Sahamalaza-Kilimity, and Faux Cap.

Selection of Target Areas for Intervention

In order to identify the target project areas (within this priority areas), a selection process will be undertaken. The selection criteria and indicators included in are proposed to be used for this purpose. The outcome of this process will be a ranking of vulnerable coastal communities that should be targeted for grey and/or green interventions, non-structural measures or a combination of all (hybrid solution).

Table 2.9: Priority Areas and Activities for Coastal Intervention identified in the SNGIZC (2010)

COASTAL COMMUNITIES	ISSUES
Fort Dauphin/Anosy	Priority conflict between mining and tourism
Faux Cap (ANDROY)	Dune advance
Nosy Be/ DIANA	Coastal Pollution / Tourism / Aquaculture
Toliara/Atsimo-Andrefana	Conflict mining projects and protected areas
Morondava/ Menabe	Coastal erosion
Diégo/DIANA	Tourism / land tenure / informal settlements
Antsiranana (DIANA)	Tourism / land tenure / informal settlements
Antalaha – Vohémar/ SAVA	Technical assistance and support to the community
Antongil Bay/ Analanjirofo	Conflicts over land use and coastal pollution issues
Sainte-Marie / Analanjirofo	Coastal erosion and land tenure issues
Sahamalaza-Kilimity (SOFIA)	Marine Protected Areas / Mangrove Areas), Faux Cap (ANDROY, dune advance)
Manakara / Vatovavy-Fitovinagny	Coastal erosion
Mahajanga / Boeny	Siltation of the bay, demographic pressure - conflict between fishing zone and offshore oil prospecting

Table 2.10: Possible criteria to be used for the selection of the project target area chosen for coastal intervention

SELECTION CRITERIA	POSSIBLE INDICATORS
Hazard profile	i) rate of coastal erosion; ii) spatial extent of coastal inundation; and iii) frequency of coastal flooding
Vulnerability	i) percentage of population in flood zone; ii) percentage of dependent population in flood zone; iii) number of critical facilities in flood zone (schools hospitals, health centers, police station, fire station, port, Class A main road only) and iv) economic contribution
Environmental significance	i) protected area; and ii) ecosystem impacted in erosion or flood zone
Readiness for implementation	Availability of data on the targeted area
Level of intervention received	Existing or previous projects within the last three years

Project Components and Activities

The following components are envisioned to be undertaken as part of Investment Project 3:

Component 1: Strengthening the Understanding of Hazard and Climate Risks

This component will aim at improving the generation and collection of targeted oceanographic, hazard and risk information for coastal areas, its analysis and use in monitoring systems and decision making. In order to improve the ability of government officials to generate and use hazard and risk information for decision-making and policy development, this component will finance the following activities : (i) equipment and facilities to strengthen oceanographic data collection; (ii) collection of high resolution (LIDAR) bathymetric and topographic data; (iii) development of multi-hazard risk assessment of the target coastal areas and critical facilities; (iv) a training program (at national and local levels) to support the continued collection, processing and analysis of oceanographic, hazard and risk information;

Component 2: Implementation of Coastal Protection Measures for Risk Reduction

To reduce Madagascar's physical vulnerability to adverse natural events, this component will finance coastal protection interventions, including i) hard measures (grey infrastructure), such as breakwaters, groyns, revetments, etc., ii) soft measures (green infrastructure), such as beach nourishment, sand dune stabilization, mangrove conservation and

reforestation, coral reef enhancement, etc., or hybrid measures (a combination of grey and green infrastructure), to mitigate the coastal erosion and coastal flooding problems.

The ecosystem-based and hybrid coastal interventions will build community engagement at selected sites, demonstrating a model for application to scaled-up future sites, building crucial support and acceptance from citizens who use coastal ecosystems for livelihoods related to fishing and tourism. To this end, component 2 will also include: implementation of construction codes for priority infrastructure (E.g.: drainage systems' rehabilitation and maintenance); community-based adaptation measures; restoration of degraded ecosystems and awareness raising campaigns on climate resilience.

Component 3: Valuation and Implementation Capacity for Ecosystem-Based Approaches

At present, decision-makers have limited technical capacity and tools to quantify the risk reduction benefits of healthy ecosystems. This results in an information asymmetry whereby decision-makers have more data on the benefits of hard infrastructure options but only theoretical knowledge on the benefits of incorporating ecosystem-based approaches such as coral, seagrass and mangrove restoration. Moreover, policymakers have limited experience on engaging communities in ecosystem-based risk-reduction despite the benefits that such engagement has brought in other geographic contexts – such as lower-cost maintenance and reduced overfishing when community acceptance of ecosystem restoration plans is secured. This component will therefore comprise the following activities: i) Monitoring and evaluation of geo-ecological status of coastal ecosystems against project baseline for target sites to be selected within the selected coastal community; and ii) Monitoring and evaluation of socio-economic benefits of coastal ecosystems (including coastal protection, erosion control, food security and livelihood maintenance from fishing and tourism) against baseline for the selected sites;

Component 4: Project Management, Coordination, Monitoring and Evaluation

This component will finance costs associated with program management, including project-related audits, monitoring, mid-term review and end-of-project impact evaluation, equipment and training to strengthen the Project Implementation Unit (PIU), as well as individual consultants and operating costs. This component will also finance the core professional and technical staff for project management, including a Program Manager, Supervision Engineers and specialists in the areas of coastal risk reduction and ecosystem-based adaptation, safeguards compliance, finance, procurement and related project management areas. Core staff will be recruited on time-bound basis.

Value Added and Sustainability

Value Added

- *Increased scale of impact.* Through the implementation of the Technical Assistance under Pillar 1, the GoM is expected to strengthen the understanding of hazard and climate risks, and undertake extensive development of climate-resilient policy frameworks and improved institutional capacities. Without additional financing, the GoM would be just investing considerably in information, and long-term policy and institutional capabilities, but will remain constrained in undertaking the physical investments that will reduce the vulnerability of coastal communities to climate impacts. The proposed investment will permit the implementation of works in the coastal protection sector, helping to meet the urgent and increasing risks posed by climate change to Madagascar's coastal development. Without timely interventions, existing coastal assets are being further damaged, thus increasing the risk of socio-economic losses and further damage to ecosystems.
- *Incorporation of ecosystem solutions in coastal management.* Well-managed ecosystems are more resilient to the impacts of extreme events and are able to recover more effectively than degraded ecosystems. Madagascar has coastal ecosystems that offer significant risk mitigation potential. This project will enable selected coastal cities to move from assessment of ecosystem services to investing in their rehabilitation.
- *Pilot hybrid solutions for coastal adaptation.* In the context of extreme events and climate change and variability, human-built infrastructure may not be feasible due to the high costs and technology requirements of adaptation.

Box 4: Hard, ecosystem-based and hybrid measures for coastal risk reduction

Through the coastal hybrid defense interventions, the project will be able to get the best of both worlds in coastal protection. Based on a report by Sutton-Grier et al (2015), the most resilient way to protect coastal communities is through a combination of both built/hard infrastructure (such as seawalls and dikes), and natural approaches (mangroves, coral reefs, beaches and seagrasses). Some reasons that support this theory are:

1. Built/hard infrastructure has a lot of proven technology for its design and construction, but is not as adaptable to changing conditions (i.e. sea-level rise), has a finite lifetime (which requires high maintenance costs), can damage or destroy natural habitat and create a false sense of security for upland owners.
2. Natural infrastructure provides significant day-to-day benefits as well as protection in smaller storms and the ability to recover post-storm. However, the technology is still evolving, the results can vary widely based on other conditions, a natural installation can take more space to provide reasonable protection and it can be more difficult to permit.
3. The hybrid approach (a combination of hard and ecosystem-based), when properly designed and installed, can give the coast the best of both types: Natural protection for smaller storms with the ongoing benefits to the adjacent ecosystems, with a stronger and more "designed" solution as a backup in more significant storm events. If properly designed and implemented, a hybrid also allows for more custom design options to address and adapt to specific coastal needs.

In many cases, maintaining and restoring ecosystems as natural infrastructure can offer high benefit-cost ratios compared to engineered infrastructure, when taking into account the full range of benefits provided by ecosystems. In other cases, natural buffers are not feasible due to biological limitations, space constraints, incompatibility with priority land uses or prohibitive costs; therefore, hard infrastructure may be required to provide the necessary protection. As indicated in Box 4, through the coastal hybrid defence interventions, the project will be able to get the best of both worlds in coastal protection, as the most resilient way to protect coastal communities[39] is through a combination of both built/hard infrastructure (such as seawalls and dikes), and natural approaches (mangroves, coral reefs, beaches and seagrasses). It is also important to recognize that hard infrastructure alone, provides protection services when storms or wave surges are approaching. However, ecosystem-based and hybrid coastal defense measures provide additional benefits (ecosystem services) including opportunities for fishing and recreation/tourism, all at the same time. In addition, ecosystem-based and hybrid can also improve water quality, provide habitat for many species (which contributes to food security), and helps with carbon storage (which is critical for climate change. This project will aim at assessing the specific context of the selected coastal city and the feasibility of applying either green, grey (hard) and/or hybrid interventions to enhance its coastal resilience. This project will therefore serve as a pilot to be scaled up in other coastal towns of Madagascar.

Sustainability

- *Physical Sustainability*. The structural investments under the proposed Project are designed to increase Madagascar's resilience to the impacts of adverse natural events and climate change. Using best practices for engineering studies and designs, along with construction supervision at the sites and technical audits will ensure a high quality.
- Maintenance in the early years of the hybrid and ecosystem-based interventions at the target site/s implies up-front costs, given the interaction of engineering structures with coastal mechanisms and the need to ensure mangrove, reef and seagrasses are established effectively. Accordingly, this component will include a multi-year maintenance provision. Longer-term sustainability will be strengthened through the community engagement activities under Component 3. The Ministry of Environment, Ecology and Forestry is expected to take on the responsibility for the operation and maintenance of natural infrastructure, while the Ministry of Public Works will be responsible for hard interventions.

[39] Sutton-Grier et al (2015). *Future of our coasts: The potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems.* Environmental Science & Policy. Elsevier. Volume 51, August 2015, Pages 137-148

An important fact that must be considered is that the maintenance costs of these interventions is expected to be much lower than other traditional coastal defense that relies on hard infrastructure. According to the World Resources Institute (2015) and The Nature Conservancy (2013), by working with natural river and coastal processes instead of against them, green infrastructure designs can avoid the high capital costs of defensive strategies like rock armoring, can have lower long-term maintenance costs and can take less time to implement. In most cases, the cost savings for ecosystem-based infrastructure are significant (see Figure 2.5).

- *Institutional Sustainability.* Through the project, provisions will be made for enhancing the institutional capacity of the line-Ministries that have key roles in the coastal vulnerability reduction process. The project stakeholders will benefit from institutional strengthening to support the continued collection, processing and analysis of oceanographic, hazard and risk information;

Gender Lens

Adopting an integrated approach to coastal management, as the one proposed as part of Investment Project 3, is expected to be an excellent opportunity for empowering women to participate in the decision-making process.

On this regard, Investment Project 3 will build on the outcomes of the sector-wide gender assessment that has been programmed under the Technical Assistance program that will be implemented as part of Pillar 1. During the formulation/preparation of Investment Project 3, the outcomes of the initial gender assessment will be analyzed and, on the basis of relevant country gaps between males and females, the need to conduct a more detailed analysis in coastal areas will also be assessed. The gender gaps identified during the analysis will guide the design of the specific interventions, enabling in this way the mainstreaming of gender in each of the project components. The residents of the pilot areas, especially women, will be consulted throughout the planning process to ensure that the interventions serve the community's actual needs. These consultations will build on the outcomes of the gender assessment.

Also during project preparation, women are expected to participate in the preparation of risk maps, for example, which will contribute to improving the quality of the plans as well as improving women's self-esteem and confidence. It is also expected that women's participation in public decision-making processes may also increase women's participation in in other aspects of the public and private sphere.

During implementation, technical backstopping will be sought from the Ministry of Population, Social Protection and Promotion of Women and the Gender Working Groups, to ensure that gender concerns are adequately addressed from the inception of the project. With regards to activities involving construction works, the selected implementing agency (potentially, the Ministry of Public Works, with support from the Ministry of Population, Social Protection and Women's Promotion) will monitor the degree to which women benefit directly (in terms of employment) and indirectly (as community members). Their officers will promote the role of women as potential employees with contractors and in the beneficiary communities for the execution of the improvement works. Finally, it will also be important to consider the different roles that women and men play in the coastal ecosystems resources, especially differences in fishing activity and ownership of land. The social appraisal process, which includes gender considerations, will be applied to monitor these impacts.

Synergies with on-going projects

The proposed project will build on the experiences and lessons learned from the ongoing project *'Adapting coastal zone management to climate change considering ecosystem and livelihoods'*, an initiative being implanted by UNEP (with GEF funding), and executed by the Ministry of Environment, Ecology and Forestry, which has the objective of reducing vulnerability of the coastal zone to climate variability and change, through institutional capacity building, coastal protection and integration of climate change into policy and planning. The project is being implemented in 4 regions of Madagascar, namely, Menabe, Boeny, Vatovavy- Fitovinany, and Antsinanana Regions. Moreover, the project will also establish synergies where possible, with the AFD funded project Integrated and Sustainable Coastal Zone Management for the Urban Community of Morondava against the effects of Climate Change, which will be implemented by the *Commune Urbaine de Morondava*.

This project will also establish synergies with other World Bank initiatives being undertaken worldwide, that aim at enhancing the resilience of coastal areas through the promotion of cost-effective coastal protection measures. The project will build on the experiences of initiatives such as the Assessment and Economic Valuation of Coastal Protection Services Provided by Mangroves in Jamaica, a World Bank financed project (PROFOR Program) aimed at supporting the Government of Jamaica on promoting cost-effective coastal protection measures through mangrove ecosystems enhancement, or the Resilience to Climate-Related Natural Disasters Project, which will focus on piloting ecosystem-based and hybrid coastal interventions to protect vulnerable communities in Jamaica.

Synergies with other SPCR projects

Investment project 3 will directly benefit from the strengthened hydro-met systems and services that will be modernized as part of Investment Project 1. Equipment installed and data collected will support the understanding of the climate risk information in the selected coastal areas, and will be used for the development of the coastal multi-hazard assessments in those areas.

Knowledge Management

The project contributes to the creation and sharing of knowledge, collective learning and institutions as follows:

- Hybrid and ecosystem-based interventions. The project will establish a foundation for scaling up 'green' as well as 'gray' coastal interventions at other vulnerable sites across Madagascar (where there are several high-priority coastal sites). Through monitoring and evaluation of the interventions, both in their geo-ecological effectiveness (measured through observations such as seedling survival rates) and their socio-economic impact (measured through observations such as speed to recover possessions and livelihoods after hazard events), it will promote a knowledge base to expedite and strengthen planning of further ecosystem interventions in future.
- Link to Small Island State challenges. The project will additionally contribute to global learning for small island developing states (SIDS). The knowledge outputs from Component 3, *Valuation and Implementation Capacity for Ecosystem-Based Approaches*, will be directly relevant to other SIDS, including comparative unit costs of ecosystem-based and hard coastal protection approaches and applied case studies of valuing ecosystem services for risk reduction. Knowledge sharing with other SIDS is anticipated under the Small Island States Resilience Initiative of the World Bank, including through a proposed Knowledge note and presentations to SIDS officials at future SISRI workshop events[40].
- Contribution to the SPCR Knowledge Management System. Investment Project 3 will also further contribute to populating the SPCR Knowledge Management System developed under Pillar 1 with the data and information generated during the preparation and implementation of the project.

Implementation Arrangements and Readiness

Implementation arrangements for this investment project will be defined during the project preparation stage. The ICZM may be an adequate agency for implementation, since this National Committee encompasses different Ministries involved in sustainable coastal management and it is also responsible for the implementation of the PANGIZC.

Cost estimates

Once the target coastal cities has been selected, activities and measures will be defined on the basis of the specific problematic of the coastal area. A first estimate of the total project costs is US 80 Million. The following table provides the approximate costs per component:

[40] See www.gfdrr.org/sisri-group

Table 2.11: Estimated Costs per Component for Investment Project 3

COMPONENT	ESTIMATED COSTS
Component 1 – Strengthening the Understanding of Hazard and Climate Risks	**US $5 million**
Component 2 – Implementation of Coastal Protection Measures for Risk Reduction	**US $65 million**
Component 3: Valuation and Implementation Capacity for Ecosystem-Based Approaches	**US $5 million**
Component 4: Project Management, Coordination, Monitoring and Evaluation	**US $5 million**
TOTAL ESTIMATED COSTS	**US $80 million**

The project is expected to be implemented over a period of 5 years.

Project Expected Results and Outcomes

The proposed project is expected to produce the following outcomes:

- Strengthened institutional capacity to collect and analyze risk information and address climate change impacts in selected coastal sites;
- Improved Information and tools for coastal risk reduction;
- Strengthened adaptive capacity and reduced exposure and vulnerability of communities to climate risks
- Reduced vulnerability of selected communities through ecosystem-based and hybrid coastal interventions
- Natural Capital associated to differentiated mangrove forests quality has been defined in multiple locations in Madagascar
- Ecosystems' (e.g. mangroves) coastal protection services have been accounted as avoided socioeconomic losses in different coastal settings in Madagascar

Project Beneficiaries

The PDO will be achieved through improving the collection and generation of risk information, its analysis and use in monitoring systems and decision-making, construction of key coastal infrastructure assets and ecosystem-based adaptation measures, and strengthening institutional capacities for the collection, processing and analysis of oceanographic, risk and climate information. This will benefit the entire population of the selected coastal community where project interventions will be undertaken, by improving disaster preparedness and response, and reducing risk of key infrastructure failure as a result of natural hazards. Other beneficiaries include staff in GoM entities engaged in disaster risk management and climate change adaptation in coastal areas, in addition to members of Madagascar's engineering and construction professional communities.

Monitoring & Evaluation

M&E will be carried by the Implementing Agency as part of the project management component, and will be part of the overall PPCR Results Framework as included in Section I. provides potential project outcomes and possible indicators. The project Results Framework, will provide a framework for accountability of progress towards local and regional objectives of strengthening climate resilience of coastal cities in Madagascar. This will include accountability of the participating agencies and ministries.

In terms of accountability towards citizens, demand-side social accountability of interventions could be captured through a citizen engagement indicator that could also measure gender aspects. The citizen engagement framework would be based on a perception survey and a strong feedback loop. The range of sources of data include: perception survey (citizen engagement), field survey and institutional survey. Data collection would be carried out annually.

Central to the M&E approach is a platform for communication of results including dissemination and communication products. The Project would be expected to put special emphasis on mapping of project interventions and results through geocoding of activities and overlay with key indicators.

The M&E activities will be to: (i) generate information on project progress per the results framework; (ii) analyze and aggregate data generated at local and regional level; and (iii) document and disseminate key lessons to all stakeholders.

Table 2.12: Expected Results and Indicators for IP3. Strengthening Climate Resilience of Coastal Cities

EXPECTED RESULTS/OUTCOMES	PROPOSED INDICATOR(S)
Component 1: Strengthening the Understanding of Hazard and Climate Risks	
Strengthened institutional capacity to collect and analyze risk information and address climate change impacts in selected coastal sites	Number of local and national government staff trained in the collection, processing and analysis of oceanographic, hazard and risk information
Improved Information and tools for coastal risk reduction	Coastal Multi-hazard vulnerability and risk assessments developed for selected coastal communities
	Number of instruments installed for collection of oceanographic data in selected coastal areas
	High resolution (LIDAR) bathymetric and topographic data collected for target areas
	Methodology (and benchmark values) to value contribution of ecosystem interventions to coastal risk reduction is in place and applied by line ministries
Component 2: Implementation of Coastal Protection Measures for Risk Reduction	
Strengthened adaptive capacity and reduced exposure and vulnerability of communities to climate risks	Number of people protected from coastal hazards (disaggregated by gender)
	Length of shoreline (m) protected by new or restored coastal infrastructure (grey, green, hybrid)
Reduced vulnerability of selected communities through ecosystem-based and hybrid coastal interventions	Share of coastal population (%) protected by ecosystem-based and hybrid interventions
	Meters of shoreline protected by ecosystem-based and hybrid interventions
	Hectares of reforested area
	Number of jobs generated through mangrove restoration efforts in comparison with other protection measures (i.e.
	hard infrastructure)
	Number of women engaged in mangrove restoration efforts
Component 3: Valuation and Implementation Capacity for Ecosystem-Based Approaches	
Natural Capital associated to differentiated mangrove forests quality has been defined in multiple locations in Madagascar coastal protection to shoreline communities)	Habitat quality maps for selected coastal areas developed (presenting the potential of mangrove ecosystems to provide
Ecosystems' (e.g. mangroves) coastal protection services have been accounted as avoided socioeconomic losses in different coastal settings in Madagascar	Wave and wind attenuation and erosion control by mangroves in multiple locations in Madagascar.
	- Share (%) of avoided infrastructure damages - Share (%) of avoided costs of shoreline stabilization/protection - Share (%) of avoided loss of livelihoods (fisheries, tourism, etc,) All disaggregated by gender
	Maps of Coastal protection services for various locations across Madagascar

Financing Strategy

The estimated financing may be met through a combination of grants and loans from one or a consortium of new and existing international funding sources. The bilateral and multilateral funding institutions listed next already support climate resilience in coastal areas, or may potentially have interest in the overall goal within Madagascar of enhancing climate resilience in coastal areas, or in some combination of the components proposed under the project: i) Adaptation Fund, ii) African Development Bank, iii) Climate Investment Funds – Pilot Program for Climate Resilience, iv) Global Environment Facility Least Developed Countries Fund, v) Green Climate Fund, vi) United Nations Environment Program, vii) The World Bank (IDA), viii) The EU Madagascar Office, ix) Agence Française de Développement (AfD), x) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), xi) Swiss Agency for Development and Cooperation, xii) UK Department for International Development (DfID), and xiii) US Agency for International Development (USAID).

11.4 Proposed Investment Project 4: Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud" (Indicative cost: US$ 70 million)

INVESTMENT PROGRAM ROLE	INSTITUTION		
Lead Implementing MDB	The World Bank		
Technical Agency(s)	TBD		
Lead National Entity	TBD		
Supporting National Implementing Entities	Ministry of Water; Ministry of Environment; BNGRC; CPGU		
Short Program Name	N/A		
Country /Region	Madagascar / Africa – Grand Sud Region		
Project Development Objective	The PDO of this project is to build climate resilience by scaling up social protection efforts, rehabilitating selected lifeline infrastructure and strengthening livelihood diversification of selected communities in the Grand Sud.		
Status Summary		**Source**	**Contribution**
Total Project Cost	**USD 70 million**	**PPCR Request** **GoM** **Co-financing**	**USD 20 million** **TBD** **USD 50 million**

Background

Madagascar's Poverty Context

Madagascar is one of the poorest countries in the world with respect to both the breadth and depth of poverty. Almost 78 percent (2015) of Madagascar's population of 24.2 million people live on less than US$1.90 per day. These 19 million people make Madagascar the country with the sixth highest number of poor in the world[41]. Despite its widespread character, there are large poverty disparities across geographical locations as well as between urban and rural areas. Extreme and absolute poverty are widespread in Madagascar, but are generally higher in the most remote areas, as they are further from markets and public services, a problem accentuated by the poor state of transport infrastructure in many parts of the country. This is the case of the 'Deep South' region, or *'Grand Sud'*, the most isolated part of the country, where more than 70 percent of the population are extreme poor.

Challenges in the 'Grand Sud'

The 'Grand Sud' region, comprised by three regions, Androy, Anosy, and Atsimo Andrefana, is characterized by social dynamics that reflect the context of its communities and that are sources of great vulnerability. The primary factors that contribute to maintaining the high levels of vulnerability of the region and the risks faced by the communities in the 'Grand Sud', already identified in previous studies and assessments are summarized next.

i. A recent analysis of the socio-economic situation[42] of some the districts within these regions confirms the severe underperformance of the region in all human development related aspects.

ii. The vast majority of the Malagasy population lives in households whose income is highly dependent on agriculture. Eighty one percent of households in Madagascar are engaged in agriculture, either as a principal or a secondary economic activity. This figure rises to 89 percent in rural areas[43]. Most of these households engage in subsistence farming, which is characterized by extremely low levels of productivity (resulting from

[41] This is after India, Nigeria, Democratic Republic of Congo, China, and Bangladesh. *Grow, Invest, Insure: A game plan to end poverty by 2030*, I. Gill, A. Revenga, Ch. Zeballos, July 2016.
[42] *Analyse de la situation socio-economique dans le sud de Madagascar*, World Bank August 2016, unpublished draft
[43] INSTAT, 2011. *Enquête périodique auprès des Ménages 2010.* Ministry of Economy and Industry, August

a combination of factors, including lack of access to water, limited uptake of improved technology, land tenure insecurity, lack of access to credit, inadequate storage facilities, and deficient transport infrastructure). Due to its high dependence on rainfall, the meagre livelihoods made through subsistence farming that are already threatened by environmental degradation resulting from continuous use of unsustainable farming practices, are exposed to droughts, cyclones and floods. Agriculture production in the South is therefore very weak. In addition, the very high transport costs and deteriorated road infrastructure limit the access to markets and investment development.

iii. With the majority of the population in the region being rural and depending directly on natural resources (land, water and forests) for their livelihoods, the poverty situation is closely linked to the region's environmental degradation. The regions with highest poverty incidence and weak productivity are the ones with highest environmental and soil degradation. This is a direct result of the fact that poor population often lack the resources to avoid degrading the natural resources and the environment.

iv. The South is also characterized by a fragile social and political context with increased levels of insecurity. Regional and local government structures are very weak. Even with the decentralization efforts undertaken in the recent years, the results of the decentralization reform have not yet been achieved, due to the lack of appropriate governance structures, limited financing and a lack of capacity for an effective implementation of the government and community-led programs. Local governments only have the resources for intervention in the areas of education, territorial management and taxes. The majority of the rural communities have very little resources to undertake long-term development investments. Exacerbating these challenges, there is an important security problem that also hinders the region's socio-economic development.

v. In addition, the South is one of the most underserved regions of the country with respect to public investment. The Public Expenditure Review of the health and education sectors conducted by the World Bank and the United Nations Children's Fund (UNICEF) in 2014/155[44] shows that the poorest regions have the lowest amount of spending on these key sectors.

vi. Investments in economic infrastructure (roads, water, electricity, etc.) have been also largely absent in the last decades, making the region suffer from a chronic lack of lifeline infrastructure.

- Water scarcity, which is widespread in all water-using sectors, and the bad practices in water resources management significantly hamper development efforts. The lack of water and an inadequate water management is one of the causes underlying the health, nutrition, education and subsistence problems in the region. Access to water is constrained primarily by lack of bulk water infrastructure. Water distribution infrastructure is very limited, and rural communities have barely any direct access to water. In addition, much of the existing irrigation infrastructure has deteriorated noticeable during the recent years, making it non-operational and further threatening the livelihoods of a large segment of the population (for example, around 60% of the 500 to 600 wells in the Androy and Anosy regions are non-operational).
- Similarly, the road infrastructure asset base has been deteriorating for decades due to inadequate investments and maintenance funding. As funding dried up during the last decade due to the freeze of development partner's support in this heavily aid-dependent sector, public and parastatal agencies working in the transport sector have been unable to undertake much-needed new investments or even maintain existing infrastructure. Today, the preservation of key sections of the road network becomes critical in order to prevent traffic cut and subsequent economic activities disruptions (potentially disastrous impacts on agricultural production, rural livelihoods, and household welfare).

vii. There are also obvious gender inequality issues as it relates to the access of women to goods and services and economic opportunities.

[44] "Government of Madagascar; World Bank; UNICEF. 2015. *Madagascar 2014 Public Expenditure Review: Education and Health.* World Bank, Washington, DC. © World Bank. https://www.openknowledge.worldbank.org/handle/10986/24090 License: CC BY 3.0 IGO."

viii. Numerous communities in the South live in a constant state of emergency and are in need of humanitarian aid for their survival. Humanitarian programs have been present in the region for the last 25 years. The continuous interventions have created a clearly marked dependence phenomenon, as it is evident by the ongoing external aide. Even with the presence of programs which aim at strengthening self-sufficiency, there are indications that the lack of coordination between all the interventions (both in the development and humanitarian fronts) decreases the results of the efforts aimed at reducing the long-term risks.

Impacts from Extreme Weather and Climate Change

The previously described situation is exacerbated by the impact of extreme weather events and the effects of climate change. As stated in Part I of this document, Madagascar is one of the most vulnerable countries to climate change and extreme weather events, in particular, the prolonged drought periods. The country's resilience is constrained by the physical exposure of the population and its assets, as well as its socioeconomic vulnerability and the weakness of the public infrastructure and services. Extreme weather events constitute an important driver of persistent poverty in Madagascar, which is accentuated in the 'Deep South'. Climatic shocks, combined with ecosystem services' degradation and other factors such as low agricultural yields, deficient water and sanitation and health services, have been identified as a cause for aggravation of poverty in the rural region of the 'Deep South'.

Climate change and the more recent and especially powerful phenomenon of El Niño, have caused a prolonged, severe drought that has particularly affected the already highly impoverished 'Deep South'. The poor crop yields and water shortages due to the drought and a major locust invasion in 2013 have resulted in the region suffering from periodic famine, as the population relies heavily on agriculture for their principle food source. The last two years have seen droughts that are more severe and broader in scope than predicted. Poor crop yields and the subsequent decimation of livestock have had a devastating impact on the population in the South leading to acute malnutrition and food insecurity (1.1 million people). Slow onset events (sea level rise, salinization, desertification) could further threaten development and stability since competition for access to natural resources (E.g.: water resources and arable land) could be a source of social conflict in the South.

The Malagasy population is falling deeper into poverty and increasingly unable to cope with exogenous shocks.

Climate Change and Gender in Madagascar

The lived realities of climate change in Madagascar are clearly gender-differentiated. Particularly impacted by climate-aggravated destabilizing dynamics are women-led rural households (Female-Headed Households, FHH). Gender-based constraints related to poverty, education, lack of access to information and natural resources, and the low level of participation in decision-making at the community level are some of the widespread realities faced by women in Madagascar, which are more acute in the Deep South. In the context of climate change, changes in agricultural conditions resulting from climate change have a considerable impact on women's farm production, incomes and food security. The previous factors underlying women's greater vulnerability are compounded by their lack of access to and control over land and other natural resources, technologies and credit, which not only means that they have overall fewer resources to cope with seasonal and episodic weather, natural disasters and the effects of climate change[45] (IUCN, 2007), but they also have limited control over land use and farm inputs and produce. changes in agricultural conditions resulting from climate change have a considerable impact on women's farm production, incomes and food security.

This condition is exacerbated in the Deep South, where the lives of women are primarily governed and impacted by the region's water context. Water has always been a major issue in this arid part of Madagascar. In the deep south, less than one quarter of the population has regular access to drinking water. Women's prime responsibility for collecting water to meet the needs of their households is being hampered by the water scarcity context being experienced in some communities, where women and girls need to spend more time fetching water. This burden of women of travelling long distances to collect water is likely to increase due to the impacts of climate change

[45] International Union for the Conservation of Nature (IUCN) (2007). Gender and Bioenergy. Factsheet 2007, http://iucn.org/about/work/programmes/gender/gender_resources/?4481/Climate-Change-and-Gender-Factsheets

Social Protection as a Vehicle for Increasing Climate Resilience

Poor and marginalized people and, in general, the most vulnerable social groups, are more severely affected by natural hazards and climate extremes. Major studies show a persistent gap between national policy and local action related to disaster risk management and show that when a supportive government is open to partnering with communities and local organizations, risk reduction policies are more likely to have an impact at the local level. In order for national progress to reach the frontline, poor households and communities need to be empowered and supported to manage disaster and climate risk. National governments need to work at a scale greater than ever before, and need to get support for building resilience to the ground level where the effects are being felt the most. The UN's 2009 Global Assessment Report on Disaster Risk Reduction (GAR09) identifies the need to adopt an approach that is supportive of local disaster risk reduction initiatives.

Social protection provides an important vehicle for directly reaching millions of poor people facing increasing disaster and climate risk. Global experience shows that particularly in poor countries, social safety nets provide the basic platform for developing a social protection system over the longer term. Given the depth and width of poverty in Madagascar, safety nets can be expected to continue to be a necessary part of the country's development efforts for the foreseeable future. In Madagascar, the main social safety net programs are supported by international partners. Some of the IDPs most involved in the sector are the World Food Programme[46] (WFP), the United States Agency for International Development[47] (USAID), the United Nations Children's Fund (UNICEF), the International Labor Organization (ILO), the European Union (EU), and the World Bank. The World Bank in collaboration with some of these actors are currently supporting the development process of the country's social development project, being led by the Ministry in charge of Social Protection, the Ministry of Population, Social Protection, and the Promotion of Women (MPSPPW), since the policy is expected to provide a framework for collaboration, coordination and harmonization of the sector.

Previous or On-going Assessments

There are a number of ongoing relevant studies that are expected to provide a better understanding of the problematic in the South, and that would help to better identify the activities of intervention under the proposed investment project. These are: i) Access to water in the South of Madagascar (World Bank), ii) The impact of El Niño on agriculture cultures in the South (FAO and World Bank), iii) Agriculture production Systems (World Bank), iv) The impact of El Niño on livestock in the South, v) A quantitative evaluation of the impact of the programme FIAVOTA[48] on the consumption, and the social and economic well-being of UNICEF beneficiary households (World Bank), vi) Prioritization of rural roads in the South (EU & UNDP), and vii) Fisheries Management Plan being developed for the regions in the South (World Bank funded).

Justification—Rationale for Investment and Alignment to National Priorities

In a context of extreme poverty as such of the Grand Sud region of Madagascar, where the most vulnerable social groups are deprived in multiple dimensions, several related issues demand immediate attention in an integrated manner. Despite all these challenges, it is possible to shift the intervention approach in the region from emergency management and disaster response to strengthening the long-term resilience of the region. For the Grand Sud, this would imply, amongst other aspects:

(a) Develop a better understanding of the social dynamic and the existing means within which the communities share and manage risk. A major challenge for the conception of interventions managed by the community, is the difficulty of collaboration between the community members. As such a better understanding of the

[46] The WFP supports programs that provide school feeding, prevent and treat acute malnutrition, increase access to markets for smallholder farmers, and provide relief and early recovery assistance in the form of cash- or food-for-work programs to vulnerable households affected by natural disasters.

[47] The USAID implements the Food for Peace Program, an integrated community development program that seeks to reduce malnutrition, increase agricultural productivity, and strengthen household and community resilience, including through food-for-work activities.

[48] FIAVOTA is a social protection program based on monetary transfers in combination with the community nutrition program, including funds for livelihoods recovery, implemented by the FID and ONN, under the responsibility of the MPSPPW.

informal mechanisms of communities can help identify the most efficient ways to promote a collective action towards resilience.

(b) Identify ways to promote livelihood diversification and production increase. This could include activities directed towards improving rural infrastructure, collective production, improve land tenure and livestock security, accelerate the human capital of the poor, etc. It should also focus on diversification of livelihoods less sensitive to risks from external shocks, such as extreme weather events or climate change.

(c) Strengthening social cohesion and social inclusion at the community level. A better understanding of the conflict factors is necessary in order to support the promotion of collective action and citizen engagement for the enhancement of livelihoods and resilience. It is also important to identify ways to promote social inclusion and the empowerment of women, children and other marginalized groups.

(d) Strengthening technical and financial partner coordination is paramount for better identifying priority interventions and ensure their complementarity. A first step was taken by the government with the support of the technical and financial partners (under the direction of the UNDP) for the development of a framework of intervention of emergency activities. This approach needs to be continued and strengthened in order to amplify the effects of interventions.

Social protection provides an important vehicle for directly reaching millions of poor people facing increasing disaster and climate risk. Global experience shows that particularly in poor countries, social safety nets provide the basic platform for developing a social protection system over the longer term. Given the depth and width of poverty in Madagascar, safety nets can be expected to continue to be a necessary part of the country's development efforts for the foreseeable future.

The design of the project has been largely guided by the priorities signalled during the regional stakeholder consultations undertaken as part of the SPCR development process as well as the available regional development plans. These are aligned with the priorities and objectives identified in Madagascar's NDP and the SPCR guiding principles.

Strengthening social protection (objective 4.8) is one of the objectives of strategic Axis 4, *Human Capital adequate for the Development Process*, of the National Development Plan (NDP) 2015-2019, with sub-objectives that include: i) fighting against exclusion and social vulnerability, ii) improving food security and nutrition and iii) promoting social rights and equities. The Government of Madagascar has made social protection one of its top priorities as evidenced by the President's repeated mentioning and support to the sector, the creation of a dedicated ministry, and the requests for technical support and financing of the sector.

However, the goals of resilience, equity, and opportunity cannot be achieved with isolated programs, within a single sector. Attaining them requires appropriate policy, legal and institutional frameworks, as well as a portfolio of instruments and collaboration across economic sectors. Creating strategic links with key sectors is crucial for the development of the social protection sector.

The project is therefore being designed as an integrated, multi-sectoral project, linking the social protection sector with other sectors such as the natural resources, transport and agriculture sectors, that can link temporary income support to productive activities, providing beneficiaries with an opportunity to rise out of poverty in the future.

As a result, the project will be further supporting other priority objectives under strategic Axis 4 of this plan, such as Objective 4.5., *Ensuring access to potable water, hygiene and sanitation infrastructure*, as well as several objectives under strategic Axis 3, Inclusive Growth and Territorial Anchoring of Development. Axis 3 calls for different parts of society, sectors, and territories to work in synergy and achieve optimal use of natural resources and physical assets, taking into account key constraints such as land, skills, and technical instruments. Some of the specific objectives that this project is expected to support are: Objective 3.1, *Identify, exploit and strengthen primary sectors and high value resources*, with a specific attention to the agriculture sector, or Objective 3.2, *Strengthen support and structural infrastructure, with a specific attention to the transport sector.*

The project also supports several Madagascar sector strategies, including: (i) the Agriculture, Livestock and Fishery Strategy (*Programme Sectoriel Agriculture, Elevage et Pêche, PSAEP*), supported by the Comprehensive Africa Agriculture Development Program (CAADP) promoted under the African Union's New Economic Partnership for Africa's Development (NEPAD); (ii) law 2015-003, which updates the Malagasy Environment Charter establishing the general principles for environmental management in the country; and (iii) the upcoming Environmental National Policy for Sustainable Development, which will aim at promoting healthy livelihoods and at increasing the contribution of environmental services to the national economy.

Project Description

Despite all these challenges, it is possible to shift the intervention approach in the region from emergency management and disaster response to strengthening the long-term resilience of the region. To help the Grand Sud, and in turn, Madagascar, tackle these challenges, and advance the national move towards climate resilient growth, Investment Project 4 is being designed with the following approach:

(1) The project is being conceived as a framework approach. Under the framework of intervention of the social protection sector, a range of potential activities within related specific sectors are proposed to enhance the region's resilience to climate change. The final activities to be implemented as part of the project will be identified on the basis of the outcomes of ongoing projects and technical assistances being undertaken by the World Bank and/or other development partners.

(2) The integrated, multi-sectorial approach that is being used is designed to take advantage of natural synergies between sectors, in contrast to a more traditional approach that would involve the preparation of multiple stand-alone operations.

(3) The proposed project is designed to target the most vulnerable populations, with a view to improve their food security situation.

(4) Recognizing the specific context of the Grand Sud, the design of the proposed Project has been largely guided by the priorities signalled during the regional stakeholder consultations undertaken as part of the SPCR development process as well as the available regional development plans, which are aligned with the priorities and objectives identified in Madagascar's NDP and the SPCR guiding principles.

(5) In addition, the project design is taking into consideration the outcomes and results of past and on-going projects and technical assistances being carried out by the World Bank and other IDPs in Madagascar. The Project proposes to selectively scale up some of the successful activities that have already been implemented as part of the existing portfolio, are the most critical for the preservation of human capital and lifeline infrastructure and are readily implementable. To this end, the project will also take advantage of the institutional arrangements already in place in the region.

(6) The activities financed under the proposed Project are being designed to complement what is currently being supported or being proposed by other development partners in the region (transport and agriculture sectors are being supported by the EU, the AfDB, and the International Fund for Agricultural Development (IFAD) in the far south and southwestern areas of the country).

(7) Lastly, the Proposed Project would continue to support disaster response activities and strategies, exploring options to support social and economic community resilience with a view to strengthening the capacity of the most vulnerable population in the South to the impact of extreme weather events and the effects of climate change.

Prioritization and Selection of Interventions

The final interventions to be supported under the project will be selected based on the following criteria:

(a) Their potential to contribute to the preservation of critical lifeline infrastructure, the preservation of incomes and the reduction of vulnerability;

(b) The ability to be implemented quickly and to achieve rapid results on the ground;

(c) The absence of alternative means of supporting the intervention;

(d) Ensuring full donor coordination in the region; and

(e) Ensuring the maintenance and sustainability of the intervention and its outcomes.

Project Objectives

Project Development Objective

In the present context of deteriorating infrastructure and increased household vulnerability, the proposed Project aims to preserve lifeline infrastructure in critical sectors (notably transport and water resources) and to reduce social vulnerability by scaling up social protection efforts in targeted areas.

The Project Development Objective is to build climate resilience by scaling up social protection efforts, rehabilitating selected lifeline infrastructure and strengthening livelihood diversification of selected communities in the Grand Sud.

IV.4.4.2 Specific Objectives

Specific objectives of the project include:

(1) Support the government in increasing the access of extremely poor households to safety net services and in laying the foundations for a social protection system, that will provide households with income earning opportunities.

(2) Rehabilitation of key secondary road infrastructure expected to help to slow, and hopefully reverse, part of the sustained decline in economic activity.

(3) Rehabilitation of selected water resources infrastructure, improving both the direct access to water of selected communities as well as the water distribution infrastructure.

(4) Promote livelihood diversification towards others that are less sensitive to external shocks like extreme weather events and climate change.

Geographic scope

This project will target the impoverished regions of the Grand Sud of Madagascar.

Project Components and Activities

The project components will be designed when the specific priority activities and interventions that will be supported by the project are identified and further defined during Phase 2 of the SPCR. The proposed Project's main focus would include the following potential activities linked to broader operations:

Activity Group 1: Scaling-up Social Protection Systems for Strengthening Social Resilience

While a deeper analysis would be necessary to conceive an efficient support for the resilience of the Grand Sud, the existing social protection programs offer a first step for moving from emergency management to risk management.

This activity group will aim at scaling up the interventions from the recently approved World Bank financed Social Safety Net Project (P149323), whose project development objective is to support the government in increasing the access of extremely poor households to safety net services and in laying the foundations for a social protection system. The total project cost is US $40 Million, and the project is to be implemented between 2016 and 2021. The project is benefitting from a GFDRR grant to carry out an in-depth and systematic analysis of the situation in the South. The results of such analysis will be utilized to better define the interventions to be undertaken as part of this

first Activity Group.

Specific interventions that could be designed under this activity group to support the development of the evolving social protection system, include:

i. Building a Safety Net for the Poor in Selected Rural Areas. Support the Social Safety Net Project to turn the existing cash-for-work program into a Productive Safety Net that will provide regular, multi-year income support to extremely poor households in exchange for them using their labor to help to build productive assets within their communities, thus increasing food security and mitigating the effects of climate change in the longer term.

ii. Expanding the Human Development Cash Transfer Program (HDCT), which is currently being piloted under the Social Safety Net Project, to provide income support to poor households linked to their children's human capital development.

iii. Early Recovery Response to Natural Disasters. Providing short-term rapid disaster response in the form of cash-for-work activities aimed at cleaning up and rehabilitating damaged community infrastructure.

iv. Support for the establishment of the core institutional building blocks of an evolving social protection system starting with a transparent and versatile targeting system for identifying extremely poor households, a beneficiary registry, and a streamlined payment system.

Intervention areas will be selected taking into account the complementarity with other programs as well as implementation efficiency.

Activity Group 2: Natural Resources Management, Livelihood Diversification and Coastal Resilience

The vulnerability of communities is directly linked to the degradation of the natural resources and the recurrent extreme weather events, in particular drought. The regions with highest poverty incidence and weak productivity are the ones with highest environmental and soil degradation. This is a direct result of the fact that poor population often lack the resources to avoid degrading the natural resources and the environment. The impact of cyclones and prolonged drought periods, can cause important damages, including crop loss, increase of the incidence of epidemies, coastal and marine ecosystem degradation, etc. This suggests the need of livelihood diversification to others that are less sensitive to external shocks like extreme weather events and climate change. Natural resources management and disaster risk management activities at the community level certainly play a role in the communities' risk reduction, livelihoods diversification and the strengthening of the local capacity of the communities.

Directly linked to the management of natural resources and livelihood diversification would be the strengthening coastal resilience.

Specific interventions envisioned under this Activity Group include:

i. Implementation of Marine Conservation Project in selected regions. Climate change is forcing many people to find different ways of coping with the erratic meteorological conditions. At the moment the regions's marine resources are not well utilised, and if managed in a sustainable way could be a viable alternative if crops fail. It could also act as a preliminary pathway for introducing marine conservation projects in the Grand Sud.

i. Preservation and conservation of dune ecosystems.

Activity Group 3: Rehabilitation of Water Resources Infrastructure

Water scarcity, which is widespread in all water-using sectors, and the bad practices in water resources management significantly hamper development efforts. The lack of water and an inadequate water management is one of the causes underlying the health, nutrition, education and subsistence problems in the region. Access to water is constrained primarily by lack of bulk water infrastructure. Water distribution infrastructure is very limited, and rural communities have barely any direct access to water. In addition, much of the existing irrigation infrastructure has deteriorated noticeable during the recent years, making it non-operational and further threatening the livelihoods of a large segment of the

population (for example, around 60% of the 500 to 600 wells in the Androy and Anosy regions are non-operational).

While there are currently several efforts being implemented by various IDPs, it is of outmost importance to improve the coordination between the different actors and to integrate the community in the development and implementation process of the necessary solutions. The preliminary results of a study undertaken by UNICEF, mapping the water conductivity in the country indicate that the conductivity levels are very high, especially in the southern regions, and so they can't be utilized for consumption or agricultural purposes. In other regions where there is water, the problem seems to be the appropriate management of the water resources. In summary, there is no clear strategic approach to solve the water problem in the region, which leads to the duplication of efforts and scattered and often inefficient solutions.

The objective of the current Activity Group is to improve the living conditions of the population by providing sustainable rural drinking water and sanitation services. Interventions proposed under this Activity Group include:

i. Strengthening the local and regional capacities for water resources management.

ii. Development of an Integrated Water Resources Management Strategy and Action Plan for the Grand Sud, that integrates the participation of communities in the development and implementation of the necessary solutions.

iii. Rehabilitation and improvement of selected water extraction (e.g. wells, solar pumps) and distribution infrastructure (e.g. connections to the main pipeline)

iv. Development of infrastructure maintenance plans and capacity building activities to ensure sustainability of the proposed infrastructure works.

v. Construction of desalination plants in selected communities

Activity Group 4: Rehabilitation of Road Infrastructure

The road infrastructure asset base has been deteriorating for decades due to inadequate investments and maintenance funding. As funding dried up during the last decade due to the freeze of development partner's support in this heavily aid-dependent sector, public and parastatal agencies working in the transport sector have been unable to undertake much-needed new investments or even maintain existing infrastructure. Today, the preservation of key sections of the road network becomes critical in order to prevent traffic cut and subsequent economic activities disruptions (potentially disastrous impacts on agricultural production, rural livelihoods, and household welfare).

This Activity Group aims at supporting the rehabilitation of selected road infrastructure. In order to maximize synergies across activities and projects, road rehabilitation works would be mostly implemented on the secondary (rural) road network, to improve the connectivity of selected communities being targeted by other Activity Groups. Interventions proposed under this Activity Group include:

i. Rehabilitation of selected road infrastructure needed to restore or maintain access to agricultural production zones, markets, health centers, and schools;

ii. Development of infrastructure maintenance plans and capacity building activities to ensure sustainability of the proposed infrastructure works.

Activity Group 5: Project Management, Coordination and Technical Assistance

It is envisioned that a series of studies involving stakeholders will be undertaken, so that the current coping mechanisms for climate change can be identified. These studies would include extensive interviews with local people and an analysis of any current research/study in the specific area of intervention. This will build an overall representation of what measures are cuurently being formulated or implemented the communities, the government and international partners, as well as what actually works. These social surveys will also help to ascertain local knowledge; seasonal variations such as winds, currents and rains, in addition to perceived changes in natural resources. All this will help to understand the local situations before implementing any activity.

This activity group is therefore envisioned to integrate all those assessments and studies that will be necessary for the preparation and formulation of the specific interventions. In addition to the consultant services, and technical advisory services and assessments, this activity group will finance project management and coordination costs, including operating costs and training, media information campaigns and communication, and financial audits.

Value Added and Sustainability

Value Added

- *Integrated multi-sectoral approach.* Investment Project 4 will use an integrated multi-sectorial approach to take advantage of natural synergies between sectors, in contrast to a more traditional approach that would involve the preparation of multiple stand-alone operations.
- *Scaling up successful and innovative initiatives.* The project design will take into consideration the outcomes and results of past and on-going projects and technical assistances being carried out by the World Bank and other IDPs in Madagascar. The Project proposes to selectively scale up some of the successful activities that have already been implemented as part of the existing portfolio, are the most critical for the preservation of human capital and lifeline infrastructure and are readily implementable. To this end, the project will also take advantage of the institutional arrangements already in place in the region.
- *Making use of existing mechanisms.* The proposed Project would take advantage of existing implementation mechanisms and build on ongoing activities so as to facilitate implementation and deliver rapid results. It would support fast-disbursing activities that would directly impact beneficiaries' access to specific services in the short term, while strengthening overall social services systems in the medium term.

Sustainability

- The proposed Project would adopt a "Build Back Better" approach that applies climateproof construction norms to rehabilitate and reconstruct infrastructure. Much of the infrastructure targeted by the proposed Project has been damaged by natural disasters, notably cyclones. The application of construction norms (either those recently developed by the *Cellule de Prévention et de Gestion des Urgences*, CPGU, with IDA support or those proposed to be developed as part of the Project) would ensure future resilience of infrastructure rehabilitated or reconstructed by the proposed Project, and thereby help to ensure the sustainability of project achievements.

Gender Lens

Gender-based constraints related to poverty, education, lack of access to information and natural resources, and the low level of participation in decision-making at the community level are some of the widespread realities faced by women in Madagascar, which are more acute in the Deep South. In the Deep South, the lives of women are primarily governed and impacted by the region's water context, as water collection is women's prime responsibility. In order to meet the needs of their households, where women and girls need to spend more time fetching water due to the water scarcity context. This burden is likely to increase due to the impacts of climate change. As a result, women and girls have clearer vested interests in the continued functioning of water supply systems. Similarly, they are also faced with the responsibility to secure food and fuel for cooking and heating, thus, women face the greatest challenges. When coupled with unequal access to resources and to decision-making processes, limited mobility places women in rural areas in a position where they are disproportionately affected by climate change. Vulnerable women, such as widows, have a need for more tailored livelihoods support.

In the context of climate change, changes in agricultural conditions resulting from climate change have a considerable impact on women's farm production, incomes and food security. The previous factors underlying women's greater vulnerability are compounded by their lack of access to and control over land and other natural resources, technologies and credit, which not only means that they have overall fewer resources to cope with seasonal and episodic weather,

natural disasters and the effects of climate change[49] (IUCN, 2007), but they also have limited control over land use and farm inputs and produce.

This investment project will ensure that the rights of rural women are ensured with respect to food security, non-discriminatory access to resources, and equitable participation in decision-making processes where climate resilience activities are implemented. In general, women will particularly benefit from the project activities. The process of selection of beneficiaries would ensure that at least 50 percent of beneficiaries are women.

During implementation, technical backstopping will be sought from the Ministry of Population, Social Protection and Promotion of Women and the Gender Working Groups, to ensure that gender concerns are adequately addressed from the inception of the project. A range of complementary activities important to enhance women's participation in the rural economy and in resilience building activities, will be considered. These include improving access to formal information, the provision of specific training for women, encouraging financial inclusion through the creation of savings and credit groups, and the establishment of women-only self-help groups for processing and marketing.

Synergies with on-going projects

While further analysis is needed to devise effective support for resilience in the South, existing social protection programs provide an opportunity to take a first step towards shifting from emergency management to risks. As such, Investment Project 4 is expected to build on the experiences of various past and ongoing initiatives. The outcomes of these initiatives will be taken into account for the identification of the specific interventions during project preparation.

One of these initiatives is the FIAVOTA program, a combined cash transfer, recovery grant, and nutrition program, financed by the World Bank and implemented by the Intervention Fund for Development (FID) and the National Office for Nutrition (ONN), under the coordination of the Ministry of Population, Social Protection, and Promotion of Women over a three-year period, which provides support directly to the female head of household as they are the primary caretakers.

Investment Project 4 will also build on the outcomes of a series of relevant ongoing studies, such as:

(1) Access to water in southern Madagascar (by the World Bank);

(2) The impact of El Niño on agricultural crops in the South (by FAO and the World Bank);

(3) Agricultural production systems (by the World Bank);

(4) The impact of El Niño on livestock in the South; and

(5) A quantitative assessment of the impact of the FIAVOTA program on the consumption, social and economic well-being of UNICEF beneficiary households.

Finally, the proposed project will take advantage of existing implementation capacity, building on activities that are underway, and explore synergies between sectors. Thus, the proposed project will build on the experiences and lessons learned from the following ongoing projects:

- *UNDP's cash-for-work program*, which is being implemented in the Grand to help the local economy recover;
- *Emergency Food Security and Social Protection Project (P120631),* a World Bank financed project (US$ 65 Million) that is currently being implemented (2014-2018), whose objective is to strengthen the Recipient's immediate capacity to respond effectively to the food security and locust crises, by: (i) increasing agricultural production capacity in Project Areas, while enabling extremely poor households, in the Project Areas, to access cash transfers and cash for work activities; and (ii) improving the Recipient's capacity to respond promptly and efficiently to an Eligible Crisis or Emergency.

[49] International Union for the Conservation of Nature (IUCN) (2007). Gender and Bioenergy. Factsheet 2007, http://iucn.org/about/work/programmes/gender/gender_resources/?4481/Climate-Change-and-Gender-Factsheets

- *Social Safety Net Project (P149323),* also financed by the World Bank (US$40 Million) and being currently implemented (2016-2021), aimed at supporting the government in increasing the access of extremely poor households to safety net services and in laying the foundations for a social protection system.
- *Sustainable Landscape Management Project (P154698),* a project financed by the World Bank (US$65 Million, IDA), the AFD (US$25 Million) and GEF (US$ 13.7 Million Grant), currently under preparation (2017-2022), whose objective is to increase access to improved irrigation services and agricultural inputs, and strengthen the integrated management of natural resources in the Selected Landscapes by the local actors and, to provide immediate and effective response to an Eligible Crisis or Emergency. This Project will be the first in what is expected to be a 'Series of Projects' (SoPs) for which the Program Goals are to: (1) reduce the degradation of natural resources; and (2) increase the value of output from productive sectors.

Synergies with other SPCR projects

Investment project 4 will directly benefit from the strengthened hydro-met systems and services that will be modernized as part of Investment Project 1. Equipment installed and data collected will support the understanding of the climate risk information in the Grand Sud, which will be used for the identification of the specific activities to be included in the project during project preparation.

Synergies are also expected to be created with Investment Project 5, *Enhancing Climate-Resilient Agricultural Production, Food Security and Nutrition in the "Grand Sud"*, which will also be implemented in the same region. This project will include activities aimed at providing support for [agricultural] production and processing through the construction of critical and structuring infrastructures to enhance the resilience and competitiveness of the area (dam, irrigation, Energy), and the development of the private sector in the area through the development of agricultural potential (promotion of small and medium-sized agricultural enterprises, agro-industry, development of value chains, etc.), which will in turn help promote shared economic growth and reduce poverty and vulnerability, aiding to fulfilling the objectives set for Investment Project 4.

Knowledge Management

The project will contribute to the creation and sharing of knowledge, collective learning and institutions as follows:

- Contribution to the SPCR Knowledge Management System. Investment Project 4 will also further contribute to populating the SPCR Knowledge Management System developed under Pillar 1 with the data and information generated during the preparation and implementation of the project.

Implementation Arrangements and Readiness

As noted above, implementation arrangements for the proposed Project will be based to the extent possible on well tested existing institutional structures. Details regarding the implementation arrangements for this investment project will be defined during the project preparation stage.

Anchor Institutions and Partners

To achieve rapid on the ground results and ensure close fiduciary oversight, the proposed Project will be implemented by existing institutional structures with demonstrated capacity, that have been streamlined wherever possible to facilitate rapid implementation. These Implementing Agencies could be: (a) ARM for the execution of all transport lifeline infrastructure rehabilitation and related institutional strengthening activities; (b) FID for the rehabilitation and reconstruction of community-level infrastructure and implementation of the cash-for-work programs, (c) CPGU for the activities designed to enhance capacity to respond to natural disasters

Since most infrastructure activities would involve the rehabilitation of existing infrastructure, mandatory Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs) and Resettlement Action

Plans (RAPs) could be prepared relatively quickly.

Cost estimates

Investment Project 4 is being conceived as a framework approach with a range of potential interventions that still have not been defined. Project costs are estimated to be at least USD 70 million.

Project Expected Results and Outcomes

While the specific expected results of Investment Project 4 will be set once the specific activities to be implemented are identified and defined, overall, the implementation of this project is expected to result in increased resilience of the target population to the impact of natural hazards and the effects of climate change.

As part of Activity Group 1, *Scaling-up Social Protection Systems for Strengthening Social Resilience*, some of the outcomes that the project would aim for would be, an increased number of major social infrastructure upgraded to climate resilience, and an increased number of beneficiaries of the safety net programs (HDCT, PSN) belonging to the 30% poorest population.

As part of Activity Group 2, *Natural Resources Management, Livelihood Diversification and Coastal Resilience*, the target communities are expected to benefit from improved management of the natural resources, improved governance and sustainability in the natural resources sectors, strengthened livelihood diversification and improved access to productive inputs, which will in turn improve economic opportunities and livelihoods in the natural resources sectors.

With the activities proposed under Activity Group 3, *Rehabilitation of Water Resources Infrastructure,* the main outcomes of this Activity Group would be improved access to water for selected communities, and improved water and sanitation infrastructure.

Finally, as part of Activity Group 4, *Rehabilitation of Road Infrastructure,* the communities would be expected to benefit from improved/restored selected (all-season) road infrastructure.

Project Beneficiaries

The project beneficiaries will be extremely poor households living in communities in selected regions and districts in the Grand Sud, that depend on land and natural resources for their livelihoods. These households and their communities will benefit from the improved transport and water and sanitation infrastructure, the improved management of the natural resources and improved access to productive inputs. Furthermore, community organizations, i.e., local forest user groups, or *Communautés de Base* (COBA) and water user associations (WUAs), will benefit from the project in terms of capacity building and equipment.

The regions and districts to benefit from the project's interventions will be selected jointly by the Ministries leading the activities in the specific sectors, including, Ministry of Population, Social Protection, and Promotion of Women (MPSPPW), the Ministry of Agriculture (MOA), Ministry of Transport (MT), Ministry of Public Works and Meteorology (MPWM), Ministry of Water, Sanitation and Hygiene, and the Ministry of Environment, Ecology and Forests, amongst others, and the FID based on data on the areas' poverty levels, malnutrition rates, school attendance rates, food security, productive potential and complementary programs/interventions. Within the specific regions, the target districts will be chosen based on their poverty levels, their vulnerability to external shocks such as extreme weather events or climate change, and their potential to foster synergies between social safety nets and ongoing or in-preparation rural development programs in other sectors such as transport, water and sanitation, and environment.

Women will particularly benefit from the project activities. The selection process would ensure that at least 50 percent of beneficiaries are women.

Government institutions at the national level, especially in the participating ministries and their agencies and departments, will benefit from support to strategic planning, improving governance, technical assistance for policy

implementation, support for operations and implementation of their programs, as well as a geo-referenced data.

M&E

M&E will be carried by the Implementing Agency as part of the project management component, and will be part of the overall PPCR Results Framework as included in Section I. provides potential project outcomes and possible indicators. The project Results Framework, will provide a framework for accountability of progress towards local and regional objectives of climate-proofing Social Infrastructure and Regional Development in the "Grand Sud" of Madagascar. This will include accountability of the participating agencies and ministries.

In terms of accountability towards citizens, demand-side social accountability of interventions could be captured through a citizen engagement indicator that could also measure gender aspects. The citizen engagement framework would be based on a perception survey and a strong feedback loop. The range of sources of data include: perception survey (citizen engagement), field survey and institutional survey. Data collection would be carried out annually. Central to the M&E approach is a platform for communication of results including dissemination and communication products. The Project would be expected to put special emphasis on mapping of project interventions and results through geocoding of activities and overlay with key indicators.

The M&E activities will be to: (i) generate information on project progress per the results framework; (ii) analyze and aggregate data generated at local and regional level; and (iii) document and disseminate key lessons to all stakeholders.

Financing Strategy

A portion of the estimated cost of this investment project may be met by end user contributions and GoM co-financing. The remainder may be met through a combination of grants and loans from one or a consortium of new and existing international funding sources. The bilateral and multilateral funding institutions listed next already support or may potentially have interest in the overall goal within Madagascar of climate-proofing social infrastructure and regional development in the "Grand Sud", or in some combination of the Activity Groups proposed under the project: i) Adaptation Fund, ii) African Development Bank, iii) Climate Investment Funds – Pilot Program for Climate Resilience, iv) Global Environment Facility Least Developed Countries Fund, v) Green Climate Fund, vi) United Nations Development Program, vii) World Food Programme, viii) The World Bank (IDA), ix) The EU Madagascar Office, x) Agence Française de Développement (AfD), xi) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), xii) Swiss Agency for Development and Cooperation, xiii) UK Department for International Development (DfID), and xiv) US Agency for International Development (USAID).

Table 2.13: Expected Results and Indicators for IP4. Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud"

EXPECTED RESULTS/OUTCOMES	PROPOSED INDICATOR(S)
Activity Group 1 - *Scaling-up Social Protection Systems for Strengthening Social Resilience*	
Major social infrastructure upgraded to climate resilience	Number and type of climate resilient social infrastructure supported by SPCR funds, e.g.: i) Water harvesting, ii) Soil and water conservation structures, iii) Water storage facilities, iv) Mini irrigation schemes, etc.
	Percentage of community assets maintained one year after their completion.
Increased number of beneficiaries of the safety net programs (HDCT, PSN) belonging to the 30% poorest population	Number of beneficiaries of safety net programs (of which female), consisting of: - Number of beneficiaries of conditional cash transfers (number) - Number of beneficiaries of cash-for-work and public works programs
	Number of employment days created under the PSN and the disaster response cash–for-work activities
Activity Group 2 - *Natural Resources Management, Livelihood Diversification and Coastal Resilience*	
Improved management of the natural resources	Number of natural resources management plans (e.g. marine conservation plans) developed
Strengthened livelihood diversification and improved access to productive inputs	Percentage change in rural livelihood improvement
	Number of rural community's climate change adaptation livelihood improvement programs implemented
	Number of community members involved in natural resources management programs (e.g. marine conservation programs), disaggregated by gender
Activity Group 3 - *Rehabilitation of Water Resources Infrastructure*	
Improved access to water for selected communities	Share of rural population with access to water
	Number of wells restored and servicing selected communities
	Number of connections to pipeline rehabilitated and servicing selected communities
Improved water and sanitation infrastructure	Share of rural population with access to improved/rehabilitated water and sanitation infrastructure
	Area provided with improved water and sanitation infrastructure
Strengthened local and regional capacities for water resources management	Integrated Water Resources Management Strategy and Action Plan for the Grand Sud, that integrates the participation of communities in the development and implementation of the necessary solutions, developed
	Number of community members, local and regional staff engaged and participating in the development of the Integrated Water Resources Management Strategy and Action Plan, disaggregated by gender
Activity Group 4 - *Rehabilitation of Road Infrastructure*	
Improved/restored selected road infrastructure	Number of communities with rehabilitated road infrastructure to access markets in project areas
	Share of rural population with access to an all-season road (%) Number of persons with access to an all-season road, disaggregated by gender
	Length of roads rehabilitated;
	Number of bridges rehabilitated/ reconstructed;

11.5 Proposed Investment Project 5: Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition in the "Grand Sud" (Indicative cost: US$ 135 million)

Responsible MDB	ADB (African Development Bank)
Total Project Cost	USD 135 million
PPCR Request	USD 35 million
Co-financing	USD 100 million
Project Preparation Grant:	Mars 2018
MPIS fees:	

Background and Justification

The South of Madagascar, hosting the regions of Androy, Anosy and Atsimo Atsinanana, is a semi-arid area. With annual rainfall ranging from 400 to 600 mm, rains are lacking and poorly distributed both in time and space; And for the worst years mean annual precipitation can be as low as 300 mm. Eight months out of twelve, from March to October, the few rivers are dry, including Menarandra and Manambovo. This extreme rainfall deficit negatively affects agricultural production and water availability, resulting in chronic food and nutritional insecurity.

Given the lack of water in this part of the country, the proposed solution is the construction of a dam in the vicinity of the Amboaetsy site on the Mandraré River to allow the exploitation of a large area of land cultivated by different irrigation systems (gravity, pumping, sprinkling, drip), supplying drinking water to the surrounding villages but also providing the necessary energy for domestic and industrial use. By respecting the Mandraré River regime, it will be possible to mobilize at least 65 million cubic meters of water per year. The end-use of the water resource will therefore depend on the storage capacity, and hence on the level of the holding dam. The Mandraré River has an average flow of 15 m3 / s on the proposed site.

The Bank will finance the feasibility study for this project for UA 1 000 million from its project preparation fund. This project is justified by the fact that the main constraint of its development is the lack of water for agricultural production and also for the supply of drinking water. This project is the solution that could initiate the development of the Southern Region of Madagascar.

Project Description

The project will be carried out in several phases and the first phase will be devoted to the realization of physical infrastructures (multi-function dam, land management, rehabilitation of access roads, and also during the first phase to create favorable conditions for the development of the integrated growth pole of the South.

Project Objectives

The overall objective of the first stage of the project is thus to promote shared economic growth based on the drivers of growth and local livelihoods and on the other to reduce poverty and vulnerability zoned.

The specific objectives pursued are: (i) support for [agricultural] production and processing through the construction of critical and structuring infrastructures to enhance the resilience and competitiveness of the area (dam, irrigation, Energy); (ii) development of the private sector in the area through the development of agricultural potential (promotion of small and medium-sized agricultural enterprises, agro-industry, development of value chains, etc.); and (iii) sustainable development of the area (combating climate change, drinking water and sanitation, technical and vocational training, etc.). The objective of the project is to create the conditions for the development of the private sector and the creation of decent jobs in the area of the agro industrial integrated growth pole.

Geographic scope

The project will be implemented in the South Region of Madagascar.

Project Components, Activities and Risks

The project will be implemented through 4 components: (i) Hydro-agricultural development: construction of water storage infrastructure (dam), irrigation network construction, plot development, energy production equipment; (Ii) Support for the development of irrigation schemes: management of farmers, agricultural mechanization, storage infrastructure, seed production, drinking water supply infrastructure, energy supply and marketing.

Value Added and Sustainability

Reduce the import of rice from Madagascar and export surplus from production. Annual production will be about 100,000 tons of rice per year. This production will complement production on some hydroagricultural schemes through; (Iii) Stakeholder capacity building: strengthening actors on climate change; sensitizing the actors to the commercialization of production; (Iv) management and coordination of project activities.

Gender Lens

Given their current involvement in the value chain, women will be heavily involved in the production, processing and marketing of products. As regards of production, at least 30% of the area will be allocated to Enterprises created by women; The project will support women to acquire agricultural processing equipment (hullers, packaging, etc.).

Knowledge Management

Recent experiences show that Madagascar remains extremely vulnerable to climate variability and change for structural and cyclical reasons, with the progressive advance of desertification in some regions, the almost irreversible degradation of agricultural land and, above all, the constant destruction of socio-economic infrastructure. The implementation of this project, together with the design of the structures according to the climate resilience standards adopted by the Government, is a test of the effectiveness of the measures recommended. The lessons learned from this project will enrich this debate and will reinforce the Bank's experience in the development of hydro-agricultural infrastructure and serve as a model for other similar projects. In addition, the project, involving beneficiaries and their associations in the design, implementation, management and maintenance of community structures, aims to demonstrate how well-trained and well-equipped farmers can assure durability in agricultural production.

Implementation Arrangements and Readiness

There will be a steering committee chaired by the General Secretary of the Ministry of Agriculture and will include the focal points from different sectors and departments concerned by the project (finance and budget, economy and planning, regional planning, industry and private sector, Trade, road infrastructure, energy, environment, training, education, employment, fisheries, etc.), and other representatives of the regional authorities. This steering committee will provide vision and guidelines, therefore it will ensure the validation of the study reports and give the necessary directives for the smooth running of the preparation, in particular the respect of the preparation schedule and the quality of the documents produced. It will meet at least once per quarter. It will have a technical group and a secretariat, provided by the Project Preparation Unit.

Project Expected Results and Outcomes

The expected results of the project are:

- A multifunction dam is built;
- A 150,000 ha for agricultural production is carried out (for both phases);
- Production of 1,050,000 tons of rice annually (expected output at the end of the development of the two phases;
- 150 km of rehabilitated / built rural roads
- The status of managed land is clearly defined.

Financing Plan and Funding Strategy

The total cost is estimated at UA 135 million for the two phases of the project, the first phase of which will cost 85 million UA and the second phase will be UA 50 million. The financing strategy is to cover the partial collateral risk, the ADF and the climate fund.

11.6 Proposed Investment Project 6: Biodiversity and Eco-Tourism Promotion (Indicative cost: US$ 25 million)

Responsible MDB	ADB (African Development Bank)
Total Project Cost	USD 25 million
PPCR Request	USD 25 million
Co-financing	
Project Preparation Grant	
MPIS fees	

Background and Justification

The South of Madagascar, hosting the regions of Androy, Anosy and Atsimo Atsinanana, is a semi-arid area. With annual rainfall ranging from 400 to 600 mm, rains are lacking and poorly distributed both in time and space; And for the worst years mean annual precipitation can be as low as 300 mm. Eight months out of twelve, from March to October, the few rivers are dry, including Menarandra and Manambovo. This extreme rainfall deficit negatively affects agricultural production and water availability, resulting in chronic food and nutritional insecurity.

Background and Justification

The richness of Madagascar's biodiversity on a global scale is well known. No other comparable ecoregion has such combined levels of biodiversity and endemism. Thus, Madagascar is widely regarded as one of the world's top conservation priorities and the island is among the world's top ecological hotspots for conservation. The country also has coasts that cover more than 5,000 km of mangrove swamps and diversity and support the world's third largest quasi-continuous barrier reef system.

A network of Protected Areas has been set up and now represents more than 2,500,000 Ha, or almost 5% of the national territory. It consists of 27 National Parks, 14 Special Reserves and 2 Integral Natural Reserves. Of these 43 Protected Areas, 7 national parks are classified under the prestigious UNESCO World Heritage Label because of their Outstanding Universal Values. Also, under a UNESCO label, 3 national parks have been nominated "UNESCO Biosphere Reserves" because of their quality of management and integration of development among others. Madagascar is also hosting 5 wetlands areas classified as Ramsar sites due to their ecological richness and the ecosystem services they provide. It should be noted that the Government of Madagascar has officially embarked on the ambitious project to triple the extent of its network of protected areas. The aim is to achieve the IUCN recommended targets of increasing the area of protected areas to a minimum of 10% of the national territory and to ensure the fullest possible representation of biodiversity

The Tourism sector in the national economy

Recognizing that protected areas assume the dual role of ensuring biodiversity conservation while promoting economic development, they are increasingly seen as a means of curbing poverty, unemployment and boosting the country's economic growth. The idea behind this project is thus to strengthen the conservation of protected areas and their valorization through ecotourism with a strong participation of the private sector.

Tourism is playing an increasingly important role in the national economy of Madagascar and is the second largest foreign exchange earner in the country. The potential is enormous but largely under-exploited especially by comparing it with other Indian Ocean countries such as Mauritius. The national parks which constitute the main destination of tourists coming to Madagascar, attract for the moment only about 180,000 visitors during the year. The National Parks represent an important part of the tourist capital of Madagascar, receiving about 65% of tourists. Entries increase by an average of about 30% per year over the last 10 years.

The performance of the tourism sector in 2016 resulted in the creation of thousands of jobs on the Big Island. According to statistics from the Ministry of Tourism, 33,778 direct jobs were created in the hospitality and catering sector, compared with only 32,693 jobs in 2015. In the case of travel and tourism companies, 7,329 jobs were created compared with 6,691 jobs in 2015. Last year, the tourism sector generated a total of 41,107 jobs. The comparison of "nascent" tourism in Madagascar, with what is practiced even in neighboring countries, should constitute a serious encouragement to develop Malagasy ecotourism into a real industry.

Project Description and Activities

The project will consist of four components:

Component 1: Improvement of the regulatory framework.

This component will concern the diagnosis and revision of laws, regulations and conventions on tourism, protected areas, land, transport…

- Review and / or finalization of the Investment Code which should be attractive;
- Clarification of the role of the Ministry in charge of land tenure in the signing of investment contracts on public land, particularly in national parks;
- Updating of the Tourism Code in favor of investment and standardization towards international standards;
- Realization of the "opening of the sky" to call for investments in air, sea and river transfers, after a feasibility study and a revision of the laws concerned. (NB: with the opening of the Malagasy air sky since 2016, more than a dozen airlines are now present in Madagascar, which should lead to a reduction in the tariff of transport, according to tourism operators. The first figures from the Ministry of Tourism for the period January to April, show an excellent tourist season, as the number of arrivals in the first half of the year increased by 9% compared to last year, i.e. 28,206 tourists against 26,629 in 2016.)

Component 2: Develop basic infrastructure in tourist sites.

Problems in transport, both air, land and sea persist in slowing down the development of the sector. At the level of the airline, the flights from abroad that serve the country are not sufficient to cover the demand of tourists. The state of the roads in the country brakes the journey for the organization of a stay for a given circuit. The existing seaports in the country are barely sufficient to accommodate large cruise ships bringing tourists as in the leading countries in the sector. Potential investors, in the face of risks, would prefer to have them shared. For its part, the viability of the sites to be concessioned with private investors and operators would increase the value of these sites and consequently the financial repercussions in the interest of MNP.

The activities of this component will focus on:

- Update the choices of servicing infrastructures for each of the sites concerned; At the same time identify the needs of the concessionaires and the resources that can be used in the Parks concerned (water, sun, wind, various materials …);
- Establish estimates, technical studies and detailed pre-projects;
- Pilot projects such as "electricity generation", part of which could be sold to an energy distributor, thus generating revenue to be invested in conservation and local development activities. Such pilot projects can feed into learning (knowledge management).

Component 3: Strengthen the capacities of the actors and the promotion of the destination Madagascar

Activities in this component will focus on:

- Training of guides, reception staff, promotion staff;

- Promotion of the destination: direct or via the National Tourist Office of Madagascar (ONTM);
- Opening or strengthening the capacity of tourism promotion agencies;
- Designing of marketing plans

Component 4: Legal support in negotiations and development of concessions

Through this component, the government and the various national players will be assisted in the context of complex concession negotiations and transactions in order to remedy the asymmetry between the negotiating capacities of international investors and Malagasy stakeholders. Specialized experts will be recruited and will provide legal advice and technical assistance to government and other local actors involved in the management and enhancement of protected areas and ecotourism. The aim of this component is to overcome the weaknesses characteristic of the negotiation and drafting of contracts and concessions, weaknesses themselves linked to inadequate legal representation and the lack of local capacities.

Project Objectives

(1) Preserving biodiversity,
(2) Developing ecotourism to accelerate economic growth,
(3) Improve the conditions of communities living on the periphery of protected areas,
(4) Promote the emergence of a local private sector that invests in green growth.
(5) Increase the resilience of biodiversity to climate change

Gender Lens

The support and capacity building of women's associations working in various areas around Parks will be strengthened and will concern traditional accommodation and catering, production of handicrafts (weaving, basketry, etc.). Income-generating activities for the supply of sites and eco-lodges through cooperatives will be initiated.

Knowledge Management

Implementation of this project with the review and drafting of new laws and regulations could be a case study for the bank and other donors on how to develop this emerging eco-tourism activity. Implementing incentives for private sector involvement will improve our strategy to promote ownership, profitability and sustainability of investments. The lessons learned from this project will enrich this debate as well as strengthen the Bank's experience in biodiversity conservation and tourism development and serve as a model for other similar projects.

Implementation Arrangements and Readiness

A steering Committee chaired by the Director General of National Parks will be set up and will include the focal points within the ministries concerned by the project (finance and budget, economy and planning, spatial planning, industry and the private sector, Roads, energy, environment, training, education, employment, fisheries, etc.), representatives of regional authorities and representatives of the private sector. It is the organ of orientation of the preparation. In this capacity, it will ensure the validation of the study reports and give the necessary directives for the smooth running of the preparation, in particular the respect of the preparation schedule and the quality of the documents produced. It will meet at least once per quarter. It will have a technical group and a secretariat, provided by the Project Preparation Cell.

Project Expected Results and Outcomes

- Contribution to challenge N ° 16 of the PND “Preservation of the environment”:
- Safeguarding of the environment and natural resources unique to Malagasy development and the sustainable development of the country
- Sustainable and rational management of natural resources
- Ecotourism is developed and contributes significantly to Madagascar’s National Parks budget, which would guarantee the sustainability of conservation;
- The self-financing index of the Parks and Reserves network managed by MNP will reach 50% (this index starts at 20%);
- The revenues from admission fees paid by tourists will have doubled in the fifth year;
- The amounts generated by the hotel concession and service concessions to private operators, will significantly increase MNP’s revenues to invest in conservation and in supporting the development of local communities.
- Improvement of the quality of life of the riparian populations, including directly those of the PAs affected by the project.

Geographic scope

Project Components, Activities and Risks

Value Added and Sustainability

Financing Plan and Funding Strategy

Project Preparation Grant

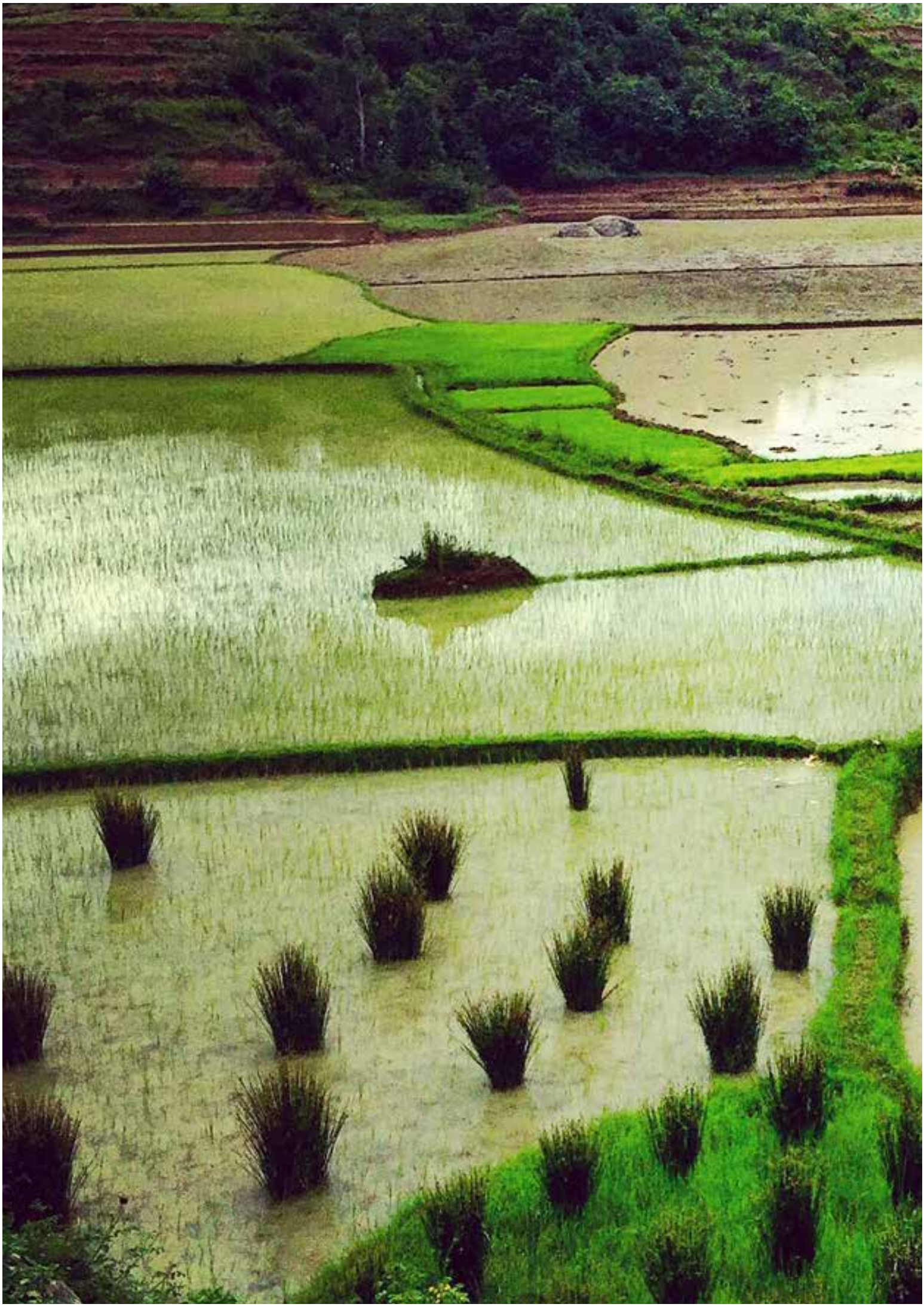
Section 12: Program results' framework

The pillars of the SPCR were strategically selected by the national stakeholders in alignment with the priorities set in the NAP, NAPA and INDC with the aim of complementing the efforts and resources of Madagascar's partners—supported by the MDBs-- in order to achieve transformational change.

Consistent with the PPCR Results Framework, the overall performance of the Madagascar SPCR will be monitored through the results, outcomes and indicators given in the Program Results Framework (RF), in Annex 8. The Program Results Framework (RF) is intended to provide a framework for accountability of progress towards local, regional and national objectives of Madagascar's SPCR (including accountability of the participating agencies and ministries).

The main aspects that have been considered in Madagascar's SPCR RF are:

- Progress in various indicators will be monitored at the program, component and project levels. For some of the investment projects, the effectiveness of interventions will also be monitored at the provincial and other sub-national levels such as commune level, when applicable. Appropriate mechanisms for monitoring and evaluation at these sub-national levels will be further determined during the project preparation stage.
- PPCR core indicators have been taken into consideration for the formulation of the Program's RF. As such, the Program's RF clearly indicates the correspondence of specific indicators with the PPCR core indicators;
- The Program's RF has also sought to mainstream gender dimensions following the recommendations provided by CIF's gender expert.
- Finally, all comments received from the Independent Reviewer have also been integrated into the Program's RF.



ANNEXES

ANNEX I

CONSULTATIONS AND PARTICIPATORY PROCESS: ENGAGEMENT AND PRESENCE LISTS

1.1 First Joint Mission Consultation

CONSULTATION 1ERE MISSION CONJOINTE			
Lieux: Antananarivo			
Date: 16 mai 2017			
Participants			
GIZ	SECC/MPAE	MEP	MFB
USAID	DGE/MEEF	ONE	COORDO/BNGRC
AFD	ESSA/Forêts	LRI/UA/MESUPRES	BNGRC
CRS	SGRF/DA/MTOUR	DGI/SG/MFB	MNP
FAO	SURECA/MSANP	MEN	DGF/MEEF
Conservation International	CE/M2PATE	MEEH	Primature
WCS	CPGU/Primature	MTP	SSAN/MPAE
WWF	MFB	DMA/DGM/MTM	Primature
GRET	CNGIZC/Primature	M2PATE	DGM/MTM
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Hommes (M)= 36, Femmes (F) = 35

1.2 National Dialogue and Consultation on First Draft of the SPCR

NATIONAL DIALOGUE CONSULTATION			
Lieux : Antananarivo			
Date : 2 août 2017			
Organisations participantes			
SSENV/MSANP	CNGIZC/Primature	MTP	DGF/MEEF
SECC/MPAE	Primature	DMA/DGM/MTM	SSAN/MPAE
DGE/MEEF	ONE	M2PATE	Primature
ESSA/Forêts	MRH Pêche	MEP	DGM/MTM
SGRF/DA/MTOUR	MEP	MEEF	BNCCC
SURECA/MSANP	LRI/UA/MESUPRES	MFB	MPAE
CE/M2PATE	DGI/SG/MFB	BNGRC	
CPGU/Primature	MEN	BNGRC	
MFB	MEEH	MNP	

35 representatives (**8 women and 27 men**) from the list of institutions above participated in the National Dialogue Consultation on the 1st Draft of the SPCR

1.3 Regional Consultations at the Grand Sud (Anosy and Androy) during the Technical Mission

CONSULTATIONS REGIONALES GRAND SUD (ANOSY & ANDROY)			
Lieux : Bureau régional Anosy et Chambre de commerce Androy			
Date : 31/08/2017 et 01/09/2017			
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FAO	USCP ASARA	DRTM Androy	DRAE Androy
ORN Anosy	Assosiation femme 8 mars	FID Fort Dauphin	DREP Androy
DRTM Anosy	Commune FD	DREEF Androy	ACF
UNICEF/SANTE	DR Tourisme	Commune Ambovombe	
WHH	ENERGIS	DREP Androy	
Région Anosy	DRAE Anosy	ADRA	
Présidence	• Réunion Anosy présidée par la CPGU, le Directeur du développement de la Région Anosy, et la Banque Mondiale • Réunion Androy présidée par la CPGU, le chef de Région, le maire et la Banque Mondiale		

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Hommes (M)= 34, Femmes (F) =16

1.4 Regional Consultation at the Coastal Areas (Morondava) during the Second Joint Mission

CONSULTATION RÉGIONALE, 2NDE MISSION CONJOINTE, MORONDAVA : 1 OCTOBRE 2017		
PROGRAMMES / PROJETS PAR SECTEUR		
Organisations participantes		
SG region Menabe	Directeur chambre commerce et industrie Menabe	Marché public – préfecture de Morondava
Adjoint au maire Morondava	Projet changement climatique zone côtière Menabe	FANAM – promotion et gestion des aires protégées : 2 dans le Menabe
Chef de région Menabe et cabinet	Affaires sociales région Menabe	DREF
DG Pêche	Ministère du Touorisme	SARAN ONG : restauration de mangroves
Dir agriculture et elevage	Direction régionale éducation nationale	Chef de service régional relation avec les institutions
BVPI PURSAPS Menabe	GRC Préfecture	
Direction regionale travaux plublics		
S&E Direction regionale econimoie et plan		

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Hommes (M)= 26, Femmes (F) = 11

1.5 Second Joint Mission

2ND JOINT MISSION CONSULTATION		
Lieux : Antananarivo		
Date : 4 octobre 2017		
Organisations		
USAID	OCSIF	MSANP
BNCCC	AFD	DGM
CRS	WWF	MFB/SG/DGB/DSB
MTP	WSC/REBIONA	Univ. Tana MESUPRS
MEN	BNGRC/CERVO	MNP
MPPSPF	Fondation TELMA	M2PATE
CUA	FAO	CPGU
MPPSPF	CNGIZC	GIZ
CI	BNCCC/PFN	BNCCC
Plateforme Nationale Femmes Développement Durable et Sécurité Alimentaire	MNP	M2PATE
	MEP	PNUD
	MPPSPF	ONE
ANAE	DIDE/MEEH	Banque mondiale
SSAN-MPAE	WWF	

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Hommes (M)= 29, Femmes (F) = 24

ANNEX II

Memorandum of Understanding Between CPGU and BNCCC for the Coordination of Climate Resilience Actions

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

PRIMATURE

CELLULE DE PREVENTION ET GESTION DES URGENCES

SECRETARIAT GENERAL

BUREAU NATIONAL DE COORDINATION DES CHANGEMENTS CLIMATIQUES

PROGRAMME PILOTE POUR LA RESILIENCE CLIMATIQUE (PPCR)

PROTOCOLE D'ACCORD

Entre

La Cellule de Prévention et Gestion des Urgences (CPGU)
et
Le Bureau National de Coordination des Changements Climatiques (BNCCC)

Protocole d'Accord n° ..... /01/ PM / CPGU / PPCR - BNCCC

Date de Signature:

02 AOU 2017

Le présent Protocole d'Accord est signé à Antananarivo le 02 AOU 2017.

Entre

LA CELLULE DE PREVENTION ET GESTION DES URGENCES, ci-après désignée par CPGU, représentée par son Secrétaire Exécutif, Monsieur RAZAKANAIVO Mamy Nirina **d'une part ;**

et

LE BUREAU NATIONAL DE COORDINATION DES CHANGEMENTS CLIMATIQUES, ci-après désigné par BNCCC, représenté par son Directeur, Madame Nivohary RAMAROSON **d'autre part**.

CONTEXTE

Madagascar compte parmi les pays les plus vulnérables au changement climatique. Les principaux risques climatiques sont essentiellement liés aux événements météorologiques extrêmes tels que l'irrégularité du régime pluviométrique, l'intensification des tempêtes tropicales, des inondations et des sècheresses dont la récurrence et l'intensité se sont renforcées. La question de pertes et dommages, causés par ces dérèglements climatiques implique des impacts directs sur l'environnement, la population et l'économie. La sècheresse subie récemment par le Grand Sud ainsi que l'inondation généralisée sur les Parties orientales de la Grande Île, notamment des régions situées aux niveaux des zones côtières cette année durant le passage du cyclone ENAWO, symbolisent concrètement l'ampleur de la situation.

Devant les préjudices imminents, il en ressort d'une part que l'adaptation de la vie des communautés et la gestion du territoire en général aux conséquences de ces aléas sera une condition incontournable, et que d'autre part, l'intégration de la résilience climatique au processus de développement des pays moins avancés comme le nôtre. L'obtention d'un financement provenant du Climate Investment Fond (CIF), du Programme Pilote pour la Résilience Climatique (PPCR) dont la coordination relève de la CPGU, représente une grande opportunité pour le Gouvernement Malagasy de développer une vision intégrée et de mettre en œuvre un processus de planification sectorielle et consolidée pour faire face aux changements climatiques.

L'élaboration du PPCR contribue à la mise en œuvre de la Politique Nationale de lutte contre les Changements Climatiques de Madagascar qui définit le renforcement des actions d'adaptation aux changements climatiques et l'intégration de la dimension changement climatique à tous les niveaux. En outre, le Programme contribue aussi à l'atteinte des objectifs nationaux définis dans les Contributions Déterminées Nationales du pays.

Pour ce faire, et afin de mener à bien les divers processus de préparation et de mise en œuvre du Programme Stratégique pour la Résilience Climatique ou SPCR pour Madagascar, la contribution national sera mise en valeur à travers l'implication de l'ensemble des acteurs socio-économiques en Adaptation au changement climatique et en Gestion des Risques et des Catastrophes dans le processus notamment du BNCCC, de par ses missions et attributions dans la coordination des actions liées aux changements climatiques à Madagascar.

EN CONSEQUENCE, IL EST ARRETE ET CONVENU CE QUI SUIT :

Article 1. Objet du Protocole d'Accord

Ce Protocole d'accord a pour objet de définir les rôles de la CPGU et du BNCCC dans le processus d'élaboration du Programme Pilote pour la Résilience Climatique à Madagascar.

Plus spécifiquement, le Protocole vise à :

- Fournir un cadre formel d'exécution des activités à mettre en œuvre ;
- Améliorer la collaboration entre les Parties dans le cadre de mise en œuvre du Programme Pilote pour la Résilience Climatique (PPCR) et de l'élaboration du Plan national d'Adaptation (PNA) ;
- Décrire les engagements de chacune des Parties sur les activités à entreprendre ;
- Assurer la coordination, la complémentarité et la synergie des activités du PPCR avec celles du PNA ;
- Intégrer les résultats des études et des activités réalisées dans le cadre du PPCR durant le processus de mise en œuvre du PNA.

Article 2. Durée et date de mise en vigueur

La durée de mise en œuvre de collaboration entre les Parties pour le PPCR est de DIX-HUIT MOIS.

Le présent protocole entre en vigueur dès sa date de signature par les Parties contractantes sur la base de respect des termes du protocole et la satisfaction des réalisations et des résultats obtenus.

Article 3. Champ d'actions

Les actions à réaliser dans le cadre du présent protocole sont définies durant la préparation et la mise en œuvre du SPCR et du Plan National d'Adaptation.

Article 4. Engagement des deux Parties

4.1 Engagements de la CPGU

La CPGU s'engage à :

- Contribuer à la réalisation de certaines activités du plan d'exécution du PNA ci-après :
  - Renforcement de capacité des secteurs vulnérables en matière d'Adaptation au Changement Climatique
  - Appui à la sensibilisation du PNA au niveau des zones d'interventions
  - Appuyer l'intégration de l'adaptation aux changements climatiques: dans les stratégies, politiques nationales et politiques intersectorielles, dans le processus de planification (national, régional, local, sectoriel) (Mainstreaming) aux niveaux des régions pilotes
  - Réalisation de consultations interrégionales en vue d'appuyer l'organisation et la mobilisation des Parties prenantes au niveau des zones d'interventions

- Contribution à la collecte, synthèse et analyse des gaps d'information et recensement des évaluations de vulnérabilités déjà conduites à Madagascar
- Contribution à l'évaluation des besoins relatifs au concept « Développement économique du pays basé sur les secteurs vulnérables aux changements climatiques (zones côtières, infrastructures)
- Analyse des scénarios climatiques actuels et des scénarios d'évolution du climat par la mise à l'échelle national, infranational ou à l'échelon adéquat des résultats du 5ème Evaluation du GIEC aux fins de l'élaboration du Plan National d'Adaptation
- Etudes sur égalité des sexes dans les cadres de réaction de l'adaptation
- Evaluation des Coûts de l'adaptation par secteur de développement (zones côtières, infrastructures urbaines)

- Impliquer le BNCCC durant toutes les phases d'élaboration du processus Programme Stratégique pour la Résilience Climatique (SPCR) ;
- Assurer l'interface entre le Comité de Pilotage PPCR et les Comités du PNA ;
- Prendre en considération les acquis du processus PNA et stratégies existantes dans la phase de préparation et mise en œuvre du SPCR.

4.2 Engagements du BNCCC

Le BNCCC s'engage à :

- Veiller à ce que le processus SPCR soit conforme aux politiques et orientations nationales en matière d'adaptation aux changements climatiques;
- Participer aux différentes étapes du processus SPCR ;
- Contribuer à la validation des TDRs, des études et des livrables des prestataires de services liées à la variabilité et au changement climatique ;
- Faciliter l'accès des consultants aux diverses informations et document de référence ;
- Assurer l'interface entre les Comités du PNA et le Comité de Pilotage PPCR ;
- Contribuer à la recherche de financement du Plan d'Investissement du SPCR ;
- Prendre en considération les acquis de PPCR dans le cadre de l'élaboration du PNA.

Article 5 : Engagements communs

Les deux Parties collaboreront étroitement dans toutes les phases de la mise en application de ce protocole, et à ce titre à :

- Assurer la coordination, la complémentarité et la synergie des activités du PPCR avec celles du PNA ;
- Collaborer étroitement dans toutes les phases de la mise en application de ce protocole ;
- Assurer une communication permanente et régulière sur l'évolution du processus.

L'exécution des activités objet du présent protocole suivra le planning convenu lors de la réunion technique entre la CPGU et le BNCCC.

Entre autres, le résultat de cette collaboration contribuera à la mise en place d'une base de données de référence nationale sur l'adaptation aux changements climatiques.
En outre, toute activité de communication relative aux activités entrant dans le cadre de ce protocole se fera sur concertation entre les deux Parties.

Article 6 : Amendement du Protocole
Le présent protocole ne pourrait être modifié que de commun accord et matérialisé par un avenant signé par les deux Parties.

Article 7 : Règlement des litiges
Les litiges survenus dans la mise en œuvre de ce protocole seront dans la mesure du possible, réglés à l'amiable entre les Parties contractantes. A défaut, le différend sera obligatoirement soumis à une procédure d'arbitrage. Le tiers arbitre sera choisi d'un commun accord entre les Parties contractantes.

Article 8 : Notifications
Toute note, correspondance, demande ou accord relatifs à la mise en œuvre du PPCR doivent se référer au présent Protocole et adressé à tous les acteurs et les Parties prenantes.
La feuille de route d'exécution du PNA et le plan d'activité global du PPCR seront annexés aux présents protocoles.

Les Parties désignées ont signé le présent Protocole d'Accord au jour et an ci-dessous :

Pour la CPGU
Date : 02 AOU 2017

Le Général de Brigade Aérienne
RAZAKANAIVO Mamy Nirina
Secrétaire Exécutif de la Cellule de Prévention
et Gestion des Urgences à la Primature

Secrétaire Exécutif

Pour le BNCCC
Date : 02 AOU 2017

MAROSON Nivohary

Directeur


ROCKY
BALBOA

ANNEX III

Terms of Reference of PPCR Steering Committee and Terms of Reference for the Creation of a Monitoring and Evaluation Committee and a Coordination Committee to Support the Elaboration of Madagascar National Adaptation Plan and List of Participating Members

Terms of reference for the creation of a monitoring and evaluation committee

Comité de pilotage dans le cadre d'exécution du Programme Stratégique pour la Résilience Climatique à Madagascar

TERMES DE REFERENCES

Madagascar compte parmi les pays à risque en termes de vulnérabilité au changement climatique. Plusieurs secteurs de développement en reçoivent des impacts notamment la biodiversité et les ressources naturelles, la migration de la population et par rapport à son économie, le secteur primaire qui tient une place importante pour le PIB du pays.

Le pays est classé comme troisième pays à risque, en termes de vulnérabilité au changement climatique. Les principaux risques climatiques sont associés aux aléas climatiques extrêmes tels que les cyclones, les inondations et les sécheresses, dont la récurrence et l'intensité sont renforcées par le changement climatique.

Madagascar a soumis sa manifestation d'intérêt au Climate Investment Funds (CIF) afin de renforcer la résilience climatique, le pays a été choisi parmi les 10 nouveaux pays bénéficiaires du Programme Pilote pour la Résilience Climatique (PPCR)

Le Climate Investment Funds (CIF) a été conçu pour mobiliser des ressources de financement et des investissements à travers les Banques Multilatérales de Développement pour les projets d'atténuation et d'adaptation au changement, y compris les financements concessionnels. Il intervient dans divers domaines, entre autres, le Programme Pilote pour la Résilience Climatique.

Ce Programme Pilote pour la Résilience Climatique (PPCR) vise à aider les pays à mettre en place une planification stratégique pour la résilience climatique, par la suite, un financement supplémentaire pour soutenir les investissements des divers secteurs dans le domaine de l'adaptation.

Plusieurs secteurs sont concernés par ce programme à savoir la gestion des risques et des catastrophes, gestion de ressources en eau, la zone côtière, les infrastructures, l'agriculture, le développement urbain, et environnement et foresterie. Ainsi, afin d'assurer les intérêts de chaque secteur et de l'intersectorialité, un comité de pilotage composé des différents représentants de ces secteurs sont à mettre en place.

Tel est l'objet du présent Termes de Références.

1. PRINCIPALE MISSION DU COMITÉ

Appuyer le processus de préparation et d'élaboration du Programme Stratégique de Résilience Climatique (SPCR) accompagné de son plan d'investissement.

2. MANDATS

Le mandat du COPIL est limité par la période d'élaboration de la SPCR et de sa mise en œuvre.

3. ATTRIBUTIONS

Le mandat du COPIL est limité par la période d'élaboration de la SPCR et de sa mise en œuvre.

- Servir de plateforme d'orientation, de consultation, d'échange et de suivi-évaluation durant les différentes phases du processus ;
- Valider les grandes étapes du processus (plan de travail, document de projet, draft de la stratégie et du plan d'investissement,…)

  - Proposer /Fournir les éléments de prise de décision pour les priorités du pays en matière de résilience climatique dans le PPCR ;
  - Apporter des recommandations lors des éventuelles contraintes ;
  - Fédérer des compétences techniques pour capitaliser les expériences durant le processus d'élaboration ;
  - Mettre à la disposition de l'agence d'exécution et des consultants les documents nécessaires à la réalisation du programme ;
- Appuyer techniquement l'AGEX dans la recherche de financements en vue de mettre en œuvre le Programme
- Faciliter l'accès aux informations au niveau des différents acteurs concernés ;
- Assurer la médiation en cas de conflits éventuels d'intérêts entre les secteurs et les acteurs concernés .

4. STRUCTURE DU COMITÉ DE PILOTAGE

Président : Primature

Vice-Présidents :

- Ministère de l'Environnement, de l'Ecologie, de la Mer et des Forêts (MEEMF) ;
- Ministère de l'Economie et de la Planification(MEP) ;

Agence d'exécution : Cellule de Prévention et Gestion des Urgences

Membres :

- 1 Représentant du Ministère d'Etat chargé de l'Equipement, des projets Présidentiels et de l'Aménagement du Territoire (MEPATE) ;
- 1 Représentant du Ministère du Tourisme, du Transport et de la Météorologie (MTTM)
- 1 Représentant du Ministère de Finance et de Budget (MFB) ;
- 1 Représentant du Ministère de l'Agriculture (MinAgri) ;
- 1 Représentant du Ministère chargée de la Population (MPPSPF) ;
- 1 Représentant du Ministère de l'Eau, de l'Hygiène et de l'Assainissement (MEHA)
- 1 Représentant du Ministère des Travaux Publics (MTP) ;
- 1 Représentant du Commune Urbaine d'Antananarivo (CUA) ;
- 1 Représentant du Cellule de Prévention et Gestion des Urgences (CPGU) ;
- 1 Représentant du Bureau National de Gestion des Risques et de Catastrophe (BNGRC) ;
- 1 Représentant du Comité National de la Gestion Intégrée des Zones Côtières (CNGIZC) ;
- 1 Représentant du Bureau National de Coordination du Changement Climatique (BNCCC) ;
- 1 Représentant du MINSUPRES
- 1 Représentant du GIEC
- 1 Représentants de la Société Civile
- 2 Représentants des ONGs
- 1 Représentant du secteur privé

5. MODE DE FONCTIONNEMENT

Le COPIL se réunit sur convocation du Président.

Il mettra en place des Groupes Techniques selon les besoins.

L'AGEX assure les travaux de secrétariat dudit comité

Terms of reference for the creation of a monitoring and evaluation committee for the National Adaptation Plan

TERMES DE REFERENCE

Création d'un Comité de Suivi et Evaluation dans le cadre du processus du Plan National d'Adaptation de Madagascar (CSE PNA)

1. Contexte

L'élaboration du Plan National d'Adaptation (PNA) est parmi les directives à entreprendre par les Parties à la Convention Cadre des Nations Unies sur les Changements Climatiques (CCNUCC), afin de renforcer les actions d'adaptations dans les pays en développement.

A cet effet, les Conférences des Parties, subséquentes à Cancún, ont tous considéré l'importance de ce Plan National d'Adaptation dans la lutte contre les effets néfastes du changement climatique. Selon, l'Accord de Paris, le PNA servira de mise en œuvre des actions pré-2020, avec des attentions particulières vis-à-vis des pays les plus vulnérables.

Le Plan National d'Adaptation (PNA) détermine les besoins à moyen et à long terme en matière d'adaptation. Il se fondera sur les acquis et leçons apprises des initiatives antérieures mises en œuvre à Madagascar comme le Programme d'Actions National d'Adaptation (PANA).

Le PNA de Madagascar devrait venir combler les fossés vis-à-vis des considérations stratégiques pour la mise en œuvre des actions d'adaptation au niveau national, notamment en termes d'objectifs de réduction de la vulnérabilité, de la gestion des risques climatiques, et de priorisations spatiales et temporelles. Les priorités nationales en matière d'adaptation, décrites dans les différents cadres stratégiques devraient figurer de façon synthétique, en complément avec les études à mener dans le cadre du PNA, pour servir de cadre de mise en œuvre des actions d'adaptation à long terme. En effet, la Politique Nationale de Lutte contre le Changement Climatique élaborée en 2010 accorde une place importante à la réduction de la vulnérabilité et à l'augmentation de la résilience des pays aux impacts des changements climatiques.

Un examen régulier du PNA est nécessaire afin d'éviter les inefficacités en intégrant les résultats des dernières évaluations et les découvertes scientifiques les plus récentes. Ainsi, afin de suivre l'efficacité du processus PNA, un comité de suivi et évaluation sera mis en place.

2. Mandat

Le Comité de Suivi et évaluation du PNA est un organe de suivi et d'examen du PNA afin d'en évaluer l'avancée, l'efficacité et les lacunes. Il est chargé de l'actualisation itérative du PNA et de la notification de ses avancées et de son efficacité.

Il appuie le Comité de Coordination du PNA (CC/PNA) dans l'atteinte des objectifs du PNA.

3. Missions

Le Comité de Suivi et Evaluation a pour mission de :

- Veiller à l'exécution du PTA du suivi-évaluation ;
- Assurer le suivi et l'évaluation de façon régulière des progrès réalisés durant le processus et sur la révision du PNA;
- Élaborer des rapports réguliers de suivi-évaluation des progrès en matière de réalisation des objectifs du CC/PNA ;

Garantir une harmonisation des approches et l'identification des avantages connexes ;

- Définir les paramètres spécifiques permettant de suivre les progrès effectués de l'efficacité du processus et ses lacunes;
- Actualiser le plan national d'adaptation et leur documentation à la fréquence prévue pour le processus PNA ;
- Communiquer les recommandations auprès de Comité de Coordination ;
- Participer au renforcement de la planification du suivi-évaluation du PNA.

4. Composition (Technicien)

Les membres de ce comité sont issus du Comité National sur le Changement Climatique(CNCC) ainsi que les représentants issus :

- des départements ministériels des secteurs vulnérables ;
- des sociétés civiles;
- du secteur privé ;
- des organismes nationaux internationaux ,des PTFs , bailleurs et Partenaires techniques et financières.

Départements ministériels

- Un Représentant du Ministère auprès de la Présidence chargé des Projets Présidentiels, de l'Aménagement du Territoire et de l'Equipement ;
- Un Représentant du Ministère des Finances et du Budget ;
- Un Représentant du Ministère de l'Economie et du Plan ;
- Un Représentant du Ministère de l'Intérieur et de la Décentralisation;
- Un Représentant du Ministère du Commerce et de la Consommation ;
- Un Représentant du Ministère du Tourisme ;
- Un Représentant du Ministère des Transports et de la Météorologie (Transport) ;
- Un Représentant du Ministère de l'Energie et des Hydrocarbures;
- Un Représentant du Ministère de la Population, de la Protection sociale et de la Promotion de la Femme ;
- Un Représentant du Ministère de l'Environnement, de l'Ecologie et des Forêts.

Départements ministériels spécifiques ou organismes rattachés

- Un représentant de la Direction Générale de la Météorologie ;
- Un Représentant du Ministère chargé de l'Enseignement Supérieur et de la Recherche scientifique ;
- Un représentant du CPGU;

Secteur privé

- CRS

Bailleurs, PTFs

- GIZ/PAGE
- PNUD
- USAID

Organismes internationaux

- CI
- WCS,….

Terms of reference for the coordination committe for National Adaptation Plan

TERMES DE REFERENCE

Création d'un Comité de Coordination dans le cadre du processus du Plan National d'Adaptation de Madagascar (CC/PNA)

1. Contexte

L'élaboration du Plan National d'Adaptation (PNA) est parmi les directives à entreprendre par les Parties à la Convention Cadre des Nations Unies sur les Changements Climatiques (CCNUCC), afin de renforcer les actions d'adaptations dans les pays en développement.

A cet effet, les Conférences des Parties, subséquentes à Cancún, ont tous considéré l'importance de ce Plan National d'Adaptation dans la lutte contre les effets néfastes du changement climatique. Selon, l'Accord de Paris, le PNA servira de mise en œuvre des actions pré-2020, avec des attentions particulières vis-à-vis des pays les plus vulnérables.

Le Plan National d'Adaptation (PNA) détermine les besoins à moyen et à long terme en matière d'adaptation. Il se fondera sur les acquis et leçons apprises des initiatives antérieures mises en œuvre à Madagascar comme le Programme d'Actions National d'Adaptation (PANA).

Le PNA de Madagascar devrait venir combler les fossés vis-à-vis des considérations stratégiques pour la mise en œuvre des actions d'adaptation au niveau national, notamment en termes d'objectifs de réduction de la vulnérabilité, de la gestion des risques climatiques, et de priorisations spatiales et temporelles. Les priorités nationales en matière d'adaptation, décrites dans les différents cadres stratégiques devraient figurer de façon synthétique, en complément avec les études à mener dans le cadre du PNA, pour servir de cadre de mise en œuvre des actions d'adaptation à long terme. En effet, la Politique Nationale de Lutte contre le Changement Climatique élaborée en 2010 accorde une place importante à la réduction de la vulnérabilité et à l'augmentation de la résilience des pays aux impacts des changements climatiques.

Ainsi, afin d'assurer la participation effective de tous les parties prenantes dans le processus d'élaboration du PNA, le comité de coordination sera mis en place.

2. Mandat

Le Comité de Coordination du PNA ou CC/PNA est un **organe de concertation, d'orientations stratégiques et de dialogue** dont le mandat est d'apporter des réflexions dans l'élaboration du Plan National d'Adaptation (PNA).

3. Missions

Le Comité de Coordination est mis en place afin d'appuyer le BNC CC dans :

- la formulation des orientations stratégiques du processus PNA ;
- l'élaboration du plan d'exécution du PNA ;
- L'élaboration de la stratégie d'exécution du processus PNA;
- La planification, la mise en place et le pilotage du processus PNA ;

- La mise en place des mécanismes de revue et de communication sur le PNA ;
- L'élaboration des rapports d'avancement du processus PNA ;
- La promotion de l'inter- sectorialité tout au long du processus.

4. Composition

Les membres de ce comité sont issus du Comité National sur le Changement Climatique(CNCC) ainsi que les représentants issus :

- des secteurs très vulnérables et prioritaires en terme d'adaptation aux changements climatiques, entre autre l'Agriculture, la santé publique, les ressources en eau, les zones côtières, la foresterie/biodiversité, l'infrastructure ainsi que la prise en compte de la gestion des risques climatiques ;
- de la Société civile ;
- du secteur privé ;
- des organismes internationaux, PTFs et Bailleurs,…

Institutions représentant les secteurs vulnérables prioritaires (ayant rang de Directeur)

- Un représentant du Ministère des Finances et Budget ;
- Un représentant du Ministère de l'Economie et du Plan ;
- Deux représentants du Ministère auprès de la Présidence chargé de l'Agriculture et de l'Elevage (secteur agriculture et secteur élevage) ;
- Un représentant du Ministère de la Pêche et des Ressources Halieutiques
- Un représentant du Ministère de la Santé Publique ;
- Un représentant du Ministère de l'Eau, de l'Assainissement et de l'Hygiène ;
- Trois représentants du Ministère de l'Environnement, de l'Ecologie et des Forêts (environnement, forêt, écologie) ;
- Un représentant du Ministère chargé des Travaux Publics (infrastructures).

Départements ministériels spécifiques ou organismes rattachés

- Un représentant de la Direction Générale de la Météorologie ;
- Un représentant du Ministère chargé de la Recherche et de l'Enseignement Supérieur ;
- Un représentant du Ministère de l'Education Nationale;
- Un représentant du BNGRC;
- CNGIZC

Représentants des secteurs privés,

Représentants des sociétés civiles

- ANAE

Organismes internationaux

- WWF

Bailleurs , PTFs

- GIZ/PAGE
- PNUD
- USAID…..

List of members of the NAP Coordination Committee

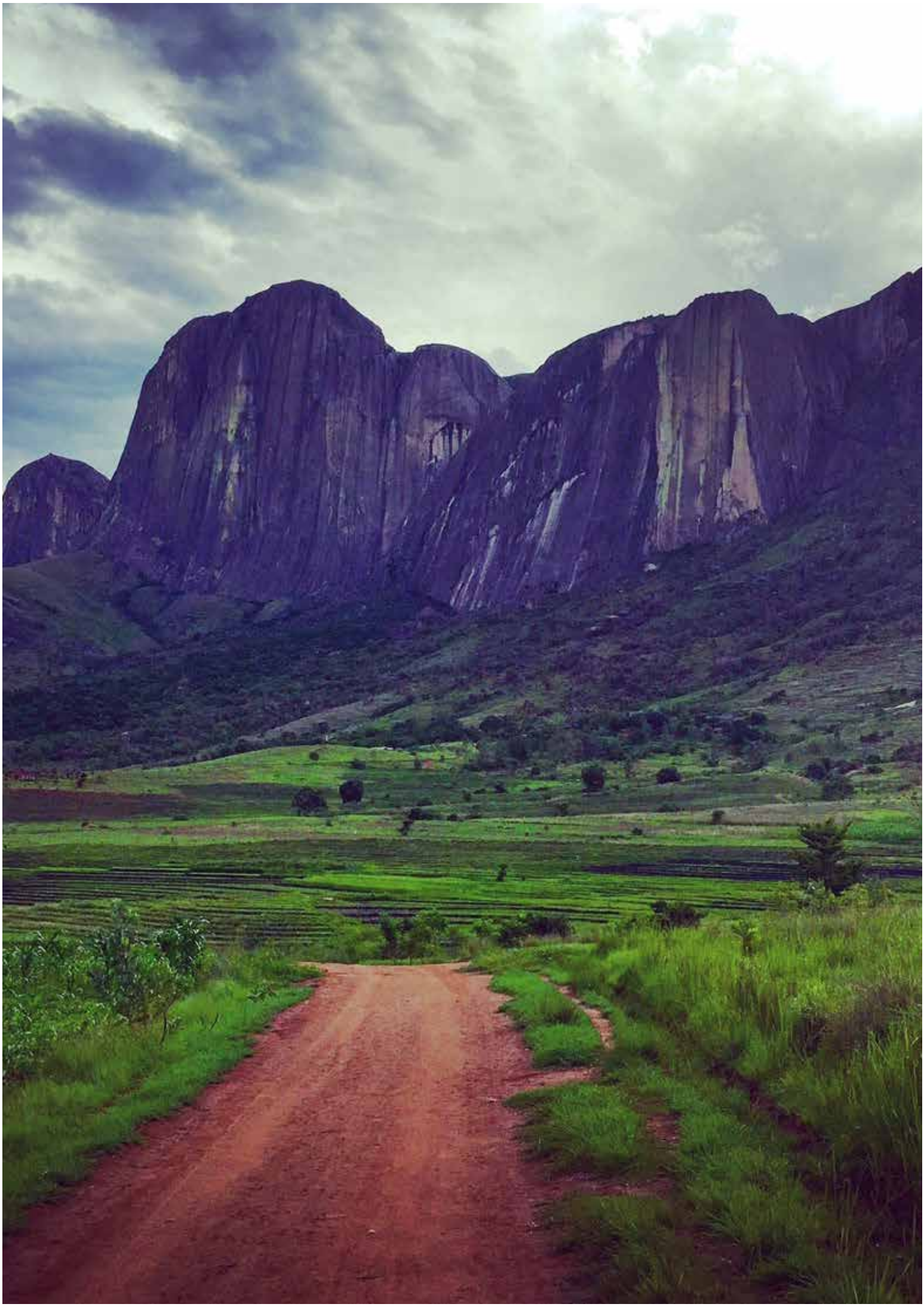
Membres du Comité de Coordination du PNA (CC/PNA)

- ANDRIAMAHAZO Michelle, Ministere auprès de la Présidence chargé del'Agricultureet de l'Elevage, secteur agriculture
- LAHIMASY Ampiza, Ministère auprès de la Présidence chargé de l'Agriculture et de l'Elevage secteur élevage
- - RAKOTOMALALA Mamy, Ministére des Finances et du Budget
- - RAKOTONJANAHARY Niritana Lovaniana Angelo Harrys, Ministère del'Economie et de la Planification
- - TATA Venance, Ministére de la Santé Publique
- - RANDRIANARISOA Paul, Ministére del'Education Nationale
- - RANDRIANTINA Jean Michel, Ministére des Travaux Publics
- - ANDRIAMALALA Tsitohaina Ministére de l'Eau, de l'Energie et des Hydrocarbures
- - RAMIARISON Claudine, Ministére de l'Enseignement Supérieur et de la Recherche Scientifique
- RAJAONARY Liva Eric, Ministére de la Pêche et des Ressources Halieutiques
- ANDRIANANTOANDRO Hanitra Benjamin, Générale des Forets
- - RANAIVOSON Rindra Manasoa, Direction Générale de l'Ecologie
- - RAJAONARIVELO Andriamihaingo Lalao, Direction Générale de l'Environnement
- - RAKOTONDRAFARA Marie Louise, Direction Générale de la Météorologie
- - Général de Brigade RAZAKANAIVO Mamy, CNGIZC
- - RANOELIARIVAO Sitraka, BNGRC
- - RANDRIAMANANTENA Mihala, ANAE
- - RAKOTONDRAZAFY Harisoa, WWF
- - VAESSEN Vanessa, GIZ/PAGE
- - RAHARISOA Verosa, PNUD
-

Membres du Suivi-Evaluation du PNA (CSE/PNAJ

- OUSOA Felana, Ministère d'Etat en Charge des Projets Présidentiels, del'Aménagement du Territoire et de l'Equipement
- RAVILY Josiah Ketty, Ministère auprès de la Présidence chargé des Mines et du Pétrole
- RAMAROLAHY Tojonirina, Ministère des Affaires Etrangéres
- FELANTSOA Diadema, Ministère des Finances et du Budget
- RAKOTONJANAHARY Niritiana Lovaniana, Angelo Harrys, Ministère del'Economie et de la Planification
- MANIRISOA Virginie, Ministère du Commerce et Consommation
- RANDRIAMAMPIANINA Nosilalaina, Ministère des Transports et de la Météorolo (Transport)
- RANJEVASOA Mbolatiana, Ministère de l'Eau, de l'Energie et des Hydrocarbures
- Un représentant du Ministère de l'Enseignement Supérieur et de la Recherche scientifique
- RANDRIANANTENAINA Fenohery, Ministère de l'Environnement, de l'Ecologie et des Forêts

- RATOVO Andrihamiharimanana Ravo, Ministère de la Population, de la Protection sociale et de la Promotion de la Femme
- RANDRIAMAROlAZA Luc, Direction Générale de la Météorologie
- RAKOTONDRATSIMA Soarinivo Ericka, CPGU
- RANDRIANARISATA Michèle, Cl
- RANDRIANIRINA Mampionona, WWF
- ANDRIAMANDIMBISOA Razafimpahanana, WCS
- RATSIMBAZAFY Hasina, CRS
- RAKOTONARIVO Rinah Zo Nandrianina, Tandavanala
- Orlando, GIZ/PAGE



ANNEX IV

Scoping Mission, First Joint Mission and Second Joint Mission Aide-Memoires

AIDE MEMOIRE

PROGRAMME PILOTE POUR LA RESILIENCE CLIMATIQUE

MADAGASCAR

MISSION DE CADRAGE

NOVEMBRE 30 – DECEMBRE 4, 2015

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

GROUPE DE LA BANQUE MONDIALE

AFRICAN DEVELOPMENT BANK GROUP

1. INTRODUCTION

(1) Une mission de cadrage du Programme Pilote pour la Résilience Climatique (PPCR en anglais), organisée conjointement par la Banque Mondiale (BM) et la Banque Africaine de Développement (BAD) et accompagnée par M. le Secrétaire Exécutif de la Cellule de Prévention et Gestion des Urgences (CPGU), s'est rendue à Antananarivo (Madagascar) du 30 novembre au 4 décembre 2015. Cette mission était composée pour la Banque mondiale de M. Michel Matera (Spécialiste principal en gestion des risques de catastrophes et développement urbain et chargé de projet), Mme. Kanta Rigaud (Spécialiste environnemental en chef), M. Giovanni Ruta (Economiste environnemental principal) et M. Dominik Englert (Administrateur auxiliaire); et pour la Banque Africaine de Développement de Dr. Zinso Boue (Agroéconomiste et chargé de projet), M. Laouali Garba (Spécialiste principal en environnement) et M. Vaidjoua Guineo (Spécialiste en irrigation et infrastructures rurales).

(2) Conformément aux termes de référence joint en Annexe 1, les principaux objectifs de cette mission étaient : (i) présentation aux autorités Malagasy du Programme Pilote pour la Résilience Climatique, (ii) identification des différents partenaires et parties prenantes, (iii) démarrage de la préparation d'une proposition d'assistance technique au Gouvernement de la République de Madagascar, et (iv) élaboration d'une feuille de route pour la préparation d'un Programme Stratégique pour la Résilience Climatique de Madagascar.

(3) La mission s'est entretenue avec (i) le Ministre des Finances et du Budget, le Ministre de l'Agriculture, et le Directeur de Cabinet civil du Premier Ministre et son staff, (ii) des représentants des ministères sectoriels-techniques, (iii) des représentants des partenaires techniques et financiers, et (iv) des représentants de la société civile et des ONGs. Ces entretiens ont porté sur le processus général du PPCR, les leçons apprises de la mise en œuvre du PPCR dans les 18 pays pilotes précédents, l'état des lieux de l'intégration de la résilience climatique dans l'agenda du développement à Madagascar, et les attentes nationales vis-à-vis du programme en matière de financement et renforcement des capacités. La liste des personnes rencontrées et le calendrier de la mission sont inclus dans les Annexes 2 et 3.

(4) Les résultats de la mission ont été restitués aux Représentants résidents de la Banque mondiale, Mme Coralie Gevers, et de la Banque Africaine de Développement M. Abdelkrim Bendjebbour, qui ont également participé à certaines réunions.

(5) La mission remercie les autorités malgaches et l'ensemble des personnes rencontrées pour leur disponibilité et leurs contributions à la définition des orientations du PPCR à Madagascar. **Divulgation** : Les directives du CIF requièrent la divulgation publique des aide-mémoires de mission. La mission et le Gouvernement ont discuté les conclusions et recommandations de la mission et se sont mis d'accord sur la divulgation de l'Aide-mémoire lors de la réunion de clôture du 3 décembre 2015. L'aide-mémoire sera divulgué publiquement par l'unité administrative des Fonds d'Investissement Climatique (CIF en anglais).

2. CONTEXTE

(6) Madagascar compte parmi les pays les plus vulnérables au changement climatique. Les principaux risques climatiques sont associés aux aléas climatiques extrêmes tels que les cyclones, les inondations et les sécheresses, dont la récurrence et l'intensité sont renforcées par le changement climatique.

(7) Dans le *« Global Climate Risk Index 2014 »* publié par l'organisation Germanwatch, Madagascar figure parmi les 10 pays les plus affectés par des phénomènes météorologiques extrêmes en 2012 et dans le *« Climate Change and Environmental Risk Atlas 2011 »* de Maplecroft, le pays est considéré comme le troisième pays à risque, en termes de vulnérabilité au changement climatique. Les prévisions tendent vers une augmentation de la température de 0,5°C à 3°C, des précipitations moyennes annuelles en diminution (-5% jusqu'à la fin du siècle) en combinaison avec une augmentation de 5%-10% des précipitations pendant la période de pluie ainsi une perturbation générale des saisons et des régimes climatiques régionaux.

(8) Ces changements impliquent des impacts directs sur (i) l'environnement (p.ex. la biodiversité et les ressources naturelles), (ii) la société (p.ex. la migration de la population), et (iii) l'économie (p.ex. en particulier dans le secteur primaire tenant une place importante pour le PIB) du pays.

(9) C'est dans ce contexte que le pays a manifesté son intérêt à développer un Programme Stratégique pour la Résilience Climatique (SPCR en anglais) dans le cadre du PPCR. Le PPCR est un programme au sein des Fonds d'Investissement Climatique (CIF) qui vise à l'intégration de la résilience climatique dans les politiques publiques et les actions de développement. Ce programme est mis en œuvre par les Banques multilatérales de développement. Cette manifestation d'intérêt a été approuvée par le CIF en mai 2015, avec 9 autres nouveaux pays pilotes. Suite à l'admission de Madagascar comme pays pilote PPCR, un don d'un montant d'US $1.5 million est mis à la disposition du pays afin de préparer son SPCR.

3. CONCLUSIONS DE LA MISSION

(10) **Une opportunité pour repenser la planification du développement :** Le PPCR représente une opportunité pour le Gouvernement de Madagascar de développer une vision intégrée et un processus de planification consolidé en matière de résilience climatique. La mission a noté que la résilience climatique à Madagascar a été historiquement associée à la gestion des risques et des catastrophes. Cela répond à l'effet dévastateur des catastrophes sur l'économie nationale. Néanmoins la mission a eu l'occasion de rappeler que la résilience va au de-là de la gestion des risques associés aux événements climatiques extrêmes. Le changement climatique entraîne des bouleversements écologiques et sociaux qui doivent être pris en compte lors de la planification de long terme afin de ne pas mettre en péril les efforts de développement (p.ex. aménagement du territoire, techniques agricoles ou infrastructures). Le PPCR offre une occasion de repenser les efforts de planification nationale à travers une nouvelle lecture du développement en termes de résilience, et de mener le pays sur une trajectoire de croissance à long terme et adaptée à des nouvelles conditions climatiques.

(11) **Un point de départ optimal pour mobiliser des ressources financières :** Le développement d'une vision intégrée et d'un processus de planification consolidé en matière de résilience climatique permettrait au pays d'accéder aux nouvelles sources de financement climatique. En mettant en place un environnement favorable à la mobilisation de ces financements et à l'exécution d'un programme de résilience ambitieux, la préparation d'un SPCR exhaustif représentera un point de départ optimal pour mobiliser diverses ressources financières supplémentaires, en particulier en provenance du Fond Vert pour le Climat et du CIF même.

(12) **Secteurs d'intervention du PPCR :** Au niveau sectoriel, le Gouvernement de Madagascar a proposé, dans sa manifestation d'intérêt, soumis au CIF en mars 2015, un certain nombre de secteurs prioritaires. Ces secteurs ont également été déclinés en actions prioritaires dans son document de Contribution Prévue Déterminée au niveau National (CPDN) développé en préparation de la COP21. Les secteurs de l'agriculture, de la pêche, de l'élevage, de l'eau et de l'environnement sont particulièrement ciblés. La résilience des infrastructures publiques est également identifiée comme un axe prioritaire, ainsi que la protection des zones côtières. Finalement, l'amélioration de la production et de l'accès aux données climatiques, au travers d'un renforcement des services hydrométéorologiques, est également perçue comme un axe transversal prioritaire[1]. Ces secteurs ciblés sont principalement liés à la vulnérabilité du monde rural. Cependant, dans le contexte de Madagascar, il est ressorti des discussions que la résilience des zones urbaines devait être également examinée dans le cadre de l'élaboration du SPCR. Il en est de même de la résilience des finances publiques, tant la vulnérabilité fiscale du pays limite les capacités de mobiliser les ressources nécessaires lors des catastrophes.

(13) **Assistance techniques et gaps identifiés :** Des échanges avec les responsables des différents secteurs font ressortir qu'ils sont à divers degrés en matière de prise en compte des changements climatiques dans le développement. En outre, le Plan National de Développement (PND) 2015-2019, dans son axe stratégique du développement N°5, affirme "la valorisation du capitale naturel et le renforcement de la résilience aux risques". Certains partenaires au développement de Madagascar ont également initié la prise en compte de la résilience climatique dans leurs stratégies ou cadres de coopération[2] et dans leurs outils de planification.

[1] Dans ce sens, la Direction Générale de la Météorologie, avec l'appui technique de l'OMM, a initié la préparation d'une stratégie et d'un plan d'action pour la réforme des services hydrométéorologiques.

[2] A ce titre, la mission a pris note, par exemple, de la préparation par la FAO d'un plan de résilience climatique pour le secteur agricole et de l'intégration de la résilience climatique au sein du futur programme de l'USAID.

La mission recommande que soit réalisé, dans les meilleurs délais, un diagnostic rapide des études réalisées ou en cours en matière d'évaluation des vulnérabilités sectorielles face au changement climatique, et que les lacunes en matière d'analyse climatique soient identifiées. Par ailleurs il est important de faire un inventaire des stratégies et programmes en cours de préparation ainsi qu'une revue des meilleures pratiques internationales en la matière. Dans ce contexte, le Gouvernement a également exprimé son souhait d'organiser des visites sud-sud d'échanges d'expériences et d'informations avec d'autres pays pilotes PPCR de la région.

(14) Outre l'analyse des vulnérabilités sectorielles et des propositions d'intervention de résilience correspondantes, la mission recommande la prise en compte de la résilience climatique au sein de deux thématiques clés: l'une concerne l'aménagement du territoire, et en particulier les risques climatiques associés au développement des villes et de la capitale; l'autre concerne les finances publiques et le besoin de prendre en compte le rôle de la politique fiscale et économique du pays pour augmenter la résilience face au changement climatique, y inclus aux événements climatiques extrêmes. Il est proposé la mise en place d'un groupe technique pour l'identification, d'ici la fin de l'année, des lacunes qui devront faire l'objet de l'assistance technique. Au-delà des études et analyses nécessaires en matière de vulnérabilité sectorielle, territoriale et fiscale, l'assistance technique se focalisera de façon prioritaire sur l'analyse des arrangements et mécanismes institutionnels existants, afin d'identifier les meilleures options pour développer un environnement institutionnel propice au renforcement de la résilience et afin d'identifier les besoins en matière de renforcement de capacités.

(15) **Pilotage de la préparation du SPCR:** La mission a noté l'existence de plusieurs structures dédiées à l'exécution des activités liées à la résilience climatique et à la gestion des risques dans leurs secteurs respectifs. Néanmoins, les actions de ces structures ne sont pas suffisamment coordonnées dans une perspective intersectorielle et interministérielle. Cela aboutit à une dispersion des efforts de mobilisation de ressources et de planification, suivi et évaluation des interventions, rendant difficile l'intégration systématique de la résilience climatique dans le développement du pays. Dans ce contexte, la mission recommande la mise en place d'un mécanisme interministériel de pilotage de la préparation du Programme stratégique de résilience climatique de Madagascar. Les fonctions clés qui devraient être reflétés dans le mécanisme interministériel de pilotage incluent : (i) la planification du développement, et son suivi-évaluation ; (ii) la mobilisation des ressources financières et techniques internes à l'Etat ; (iii) la mobilisation des ressources financières internationales, à travers les mécanismes de la Convention Cadre des Nations Unies pour le Changement Climatique et les mécanismes externes à la Convention ; (iv) la production et l'utilisation d'informations scientifiques et socio-économiques sur la relation entre climat et développement dans la conception, la préparation et la mise en œuvre des programmes et projets. Ces quatre fonctions doivent être mises en relation les unes avec les autres lors de la préparation et exécution du Programme Stratégique.

(16) **Renforcement des capacités institutionnelles :** La mission prend note des capacités fiduciaires existantes au sein de la Cellule de Prévention et Gestion des Urgences (CPGU), agence d'exécution désignée par la Primature pour la préparation du SPCR. Néanmoins, compte tenu des capacités techniques restreintes de la CPGU et de la nature multisectorielle du programme, la mission recommande un renforcement des capacités de celle-ci. Au-delà du recrutement de consultants apportant un appui externe, il est proposé au sein de la CPGU la mise en place d'une équipe technique composée du coordonnateur, point focal du PPCR, et d'experts (développement rural, développement urbain, planification, politique fiscale, mobilisation des ressources internationales, information climatiques) détachés par les ministères et agences techniques concernés. En particulier, une relation de collaboration technique avec le Bureau National de Coordination du Changement Climatique, au sein du Ministère de l'Environnement de l'Ecologie de la Mer et des Forêts, est fortement souhaitable.

(17) **Consultation des parties prenantes :** Le processus d'élaboration du SPCR sera participatif et impliquera l'ensemble des acteurs à toutes les étapes. Le plan de communication et de consultation des parties prenantes devrait notamment inclure: (i) la consultation périodique du mécanisme de pilotage chargé de l'orientation et de la validation du SPCR, (ii) l'organisation de réunions de consultation avec les acteurs gouvernementaux, les partenaires techniques et financiers et des représentants de la société civile, des ONG et du secteur privé[3], et (iv) l'organisation d'ateliers de consultation nationaux qui regrouperont toutes les parties prenantes. Le CIF requiert que le processus de consultation soit documenté lors des échanges avec son Secrétariat.

(18) **Mécanisme de mobilisation du don de préparation :** Le don pour la préparation du PPCR peut être mis en œuvre selon la modalité « exécution par le bénéficiaire » ou « exécution par la banque ». Le Gouvernement a

[3] La mission a noté l'existence du Groupe Thématique Changement Climatique (GTCC) rassemblant plus de 50 acteurs de la société civile et servant comme plateforme d'échange, de veille et, de réflexion en appui au Ministère de l'Environnement.

décidé d'utiliser la modalité d'exécution par le bénéficiaire et a désigné la CPGU au sein de la Primature comme agence d'exécution. Durant la mission, le Gouvernement a également proposé la Banque Mondiale comme chef de file du processus de préparation du SPCR, compte tenu de l'existence de projets d'assistance technique en cours d'exécution par la CPGU dans le domaine de la gestion des risques et catastrophes. Les deux BMD se sont engagées à développer un mécanisme de coordination de leurs actions, comprenant la réalisation de deux missions conjointes, l'échange d'informations sur l'avancement des activités et la réalisation de missions techniques, de supervision et de validation du SPCR et de son plan d'investissement.

(19) **Synergies avec d'autres initiatives en cours :** Madagascar fait également partie d'autres initiatives pilotes conduites au niveau global ou régional, telle que l'initiative *"Africa Disaster Risk Financing (ADRF)"*, dans le cadre du programme "Renforcer la Résilience face aux Catastrophes" du Groupe ACP, financé par l'Union Européenne et mise en œuvre par la Commission de l'Union Africaine, UNISDR, la Banque africaine de développement et la Banque mondiale. Madagascar est également l'un des pays pilotes de l'initiative "Transformation de l'agriculture africaine" de la Banque africaine de développement. Cette initiative s'inscrit dans le cadre de l'Agenda de transformation de l'agriculture adopté lors de la Conférence ministérielle de haut niveau, qui s'est tenue à Dakar, au Sénégal, en Octobre 2015 sous l'égide de la Banque Africaine de Développement (BAD), de la Commission de l'Union Africaine (CUA) et de la Commission Economique des Nations Unies pour l'Afrique (CEA). La préparation du programme malgache constitue une opportunité de développement de synergies entre ces diverses initiatives et le PPCR, tout en facilitant la mobilisation de ressources d'investissement.

4. RECOMMANDATIONS

(20) Afin d'accélérer le processus de préparation du SPCR de Madagascar, la mission recommande:

(21) Au Gouvernement (i) d'établir un mécanisme de pilotage interministériel, composé de haut fonctionnaires (ayant rang de DG ou SG) des ministères ou directions en charge de la planification, des finances, de l'environnement et de la météorologie, entre autres, afin d'assurer le développement d'un SPCR et de son plan d'investissement reflétant la diversité de points de vue sur les priorités de la résilience climatique; (ii) de renforcer les capacités de la CPGU (notamment en matière de capacités techniques) pour approfondir la compréhension des défis divers liés à la résilience climatique, et (iii) de suivre attentivement l'échéancier établi par la feuille de route avec un focus sur l'élaboration rapide de la proposition d'assistance technique ;

(22) Aux Banques Multilatérales de Développement (i) de soutenir le Gouvernement dans la mise en œuvre des trois recommandations évoquées ci-dessus, et (ii) d'assurer l'initiation rapide de l'assistance technique en accélérant le processus d'approbation de la demande de don de préparation.

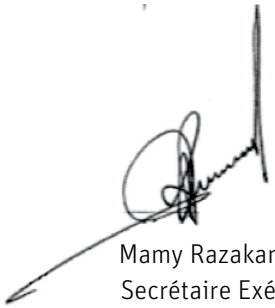
5. ACTIONS CONVENUES ET PROCHAINES ÉTAPES

(23) Le tableau ci-dessous présente le calendrier préliminaire du processus de préparation du SPCR. Il a été établi sur la base de l'objectif du Gouvernement malgache de présenter le SPCR en novembre 2016. Après l'approbation du don de préparation, le calendrier sera confirmé et précisé. Le calendrier indicatif est ambitieux et dépend d'un financement rétroactif et de la mobilisation effective du don suivant la modalité « exécution par le bénéficiaire ».

	Activités	Responsabilités	Dates tentatives
1.	Finalisation de l'aide-mémoire et feuille de route pour la préparation du PPCR	Banques Multilatérales de Développement (BMD)	11 Déc. 2015
2.	Envoyer un courrier officiel à l'Unité Administrative (UA) du CIF afin de confirmer l'agence principale au sein des BMD	Gouvernement	11 Déc. 2015
3.	Confirmer les arrangements de pilotage et de suivi du PPCR	Gouvernement	Jan. 2015 (Semaine 1)
4.	Confirmer les catégories d'activités prioritaires pour la proposition d'assistance technique (AT) avec l'accord des parties prenantes/ministères de tutelle	Gouvernement	Jan. 2015 (Semaine 1)
5.	Initier le recrutement des consultants techniques d'appui à la CPGU (TDR pour NO, publications)	Gouvernement	Jan. 2016 (Semaine 1)
6.	Soumettre la demande de don de préparation du SPCR au sous-comité du PPCR	Gouvernement, BMD Principale	15 Jan. 2016
7.	Approbation du don de préparation par le sous-comité du PPCR	CIF	Fév. 2016 (Semaine 1)
8.	Signature les contrats des consultants/AT et démarrer les travaux	Gouvernement	Fév. 2016 (Semaine 1)
9.	Préparation de l'accord de don de préparation (Evaluation des capacités fiduciaires, Plan de passation des marchés, etc.)	Gouvernement, BMD principale	Jan. – Fév. 2016
10.	Soumission des termes de référence (TDR) de la première mission conjointe	Gouvernement, BMDs	15 Fév. 2016
11.	Signature de l'accord de don PPCR	Gouvernement, BMD principale	Mars 2016
12.	Visite d'échanges d'expériences et d'informations Sud-Sud	Gouvernement, BMDs	Mars 2016
13.	Première mission conjointe (mission sur le terrain incluse)	Gouvernement, BMDs	Avril 2016 (Semaine 2&3)
14.	Organiser le 1°Atelier national de consultation des acteurs sur les orientations stratégiques du SPCR	Gouvernement, BMDs	Avril 2016 (Semaine 3)
15.	Préparer et soumettre les TDR de la deuxième mission conjointe à l'UA du CIF (au moins 5 semaines avant la mission)	Gouvernement, BMD principale	Mai 2016
16.	Identifier l'expert qui procédera à la revue indépendante du SPCR	Gouvernement, BMDs	Juin 2016
17.	Finaliser la première ébauche du plan d'investissement (PDI) et du SPCR	Gouvernement	Juillet 2016 (Semaine 1)
18.	Deuxième mission conjointe	Gouvernement, BMDs	Juillet 2016 (Semaine 3&4)
19.	Organiser le 2° atelier national pour discuter le SPCR et son plan d'investissement	Gouvernement, BMDs	Juillet 2016 (Semaine 4)
20.	Réviser le PDI en fonction de la revue indépendante et des consultations sur la deuxième ébauche	Gouvernement	Août 2016
21.	Soumettre le SPCR et Plan d'Investissement pour revue par l'expert indépendant	Expert indépendant	Sept. 2016 (Semaine 1)
22.	Soumettre le SPCR et Plan d'Investissement pour validation du Gouvernement	Gouvernement	30 Sept. 2016
23.	Soumettre le SPCR et Plan d'Investissement et PDI à l'UA du CIF	Gouvernement	15 Oct. 2016
24.	Présenter le SPCR et son plan d'investissement au sous-comité du PPCR	Gouvernement	Nov. 2016
25.	Elaborer des documents détaillés de projets dans les secteurs prioritaires afin de faciliter la mobilisation de ressources et les missions associées	AT, Gouvernement, BMD	Nov. 2016

M. Michel Matera
Chargé de Projet
Banque mondiale

Dr. Zinso Boue
Chargé de Projet
Banque Africaine de Développement



Mamy Razakanaivo
Secrétaire Exécutif
Cellule de Prévention et de Gestion des Urgences

First Joint Mission Aide-Mémoire

AIDE MEMOIRE

PROGRAMME PILOTE POUR LA RESILIENCE CLIMATIQUE

MADAGASCAR

PREMIERE MISSION CONJOINTE

11-19 MAI, 2017

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

GROUPE DE LA BANQUE MONDIALE

AFRICAN DEVELOPMENT BANK GROUP

1. INTRODUCTION

(1) Une mission conjointe du Programme Pilote pour la Résilience Climatique (PPCR en anglais), organisée par la Banque Mondiale (BM) et la Banque Africaine de Développement (BAD) et accompagnée par M. le Secrétaire Exécutif de la Cellule de Prévention et Gestion des Urgences (CPGU), s'est rendue à Antananarivo, Madagascar, du 11 au 19 mai 2017. Cette mission était composée pour la Banque mondiale de M. Michel Matera (Spécialiste principal en gestion des risques de catastrophes et développement urbain et chargé de projet), Mme. Kazi Fateha Ahmed (Analyste en changement climatique), Mme. Beatriz Pozueta Mayo (Spécialiste principale en Gestion des risques et des catastrophes, consultante), M. Andre Carletto (Spécialiste principal en Gestion des risques et des catastrophes, consultant) et Mme. Mynah Nassila (Analyste en changement climatique, consultante) et pour la Banque Africaine de Développement de Dr. Zinso Boue (Agroéconomiste et chargé de projet), M. Amadou Bamba Diop (Spécialiste principal en environnement) et M. Vaidjoua Guineo (Spécialiste en irrigation et infrastructures rurales).

(2) La mission s'est entretenue avec (i) le Conseiller spécial du Premier ministre ; (ii) la Cellule de Prévention et Gestion des Urgences (CPGU) et le Bureau National de Coordination du Changement Climatique (BNCCC) ; (iii) des représentants des ministères sectoriels-techniques ; (iv) des représentants des partenaires techniques et financiers (PTF) ; et (v) des représentants des organisations de la société civile (OSC), des ONGs et du secteur privé. La liste des personnes rencontrées est jointe en annexe 2.

(3) La mission conjointe avait pour objectif de : (i) faire le point sur l'état de mise en œuvre des recommandations de la mission de cadrage ; (ii) entreprendre des consultations avec les parties prenantes malgaches comprenant les représentants des secteurs ministériels, les PTF, les OSC et le secteur privé en vue d'appréhender leur vision et interventions dans les domaines de la résilience climatiques ; (iii) dégager un consensus sur les orientations stratégiques du SPCR ; (iv) esquisser la structure du Plan Stratégique ; et (v) établir la feuille de route pour la suite du processus.

(4) Les résultats de la mission ont été restitués auprès du Secrétaire Général du Ministère des Finances et du Budget.

(5) La mission remercie les autorités malgaches et l'ensemble des personnes rencontrées pour leur disponibilité et leurs contributions à la définition des orientations du PPCR à Madagascar.

(6) **Divulgation :** Les directives du CIF requièrent la divulgation publique des aide-mémoires de mission. La mission et le Gouvernement ont discuté les conclusions et recommandations de la mission et se sont mis d'accord sur la divulgation de l'Aide-mémoire lors de la réunion de clôture du 19 mai 2017. L'aide-mémoire sera divulgué publiquement par l'unité administrative des Fonds d'Investissement Climatique (CIF en anglais).

2. CONTEXTE

(7) Madagascar compte parmi les pays les plus vulnérables au changement climatique. Les principaux risques climatiques sont associés aux aléas climatiques extrêmes tels que les cyclones, les inondations et les sécheresses, dont la récurrence et l'intensité sont renforcées par le changement climatique.

(8) Depuis la mission de cadrage, Madagascar a bénéficié d'une assistance technique au travers du Projet SWIO-RAFI (*South West Indian Ocean – Risk Assessment and Financial Initiative*) qui a permis le développement d'un profil de risque climatique du pays. Ce profil, basé sur une évaluation probabiliste des risques liés aux cyclones, inondations, glissements de terrain et séismes, estime que les pertes moyennes annuelles pour l'ensemble de ces risques sont d'environ 100 million US$, avec une probabilité de 10% que ces pertes dépassent 240 million US$ chaque année. Cette évaluation des risques climatiques vient compléter l'évaluation du climat et des projections climatiques à Madagascar présentée dans le rapport sur « Le changement climatique à Madagascar » préparé par la Direction Générale de la Météorologie.

(9) Un comité interministériel a été mis en place au travers de l'Arrêté n°13216/2016 portant sur la Création et l'Attribution d'un Comité de Pilotage pour la "Préparation du Programme Stratégique pour la Résilience Climatique" du 17 Juin 2016, et a pour objectif de piloter le processus de développement du SPCR et de son plan d'investissement ainsi que la mise en œuvre du projet d'assistance technique PPCR-Phase 1, en s'assurant en

particulier de la complémentarité des activités entre les différentes initiatives liées au changement climatique à Madagascar.

(10) Madagascar a également soumis sa proposition d'assistance technique au CIF qui cible les secteurs et domaines particulièrement liés à la vulnérabilité du milieu rural, tels que l'agriculture-élevage- pêche, les zones côtières, l'environnement et les ressources en eau, et d'autre part la vulnérabilité liée au milieu urbain, et d'une manière transversale, la réduction des risques de catastrophes. La résilience des infrastructures, la résilience fiscale et économique, l'aménagement du territoire et le renforcement des capacités des services hydrométéorologiques sont également considérés comme des thématiques transversales clés. La demande d'assistance technique, approuvé par le CIF en avril 2016, est articulée autour des 4 axes principaux : (i) le renforcement des connaissances en matière de résilience climatique et de gestion des risques climatiques à Madagascar ; (ii) la mise en place d'un environnement institutionnel propice au développement et à la mise en œuvre du SPCR et à l'intégration de la résilience climatique dans la planification du développement ; et renforcement des capacités ; (iii) l'appui à l'identification, à la priorisation et planification des interventions, au processus de consultation, et à la préfaisabilité des investissements ; et (iv) l'appui à l'exécution, suivi et évaluation.

(11) La mise en place de l'assistance technique au travers de l'approbation de la demande de don de préparation par la Banque mondiale a néanmoins souffert de retard important. Le document de projet et l'accord de don sont en cours de finalisation pour une signature avant la fin du mois de juin 2017.

3. CONCLUSIONS ET RECOMMANDATIONS DE LA MISSION

(12) **Un Comité de pilotage interministériel fonctionnel :** La mission note que la recommandation émise lors de la mission de cadrage pour la mise en place d'un comité de pilotage interministériel a été prise en compte. Le comité est fonctionnel et inclue la participation des représentants des secteurs ministériels.

(13) **Des consultations réalisées avec les représentants des ministères sectoriels-techniques, des partenaires techniques et financiers, des représentants de la société civile, des ONG et du secteur privé :** Durant les consultations réalisées avec les représentants des ministères sectoriels-techniques, des partenaires techniques et financiers, des représentants de la société civile, des ONG et du secteur privé, la mission a pu présenter le contexte national et international de la résilience climatique ainsi que la structure du PPCR et les étapes du programme (annexe 8). Les parties ont présenté leurs programmes, projets et activités en cours ainsi que l'ensemble des plans nationaux, sectoriels et études relatives à la résilience climatique à Madagascar. Des travaux de groupe ont permis de valider les axes stratégiques prédéfinis par la mission pour l'élaboration du SPCR à savoir (i) la résilience territoriale (ii) la résilience communautaire (iii) le renforcement des capacités. Les parties prenantes ont débattu sur la sémantique choisie pour la dénomination des axes. Toutefois, la mission note l'émergence d'un consensus sur la pertinence du renforcement des capacités à Madagascar afin de pallier au manque de coordination interministérielle. Au cours des consultations, la mission a noté que l'axe « résilience communautaire » pouvait être abordé plus comme une approche que comme un axe à part entière. De même, la mission a noté le besoin de mettre davantage en exergue certaines thématiques fondamentales à la résilience climatique telle que la pêche, la biodiversité, les forêts et l'agriculture. Enfin, des critères de priorisation des investissements ont été présentés aux parties prenantes sur la base des critères de priorisation utilisés pour le PPCR en Ethiopie (annexe 7).

(14) **Des axes stratégiques identifiés pour l'élaboration du SPCR :** Suite aux ateliers de consultation et concertations finales de la mission, deux axes stratégiques clés ont finalement été dégagés pour l'élaboration du SPCR à savoir : (i) un axe Investissements pour la résilience climatique ; et (ii) un axe Renforcement des politiques publique et des capacités pour la résilience climatique. Le premier axe devrait comprendre une série d'investissements complémentaires, parmi lesquels : un projet de résilience urbaine pour le Grand Antananarivo ; un projet de résilience des communautés et des moyens de subsistances pour le Grand Sud de Madagascar ; (iii) un projet de renforcement des services hydrométéorologiques ; (iv) un projet de résilience de la biodiversité ; et (v) un projet de résilience agricole. L'axe 2 permettra de développer un projet d'assistance technique pour renforcer la coordination du programme et la coordination interministérielle, le suivi-évaluation du programme, la gestion

des connaissances, le développement et application de normes, les stratégies et politiques en matière de protection financière face aux risques climatiques. Ce projet d'assistance technique pourrait être complété par un projet d'appui aux politiques de développement (ou appui budgétaire) basé sur des réformes des politiques publiques en matière de résilience, et potentiellement accompagné d'un CAT-DDO, un nouvel outil de la Banque mondiale pour les pays IDA qui offre une option de prélèvement différé liée à une catastrophe et renforce ainsi la protection financière.

(15) Une struct**ure définie pour le PPCR :** Suite aux résultats des différentes consultations réalisées la mission a convenu que le programme serait basé sur les principes suivants : résilience spatiale (tenant compte des spécificités de certains territoires : i.e. le Grand Sud, l'aire métropolitaine de la capitale, les zones côtières, etc.) ; résilience des secteurs prioritaires (agriculture/pêches/élevage ; eau ; santé ; etc.) ; résilience communautaire (afin de mettre la participation des communautés au cœur des interventions) ; résilience des infrastructures (pour assurer une intégration systématique de normes de construction dans les projets d'investissement publics) ; la résilience fiscale (visant à réduire la vulnérabilité des finances publiques aux chocs climatiques). La structure du programme est présentée en annexe 4.

(16) **Une compréhension et répartition des rôles entre BNCCC et CPGU à éclaircir :** La mission note l'existence de plusieurs structures dédiées à l'exécution des activités liées à la résilience climatique et la réduction des risques dans leurs secteurs respectifs à Madagascar.

D'une part, il y a la Cellule de Prévention et Gestion des Urgences (CPGU) Point Focal du PPCR à Madagascar et d'autre part, il y a le Bureau National de Coordination sur les Changements Climatiques (BNCCC), premier responsable de l'élaboration du processus du Plan National d'Adaptation (PNA). Comme leurs noms indiquent et évidemment mis en relief dans leurs décrets de création respectifs, ces deux entités interviennent dans les domaines et secteurs d'activités qui leur sont propres, ce qui n'empêche pas pour autant l'étroite collaboration et la complémentarité dans chacun de leurs domaines d'intervention visant la même finalité. Pour la CPGU, en tant qu'organe technique permanent auprès de la Primature, elle est en charge de la conception et de la planification stratégique pour la réduction de vulnérabilité du pays en général ainsi qu'à la réalisation d'appui technique multi et intersectoriel en matière de résilience. L'une des missions principales de la CPGU est la mise en place d'un cadre de mise en œuvre de la Convention Cadre de *Sendaï* entre autres, l'élaboration de la Stratégie Nationale de Gestion des Risques et de Catastrophes et de son plan de mise en œuvre. C'est ainsi que cette entité demeure actuellement le point focal du Programme Pilote pour la Résilience climatique à Madagascar.

D'autre part, le BNCCC, comme son nom l'indique, coordonne de près toutes les activités liées au changement climatique que ce soit au niveau des bailleurs qu'auprès des bénéficiaires des projets au niveau de leur zone d'intervention, qu'ils s'agissent de conception, d'études ou de contrôle, et se trouve actuellement à la tête de la préparation et de l'élaboration du processus PNA pour Madagascar.

Aussi, sur le plan intersectoriel et interministériel les actions de ces structures sont bien coordonnées. En effet, la CPGU fait partie du Comité de Suivi et Evaluation du processus PNA tandis que le BNCCC est membre du Comité de Pilotage du PPCR dont le Ministère en charge de l'Environnement étant co-président de ce comité.

Toutefois, afin d'éviter toutes duplications et d'assurer une meilleure coordination des efforts entrepris en termes de planification, d'évaluation et de suivi de programmes de développement, la collaboration entre les deux entités est à renforcer ; aussi, un état des lieux sera conduit afin d'identifier les besoins émis par les différents secteurs, de recenser les programmes/projets en cours et de déterminer les gaps.

Par ailleurs, à la fin de la mission, en vue de mener à bien les activités dans le cadre du processus SPCR pour Madagascar, il a été convenu que les deux structures vont se concerter pour articuler chacune de leurs activités à travers un protocole d'accord.

En outre, le Gouvernement en partenariat avec l'équipe de préparation du PPCR compte recruter un consultant pour mener un audit ou diagnostic institutionnel de structures en charge de la préparation et de l'exécution des activités liées à la résilience climatique ainsi que l'état des lieux mentionnés ci-dessus. L'étude durera six

semaines à partir du début de mois de Juin 2017 et procédera à l'identification des organes en charge de la résilience climatique et à une analyse approfondie de leurs dispositifs institutionnels et administratifs. Cette étude dont les TDRs ont été préparés durant la mission formulera des propositions et recommandations qui permettront d'identifier l'agence de coordination du SPCR et le type de collaboration que celui-ci entretiendra avec les autres organes (annexe 5).

4. CALENDRIER D'EXECUTION, ACTIONS CONVENUES ET PROCHAINES ÉTAPES

Le tableau ci-dessous présente le calendrier préliminaire du processus de préparation du SPCR. Il a été établi sur la base de l'objectif du Gouvernement malgache de présenter le SPCR en novembre 2017.

Activité	Date
Choix de l'expert indépendant	25 mai 2017
Première ébauche de SPCR	17 juillet 2017
Consultations du gouvernement et des parties prenantes régionales	24 – 30 juillet 2017
Consultation de l'expert indépendant, consultation du point focal des BMD, consultation publique, consultation de l'expert en approche genre du CIF	14 – 25 août 2017
Deuxième mission conjointe	28 août – 1 sept. 2017
Finalisation et version finale du document	28 août – 1 sept. 2017
Validation par les BMD	8 septembre 2017
Soumission du SPCR par le Gouvernement au CIF	15 septembre 2017


VOVONI-TSIRA
VAOVAO

Second Joint Mission Aide-Mémoire

AIDE MEMOIRE

PROGRAMME PILOTE POUR LA RESILIENCE CLIMATIQUE

MADAGASCAR

MISSION TECHNIQUE

28 AOUT-2 SEPT 2017

SECONDE MISSION CONJOINTE

1 OCTOBRE – 6 OCTOBRE 2017

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

GROUPE DE LA BANQUE MONDIALE

AFRICAN DEVELOPMENT BANK GROUP

1. INTRODUCTION

(1) Une mission technique du Programme Pilote pour la Résilience Climatique (PPCR en anglais), organisée par la Banque Mondiale (BM) et la Banque Africaine de Développement (BAD) et accompagnée par M. le Secrétaire Exécutif de la Cellule de Prévention et Gestion des Urgences (CPGU), s'est tenue à Antananarivo (Madagascar) du 28 au 30 août et à Fort-Dauphin et Ambovombe du 30 août au 2 septembre 2017. La seconde mission conjointe du PPCR, organisée par les mêmes entités, s'est tenue à Morondava du 1er au 2 octobre et à Antananarivo du 2 au 6 octobre. Les missions étaient composées pour la Banque mondiale de M. Michel Matera (Spécialiste principal en gestion des risques de catastrophes et développement urbain et chargé de projet), Mme Isabel Kreisler (Spécialiste principale en changement climatique, consultante) Mme. Beatriz Pozueta Mayo (Spécialiste principale en Gestion des risques et des catastrophes, consultante), M. Andre Carletto pour la mission technique uniquement (Spécialiste principal en Gestion des risques et des catastrophes, consultant) et Mme. Mynah Nassila (Analyste en changement climatique, consultante) et pour la Banque Africaine de Développement de M. Amadou Bamba Diop pour la mission technique (Spécialiste principal en environnement) et Mr. Vaidjoua Guineo pour la seconde mission conjointe (Ingénieur en infrastructures rurales).

(2) La mission s'est entretenue avec (i) le Conseiller spécial du Premier ministre ; (ii) la Cellule de Prévention et Gestion des Urgences (CPGU) et le Bureau National de Coordination du Changement Climatique (BNCCC) ; (iii) des représentants des ministères sectoriels-techniques ; (iv) des représentants des partenaires techniques et financiers (PTF) ; et (v) des représentants de la société civile (OSC), des ONGs et du secteur privé. La liste des personnes rencontrées est jointe en annexe.

(3) La mission technique avait pour objectif d' : (i) avancer sur la mise en œuvre de l'accord de financement PPCR (Phase 1 Grant) (ii) maintenir des réunions techniques avec l'équipe de la CPGU et autres parties prenantes (Bureau National de Coordination des Changements Climatiques, Banque Africaine de Développement et bailleurs actifs dans le domaine de la gestion des risques climatiques: GIZ, AFD) pour consolider la formulation du Programme Stratégique pour la Résilience Climatique; (iii) conduire des consultations régionales dans la région Grand Sud (avec des différentes parties prenantes en matière de résilience climatique) en suivant les recommandations offertes par des partenaires nationaux lors de la consultation menée par la CPGU le 2 août sur une esquisse du Programme Stratégique pour la Résilience Climatique.

La seconde mission conjointe avait pour objectif principaux d'appuyer Madagascar dans la validation du projet final du Programme stratégique pour la résilience climatique qui sera présenté au Sous-Comité du PPCR pour approbation et qui a été formulé pendant et après la première mission conjointe à travers i) une analyse de l'existant, (ii) des consultations avec les parties prenantes pertinentes et un accord sur leur participation à la phase de mise en œuvre; (iii) une confirmation des secteurs prioritaires et des activités pour la phase I et (iv) un accord sur un format pour le SPCR, et plus précisément de : (i) consolider et renforcer les consultations du SPCR au niveau national et régional (ii) valider l'approche et la stratégie d'intervention sélectionnées pour le SPCR de Madagascar, (iii) discuter avec les parties prenantes des complémentarités sur les projets d'investissement et explorer avec les bailleurs clés des possibilités de cofinancement, (iv) renforcer les mécanismes de contributions du SPCR auprès du PNA, et (v) valider le draft final de SPCR à présenter au sous-comité du PPCR.

(4) La mission remercie les autorités malgaches et l'ensemble des personnes rencontrées pour leur disponibilité et leurs contributions à la définition des orientations du PPCR à Madagascar.

(5) **Divulgation :** Les directives du CIF requièrent la divulgation publique des aide-mémoires de mission. La mission et le Gouvernement ont discuté les conclusions et recommandations de la mission et se sont mis d'accord sur la divulgation de l'Aide-mémoire lors de la réunion de clôture du 19 mai 2017. L'aide-mémoire sera divulgué publiquement par l'unité administrative des Fonds d'Investissement Climatique (CIF en anglais).

2. CONTEXTE

(6) La mission technique conduite entre le 28 août et le 2 septembre 2017 et la seconde mission conjointe conduite entre le 1 et le 6 octobre font suite à une première mission conjointe de suivi de la formulation du SPCR dans le cadre du PPCR qui s'est tenue du 11 au 19 mai 2017 et qui avait pour objectif de : (i) faire le point sur l'état de mise en œuvre des recommandations de la mission de cadrage ; (ii) entreprendre des consultations avec les parties prenantes malgaches comprenant les représentants des secteurs ministériels, les PTF, les OSC et le secteur privé en vue d'appréhender leur vision et interventions dans les domaines de la résilience climatique ; (iii) dégager un consensus sur les orientations stratégiques du SPCR ; (iv) esquisser la structure du Plan Stratégique ; et (v) établir la feuille de route pour la suite du processus.

(7) Madagascar a soumis sa proposition d'assistance technique au CIF qui cible les secteurs et domaines particulièrement liés à la vulnérabilité du milieu rural, tels que l'agriculture élevage- pêche, les zones côtières, l'environnement et les ressources en eau, et d'autre part la vulnérabilité liée au milieu urbain, et d'une manière transversale, la réduction des risques de catastrophes. La résilience des infrastructures, la résilience fiscale et économique, l'aménagement du territoire et le renforcement des capacités des services hydrométéorologiques sont également considérés comme des thématiques transversales clés. La demande d'assistance technique, approuvé par le CIF en avril 2016, est articulée autour des 4 axes principaux : (i) le renforcement des connaissances en matière de résilience climatique et de gestion des risques climatiques à Madagascar ; (ii) la mise en place d'un environnement institutionnel propice au développement et à la mise en œuvre du SPCR et à l'intégration de la résilience climatique dans la planification du développement ; et renforcement des capacités ; (iii) l'appui à l'identification, à la priorisation et planification des interventions, au processus de consultation, et à la préfaisabilité des investissements ; et (iv) l'appui à l'exécution, suivi et évaluation.

(8) La mise en place de l'assistance technique au travers de l'approbation de la demande de don de préparation par la Banque est effective depuis le 18 juillet 2017, date de la signature de l'accord de don, et ce pour une période de 18 mois.

(9) Suite à la recommandation de clarification des rôles du BNCCC et de la CPGU émise à la fin de la première mission conjointe, les deux entités ont élaboré et signé le 2 août 2017 un protocole d'accord ayant pour objectif de renforcer la collaboration et la complémentarité des rôles des deux institutions durant la phase de mise en œuvre de l'accord de don de 18 mois et ce afin d'éviter la duplication des efforts entrepris dans le domaine de la résilience climatique à Madagascar. D'un point de vue opérationnel, le BNCCC et la CPGU élaborent actuellement un tableau croisé des études et activités à prendre en charge au niveau de chaque entité à des fins de coordination et complémentarité pour les 18 prochains mois, et ce afin d'assurer que les études financées dans le cadre du PPCR soient cohérentes avec le processus d'élaboration du PNA et que l'utilisation 1.5 millions disponibles puisse être maximisée au niveau national.

(10) Un premier draft de SPCR a été partagé par la CPGU lors d'un atelier de consultation le 2 août 2017 au BNCCC, aux différents partenaires techniques et financiers, membres du gouvernement et de la société civile ayant participé à la première mission conjointe. Entre le 2 août et le 18 août 2017, la CPGU a reçu et intégré au draft de SPCR des commentaires de la part du BNCCC, de Conservation International et de l'Université d'Antananarivo.

(11) Un comité interministériel a été mis en place au travers de l'Arrêté n°13216/2016 portant sur la Création et l'Attribution d'un Comité de Pilotage de "Préparation du Programme Stratégique pour la Résilience Climatique" du 17 Juin 2016, et a pour objectif de piloter le processus de développement du SPCR et de son plan d'investissement ainsi que la mise en œuvre du projet d'assistance technique PPCR-Phase 1, en s'assurant en particulier de la complémentarité des activités entre les différentes initiatives liées au changement climatique à Madagascar. Le comité s'est réuni pour la préparation et la validation du document de demande assistance technique en 2016, lors de la première réunion conjointe des banques multilatérales de développement, et enfin lors de la réunion de concertation sur le premier draft de SPCR

3. CONCLUSIONS ET RECOMMANDATIONS DE LA MISSION

(12) **Durant la mission technique, des consultations régionales dans le Grand Sud à Fort-Dauphin (Anosy) et Ambovombe (Androy) ont été conduites et des rencontres bilatérales réalisées avec les représentants des ministères sectoriels-techniques, des partenaires techniques et financiers, des représentants de la société civile, des ONG et du secteur privé :** Durant les consultations réalisées avec les représentants des autorités régionales sectorielles-techniques, des partenaires techniques et financiers, des représentants de la société civile, des ONG et du secteur privé, la structure du PPCR, l'avancée du programme et les prochaines étapes ont été présentées (annexe 4). Les parties consultées ont présenté leurs programmes, projets et activités en cours ainsi que l'ensemble des plans nationaux et régionaux, sectoriels et études relatives à la résilience climatique à Madagascar.

Points saillants des consultations à Fort-Dauphin et Ambovombe :

- Besoin de renforcement de la coordination régionale et nationale
- Adoption d'une approche stratégique : construction de la résilience au-delà de la réponse d'urgence & durabilité des projets
- Problèmes de connectivité
- Impact sur les femmes plus important

Des progrès ont été réalisés avant et durant la mission au travers de discussions bilatérales avec les bailleurs de fonds engagés à soutenir le processus du PNA dont la GIZ en partenariat avec le WWF. La GIZ s'engage au support du processus du PNA par la mise en place de station hydrométéorologiques dans 3 régions clés, une cartographie des intervenants et une intégration des riques associés au changement climatique dans les politiques nationales et régionales avec un volet planification stratégique et un volet renforcement des capacités pour l'adaptation. **Une possibilité de conduire une mission conjointe avec l'AFD et d'aligner l'appui du SPCR avec le soutien de l'AFD à la Contribution Nationale Déterminée qui vise à l'opérationnalisation de l'engagement des pays, avec un intérêt commun porté aux villes côtières et à l'urbain a été discutée** lors de la mission technique. Une mission conjointe n'a pas pu être organisée pour des raisons de disponibilités des consultants aux mêmes dates. L'AFD effectue néanmoins sa mission la semaine du 9 octobre 2017 sur la base des observations et des éléments discutés lors de la seconde mission conjointe du SPCR.

(13) **Durant la seconde mission conjointe, une visite de la ville de Morondava et du district de Mahabo a été effectuée en présence des autorités locales et des représentants des ministères sectoriels-techniques** afin d'évaluer la problématique des villes côtières, et notamment les problèmes d'érosion, d'accès à l'eau et de sédimentation causés par le changement climatique et leurs impacts sociaux-économiques, en particulier sur les femmes. Une consultation régionale a été conduite dans la ville de Morondava et des rencontres bilatérales réalisées avec les représentants des ministères sectoriels-techniques, des partenaires techniques et financiers, des représentants de la société civile, des ONG et du secteur privé. Durant les consultations, la structure du PPCR, l'avancée du programme et les prochaines étapes ont été présentées (annexe 4). Les parties consultées ont présenté leurs programmes, projets et activités en cours ainsi que l'ensemble des plans nationaux et régionaux, sectoriels et études relatives à la résilience climatique à Madagascar.

Points saillants consultation régionale Morondava :

- Agir sur la capacité à agir de l'administration
- Implication des acteurs du développement territorial
- Renforcement de la synergie des interventions et éviter la culture de casquettes
- Vulnérabilité des femmes face changement climatique :
- Mise en place d'un fonds d'entretien des machines de drainage
- Favoriser les programmes de « food for work » qui permettent l'appropriation de la technique de réfectionnement des berges de Dabaraha par les bénéficiaires

(14) **Durant la seconde mission conjointe, une consultation nationale conduite à Antananarivo et des rencontres bilatérales réalisées avec les représentants des ministères sectoriels-techniques, des partenaires techniques et financiers, des représentants de la société civile, des ONG et du secteur privé.** Durant la consultation, la structure du PPCR, l'avancée du programme et les prochaines étapes ont été présentées. **Des travaux de groupe ont permis de passer en revue les fiches de projets d'investissement proposés dans le cadre du SPCR**, et notamment afin d'évaluer la pertinence des éléments suivants : (i) Alignement avec les politiques/documents programmatiques existants (à confirmer/compléter par rapport à la fiche) (ii) Existence de complémentarités avec d'autres projets d'investissement dans ce domaine (soit des institutions nationales, ou bailleurs ou CSO) (iii) Explorer potentiel de cofinancement (avec bailleurs, UN, secteur privé ou autres) (iv) Comment renforcer l'approche de genre dans ce projet. Les participants ont globalement noté un alignement des projets proposés avec les politiques et documents programmatiques existants, ont mis en exergue l'existence de complémentarités et de potentielles sources de financement. Toutefois, **il a été demandé par les participants pour les projets 5 et 6 portant sur la biodiversité et l'écotourisme au sein des aires protégées de Madagascar National Parks, ainsi que sur la mise en place d'un pôle intégré de croissance agroindustrielle dans le Sud, que les projets proposés soient revisités afin d'affiner la pertinence des axes proposés, de refléter d'avantage les besoins existants dans ces domaines et d'éviter les doublons avec les programmes et projets déjà existants**.

(15) **Une compréhension et répartition des rôles entre BNCCC et CPGU clarifiée** : Le BNCCC a également présenté le protocole d'accord signé avec la CPGU, sa portée et le rôle et attributions de chaque entité, ainsi que l'évolution du processus d'élaboration du PNA lors de la consultation nationale du 3 octobre 2017. En effet, le 2 août 2017, le BNCCC et la CPGU ont signé un protocole d'accord afin d'assurer la coordination, la complémentarité et la synergie des activités du PPCR avec celles du PNA, de collaborer étroitement dans toutes les phases de la mise en œuvre de ce protocole, et d'assurer une communication permanente et régulière sur l'évolution du processus. Un tableau récapitulatif des projets, programmes et études existants, ainsi qu'un tableau désignant les études à venir prises en charges par le PNA et celles prises en charges par le SPCR sont en cours d'élaboration par les deux institutions afin d'éviter une duplication des efforts et de renforcer les deux processus.

4. CALENDRIER D'EXECUTION, ACTIONS CONVENUES ET PROCHAINES ÉTAPES

Le tableau ci-dessous présente le calendrier préliminaire du processus de préparation du SPCR. Il a été établi sur la base de l'objectif du Gouvernement malgache de présenter le SPCR en novembre 2017.

Activité	Date
Intégration des commentaires finaux au dernier draft de SPCR	9 octobre 2017
Comité de pilotage SPCR	9 octobre 2017
Consultation publique	16 octobre 2017
Validation conseil des ministres	23 octobre 2017
Soumission formelle au CIF	1er novembre 2017
Révision avec commentaires membres sous-comité SPCR	–
Présentation officielle à Washington D.C	11-14 décembre 2017
Soumission du SPCR par le Gouvernement au CIF	15 septembre 2017

M. Michel Matera
Chargé de Projet
Banque mondiale

Dr. Zinso Boue
Chargé de Projet
Banque Africaine de Développement

Mamy Razakanaivo
Secrétaire Exécutif
Cellule de Prévention et de Gestion des Urgences

ANNEX V

Stocktaking Summary Table of Climate Risk Related Analysis, Plans and Actions

	Study	Policy/Strategy	Action Plan	Portfolio	Support
Agriculture	Etude de la variabilité climatique sur les productions agricoles – Sava et Alaotra, CPGU		Programme Sectoriel Agriculture Elevage Pêche - Plan National d'Iinvestissement Agricole PSAEP/PNIAEP 2016-2020	Projet de Résilience Agricole de l'UE, 2017 Projet "Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region"	Trajectoires d'innovation en agriculture de conservation au Lac Alaotra à Madagascar, CIRAD UMR, 2016 4- Renforcement de la résilience du secteur agricole
Health	Climate services for Health, Etude de cas, OMS, OMM, 2016 Evaluation de la vulnérabilité et de l'adaptation du Secteur Santé au CC à Madagascar, 2015, GIZ-OMS	Politique National de Santé-Environnement	Plan d'Action National d'Adaptation du secteur Santé au Changement Climatique. Plan National d'Action pour la Nutrition	Improving Nutrition Outcomes using the Multiphase Programmatic Approach Project (WB 2017 – P160848)	Madagascar Climate Change and Health Diagnostic: An assessment of risks and opportunities for climate-smart health (and nutrition) investment. (World Bank, 2017) Madagascar Climate Change and Health Country Profile (WHO, 2016) Madagascar Assessment of Climate and Health Vulnerability and Adaptation (V&A) (WHO)
Infrastructure	Evaluation Infrastructure, Convention Minamata, Madagascar	Normes malgaches de construction des infrastructures hydroagicoles contre les crues et les inondations, WB,CPGU Politique National de l'Aménagement du Territoire (PNAT)		PAD emergency Insfrastructure and Vulnerability reducation, WB, 2012	9- Développement des schémas d'aménagement adaptés aux CC
Coastal management		Stratégie nationale de gestion intégrée des zones côtières Document de politique de développement durable zones côtières et marines,2010 Aménagement intégré et durable du littoral côtier de la commune urbaine de Morondava face au changement climatique	Plan d'action national sur la gestion des zones côtières, 2012-2016	Projet de création de forêt littorale tropicale jardinée : région deBrickaville et de Toamasina,côte est de Madagascar Projet de renforcement de la résilience des côtes au changement climatique : avancées et défis, WWF Appui à l'aquaculture villageoise, littoral ouest de Madagascar, 2014 Projet d'adaptation des zones côtières tenant en compte des moyens de subsistances	Revue des activités de suivi des récifs coralliens du sud-ouest de l'Océan Indien, 2013 3-Intégration des mesures d'adaptation dans les politiques nationales de GIZC (Gestion Intégrée des Zones Côtières) et stratégies de développement

	Study	Policy/Strategy	Action Plan	Portfolio	Support
Climate change	• Plan directeur de la recherche sur l'environnement lié au changement climatique • Etude de vulnérabilité aux changements climatiques, évaluation qualitative, mars 2011 • Feuille de route actualisée, réunion partenaires techniques et financiers, 2017 • Madagascar face aux défis du Changement climatique, capitalisation de nos expériences • Profil du risque de changement climatique, Madagascar, USAID, 2016 • Etude de vulnérabilité face aux changements climatiques : évaluation qualitative groupement, Madagascar • Le changement climatique à Madagascar • Profils des risques Madagascar (AIR) • Profil sécheresse • Développement des données sur l'exposition au changement climatique au niveau des zones d'intervention du programme changement climatique, WWF, UE, NosyHara • Développement des données sur l'exposition au changement climatique au niveau des zones d'intervention du programme changement climatique WWF, Ambodivahibe • Analyse de vulnérabilité au changement climatique des écosystèmes de mangroves et des écosystèmes associés de l'Aire Marine Protégée de NosyHara , WWF, UE • Analyse de vulnérabilité au changement climatique des mangroves et des écosystèmes associés de l'AMP Ambodivahibe, WWF, UE • Analyse de vulnérabilité des espèces d'oiseaux marins et côtiers de l'AMP NosyHara face aux changements climatiques • Vulnérabilité de la pêche traditionnelle AMP NosyHara • Vulnérabilité des récifs coraliens AMP NosyHara • Vulnérabilité socio-économique AMP NosyHara et Ambodivahibe • Vulnérabilité Tortue Marine AMP Nosy Hara • Etude de vulnerabilite aux changements climatiques, analyse qualitative • Risk Atlas Sofia Region : • Cartographie de la vulnérabilité sectorielle, WB, CPFU, SaryTany	• Stratégie régionale adaptation au changement climatique, 2012-2020, Commission de l'Océan Indien • Stratégie Changement Climatique, Agriculture Elevage Pêche, 2012 -2025 • Changement climatique : politiques et perspectives à Madagascar, 2013 • Madagascar INDC • 3e communication nationale • Rapport national de suivi sur la mise en œuvre du CadrE d'action de Hyogo (2009-2011) - intermédiaire • Politique National de Lutte contre le Changement Climatique (PNLCC) • Programme d'Action National d'Action d'adaptation au Changement Climatique (PANA) • Stratégie Nationale face au Changement Climatique Agriculture – Elevage – Pêche 2012-2025 • • Stratégie Nationale du Mécanisme de Développement Propre à Madagascar	• Plan d'action de mise en œuvre du PNLCC, 2010 • Actions Nationales d'Atténuation Appropriées -Madagascar • Recommandation Plan d'Action Minamata – Madagascar	• Madagascar INDC : Contributions déterminées • Projet«Renforcement des conditions et capacités d'adaptation durable au changement climatique »	• Témoignages de Madagascar : changement climatique et modes de vie ruraux • Appui à la planification de l'adaptation au changement climatique à Madagascar par la valorisation des expériences et intégration des enjeux et implications spécifiques aux groupes pauvres et vulnérables • Madagascar Systematic Country diagnostic, 2015 • Texte de négociation de Genève • 2ème Communication Nationale au titre du CNUCC – Madagascar, 2010 • Communication Nationale initiale au titre du CNUCC – Madagascar • 4ème rapport du GIEC, 2007 • Enjeux et besoins, Convention Minamata - Madagascar • Conventions internationales ratifiées par Madagascar • 1-Développement des capacités institutionnelles dans quatre régions du projet (Etude, formation, atelier, ...) • 6- Renforcement des capacités d'adaptation durable au Changement Climatique de Madagascar • 7- Renforcement de la planification stratégique, la mise en cohérence et le suivi des actions en matière d'adaptation durable au Changement Climatique 8- Mise à disposition des informations et des connaissances utiles aux acteurs clés pour œuvrer à l'adaptation durable au Changement Climatique

	Study	Policy/Strategy	Action Plan	Portfolio	Support
Climate change	• Méthodologie et principes d'analyse utilisés dans l'analyse de la vulnérabililté des secteurs pour l'élaboration de l'Atlas de vulnérabilité sectorielle dans la région Sofia • Catastrophe Risk Assessment for the Southwest Indian Ocean (SWIO): Project Inception Report Submitted to the World Bank, June 19, 2015 • Étude de faisabilité d›une assurance paramétrique contre la sécheresse à Madagascar, 2006 • Madagascar Country Risk Profile, USAID, 2016 • Elaboration du Plan National d'Adaptation • Analyse des actions menées par l'IRD autour du Changement Climatique (2005-2015)				
Financial Protection	• Regional Platform Meeting of the ISLANDS Financial Protection Programme- Risk Modeling • Southwest Indian Ocean Risk Assessment : Financing Initiative (SWIO-RAFI): Component 4–Risk Profiles, 2016, Air Profiles, submitted to WB				
Urban	• Rapport Pays- Madagascar, en vue de la préparation de la conférence Habitat III • Avant-projet d'adaptation à la variabilité et au changement climatique, et de réduction des risques y afférents en milieu urbain, pour Madagascar, UN Habitat • L'urbanisation ou le nouveau défi malgache, Banque Mondiale, 2011 • Climate Change and Cities, 1str assessment report od the Urban Climate Change Research Network		• PLAN D'ACTION POUR LA RESILIENCE URBAINE • Commune Urbaine de Morondava	• TATOM –GRC, M2PATE	
Hydromet	• Assessment on the state of hydrometeorological services and recommendations for their improvement , WB, 2017 • Etude du système d'information de la direction générale de la météorologie (DGM) de Madagascar		• Plan d'action national pour l'amélioration des services hydrométéorologiques, WB, 2017		

	Study	Policy/Strategy	Action Plan	Portfolio	Support
DRM	• Flood Inundation Analysis using HEC-HMS and HEC-RAS Modelling Systems • : A Case Study of Antananarivo Atsimondranoin Madagascar; Tropical Cyclone Parametric Product for the Southwest Indian Ocean • Product Description and Modelling Results, ARC 2016 • Profil de risque de catastrophe Madagascar • Financial and Economic Disaster Risk Estimation in Madagascar for the Implementation of CatSim	• Stratégie Nationale de Gestion des risques et des catastrophes, 2016-20202030 • Loi n° 2015-031 relative à la Politique Nationale de Gestion des Risques et des Catastrophes	• Plan d'action national RRC 2013-2017 • Draft Plan d'action de la SNGRC 2016-2030		
Water management	• Capitalisation des expériences des projets eau, assainissement et hygiene, HELVETAS 2015	• Lignes Directrices Eau Assainissement, 2015-2019 • Strategie Nationale Eau Assainissement 2013-2018			
Forestry	• Analyse des moteurs de déforestation et de degradation dans les écorégions des forêts humides et sèches – Madagascar • Les zones forestières sensibles • Les zones réservées pour le site de conservation • Local socio-economic effects of protected area conservation : The case of Maromizaha forest, Madagascar			• Gestion rationnelle des resources naturelles renouvelables, pilier du développement durable, Madagascar 2014 • Rôle des TGRN dans l'articulation des politiques de conservation et de valorisation des forêts, Madagascar 2014	• Bioclimatic envelope models predict a decrease in tropical forest carbon stocks with climate change in Madagascar, 2017
Biodiversity	• Cinq rapports nationaux de la Convention sur la CDB • Introduction à l'atelier méthodologique sur le REDD • Enquête sur l'exploitation, le transport et l'exportation illicite de bois précieux dans la Région SAVA à Madagascar • Paysage durable dans l'Est de Madagascar (PGES) • Etat des lieux de la conservation et de l'utilisation de la diversité biologique agricole à Madagascar	• Stratégie Nationale pour la Gestion Durable de la Biodiversité, 2002 • Stratégie et Plans d'Actions nationaux pour la biodiversité (2015-2025)	• Rapport de l'atelier régional africain sur le programme de travail des aires protégées	• Development, biodiversity conservation and global change in Madagscar, 2010 • Le PGM-E/GIZ, la gestion durable de la biodiversité et la Convention sur la diversité biologique, 2012	• Updated estimates of biotic diversity and endemism for Madagascar, Vol 39, 2005 • Monographie nationale sur la diversité biologique 1 à 7, 2014

	Study	Policy/Strategy	Action Plan	Portfolio	Support
Environment	• Rapport sur l'état de l'environnement – 2012 • Profil Environnemental Région Anosy, Atsinanana • Programme Germano-Malgache pour l'Environnement, GIZ, 2014	• Stratégie nationale sur la restauration des paysages forestiers et des infrastructures vertes à Madagascar • Politique Nationale de l'Environnement-Madagascar • Politique Nationale de l'Environnement pour le Développement Durable (PNEDD) • Stratégie nationale de gestion des pollutions	• Plan de gestion environnementale et sociale dans l'Est de Madagascar, 2016 • Programme Environnemental pour le Développement Durable, aout 2016 • Programme Environnement III, 2002		• Déclaration de politque Environnemetale
Social protection	• Perceptions et stratégies d'adaptation paysannes face au changement climatique à Madagascar : cas des régions sud-ouest, sud-est et des zones périurbaines des grandes agglomérations • Gender Needs Assessment, Rapport Final, MRPA	Plan de gestion environnementale et sociale, mai 2016		• Projet "Amélioration des capacités d'adaptation et de résilience des communautés rurales"	• Témoignagesde Madagascar-changements climatiques et modes de vie ruraux, WWF • 5- Amélioration des capacités d'adaptation et de résilience des communautés rurales face au changement climatique

ANNEX VI

World Bank's Support For Madagascar's Social

Prior and during the political crisis of 2009, the Bank supported the country's social protection agenda through community driven development projects and cash for work activities that were designed to improve access to basic social services for the poor and provide temporary employment during times of hardship. The Bank's support was financed through several projects that were implemented by the FID under the leadership of the Prime Minister's office.

During the crisis years, the World Bank supported the safety net agenda through the Intervention Fund for Development (*Fonds d´Intervention pour le Développement* or FID). The FID worked with communities to provide small community infrastructure and carried out cash-for-work activities designed to provide the poor with short-term employment while rehabilitating basic community infrastructure[4]. More recently, the Bank has supported the government in developing a more programmatic approach to social protection by designing a "productive safety net approach" through cash for work, as well as a Conditional Cash Transfer (CCT) pilot.

Since the new government was elected, the World Bank has been working closely with the authorities, particularly the MPSPPW, to support the development of the social protection policy. This policy support was complemented by capacity building activities fostering South-South policy exchanges between Madagascar and Ethiopia, Brazil, Sudan, Niger, and Comoros and by facilitating Madagascar's participation in the Community of Practice on Social Safety Nets that UNICEF and the World Bank are jointly sponsoring. In addition to the policy work, the Bank has also been providing technical assistance for building a safety net system which included the development of a proxy means test based targeting system, the exploration of electronic payment mechanisms, and the development of innovative social accountability mechanisms. More recently, the Government has requested the Bank's support in analyzing the country's pension system. The extensive technical assistance has been made possible by a Rapid Social Response (RSR) Trust Fund that the Bank team had acquired.

In parallel, the Bank has been supporting the social protection agenda through two operations. The Madagascar Emergency Infrastructure Preservation and Vulnerability Reduction Project (*Projet d´Urgence pour la Préservation des Infrastructures et la Réduction de la Vulnérabilité* or PUPIRV), approved in 2012, finances emergency rehabilitation of basic infrastructure as well as emergency cash-for-work activities (US$20 million) through the FID. The second project, the recently approved Emergency Food Security and Social Protection Project (Projet d´Urgence de Soutien à l´Agriculture et la Protection Sociale or PURSAPS), includes a social protection component of US$20 million that supports poor households in locust-affected regions through: (i) cash-for-work activities aimed at providing a safety net for the poorest population of selected communities and promoting their productive development and (ii) a pilot Conditional Cash Transfer (CCT) program.

The recently approved Social Safety Net Project (P149323) will help to establish a systematic and programmatic approach to social protection focusing on investing in the human capital and productive assets of Madagascar's extreme poor in addition to supporting the government's leadership capacity through policy coordination, as well as program monitoring and evaluation. The return of a democratically elected government and its explicit focus on social protection is making it possible for development partners to support the social protection agenda in a more programmatic and coordinated way. The objective is to equip the government with the technical capacity and systems needed to take the lead in the sector in order to contribute to the country's development through a balanced social, economic, and environmental approach. The Social Safety Net Project represents the first phase of a long-term engagement between the government, the Bank, and other development partners (e.g. UNICEF, WFP and others) in building the country's social safety net system. It will begin with a new generation of poverty-targeted investments to build human and productive capital, coupled with institutional strengthening and systems building of the MPSPPW and implementing agencies (e.g. through a harmonized targeting system, a beneficiary registry, and regular program results monitoring & evaluation) focused on establishing the core building blocks of a social protection system.

[4] These activities were financed under the Bank's Emergency Food Security and Reconstruction Project, which closed in 2013.

ANNEX VII

Matrix of Responses to Comments from the Independent Reviewer

Strategic Program for Climate Resilience of Madagascar

Responses to comments received from Independent Reviewer Ms. Camille Bann

The Government of Madagascar, the African Development Bank and the World Bank would like to express their sincere gratitude to Ms. Bann for her detailed review of the SPCR document and constructive feedback, which has helped to improve the formulation of Madagascar's SPCR ahead of the program's Second Joint Mission and of its submission to the PPCR Sub-Committee for endorsement.

1. Overall assessment

- Dates of the independent Review Process: 9-18 September 2017
- Main document reviewed:
  - Strategic Program for Climate Resilience: Madagascar Pilot Program for Climate Resilience
- Additional documents consulted:
  - PPCR Design Document (2009)
  - PPCR Programming and Financing Modalities (2011)
  - Revised PPCR Results Framework (2012)
- The independent reviewer has used a color code for the assessment of the key evaluation criteria of SPCR draft: green = met the criteria; yellow = need for some additional work; red = did not meet the criteria yet.
- Overall, the reviewer assessed a total of 23 criteria and indicators with the following scoring:

12	The criteria and/or indicator has been generally met and there is no need for any revision or larger complement at this stage
10	The criteria and/or indicator is partially met, it is recommended to relook at some of aspects that need further clarification
1	The criteria and/or indicator is partially met and need to be developed [or, at the current stage the criteria is not relevant]

2. Analysis of Comments and Responses from the team

The SPCR support team for Madagascar (composed by staff from the GoM, the BAD and the WB) have gone through the Independent reviewer's comments to the First Draft of the SPCR document (version from 09/09/17). Most of the comments are considered relevant and useful and suggestions on ways forward are highly appreciated. The table below summarizes the analysis of comments, corrective actions undertaken and/or responses to the insights from the independent reviewer.

COMMENTS RECEIVED	TEAM'S RESPONSE
I. General criteria: The SPCR complies with the general criteria indicated in the ToRs	
A. Takes into account country capacity to implement the plan	
The SPCR states that Madagascar's vulnerability to climate risk is magnified by its low institutional capacity at all levels. To address this the SPCR, under Pillar 1, includes a Technical Assistance and policy support project to support implementation of SPCR, inter-ministerial coordination, knowledge management, the development and enforcement of regulations, and policy development to promote fiscal resources. The Technical Assistance project aims to strengthen the institutional and technical capacity of the Government of the Madagascar to mainstream climate change resilience into key economic sectors and to improve the evidence base informing policy development and planning. Capacity development activities are also specified in some of the Investment projects under Pillar 2 of the SPCR. For example, Project 1 includes a component to strengthen the capacity to analyze, monitor and validate basic scientific information and to mainstream climate change into development indicators. A training and capacity building program is included in the project to improve technical skills at the national level (to be defined during the project design phase). Project 1 includes a proposed training program on Earth Observation and remote sensing. An objective of Project 2 is to strengthen the Government's capacity for integrated urban management and effective response to crises and emergencies. The project includes activities to build the capacity of local authorities in waste collection services, municipal finance and urban and climate resilience planning.	Thank you for your comment on the strategy to assess and address the capacity development needs at country level within the SPCR formulation
B. Developed on the basis of sound technical assessments	
Based on the draft SPCR its appears that no [new] technical assessments have been undertaken as yet as part of the SPCR preparatory stage (Phase 1). It may be assumed that the SPCR builds on all existing technical assessments and the SPCR itself states 'The selection of the focal areas under these strategic pillars was supported by the various technical assessments'. The SPCR also states that it has taken into account the diagnostics and assessments that the country has already undertaken in order to establish priorities to strengthen its resilience to climate change (i.e. in its NAPA, NPCC, NDP and NDC). Although references to the technical studies considered are fairly limited. The SPCR recognizes that Madagascar has inadequate databases, tools, and information systems to systematically incorporate current and future climate risk into the design of both the "hard" and "soft" infrastructural foundations of Madagascar's economy (p.39). Needs cited include: (i) Existing climate forecasting mechanisms should be reinforced and information systems standardized to improve early warning and farming- oriented data; (ii) Disaggregated data by gender and indigenous groups is needed to identify and assess specific vulnerabilities and develop adequate responses; (iii) Hazards and socio-economic vulnerabilities need to be mapped and hotspots highlighted. More research is necessary on integrated spatial planning to designate risk-prone areas, and zones where agriculture, infrastructure or urban settlements should be avoided or climate proofed. See PPCR Principles D below for some Project Investment level examples.	Thank you for your comment and for spotting this. à It is agreed that references to previously existing assessments and studies needs to be more prominent. In the final version of the document, a stocktaking summary table (section 3: "Stocktaking of climate risk related activities and analysis of gaps") has been included listing the various technical studies that relevant sectors have undertaken and/or commissioned. This compilation exercise has been developed in partnership with BNCCC and CPGU to enrich the preliminary analysis; but still: as part of the Phase 1 of the SPCR a broader and more comprehensive "stocktaking exercise" is planned under the NAP process that the SPCR is contributing to. à It is also agreed that further research will be necessary to or risk mapping by sectors, prior to the full formulation of investment projects. To some extent, the risk-mapping is planned under the NAP process. The "preparation phase" of investment projects (during Phase II) will further work on risk-zoning according to project's needs.

COMMENTS RECEIVED	TEAM'S RESPONSE
C. Demonstrates how it will initiate transformative impact	
The SPCR intends that its programmatic approach will change the country's resilience and development paradigm, leading to transformational change. The SPCR aims to build on and catalyze existing efforts in climate resilience-building in Madagascar, and address key barriers and constraints, in order to accelerate the desired transformative change. The SPCR's transformational impact will be initiated through a three-dimensional approach to risk management combined with temporally organized investments that seek to build up climate resilience over time. Madagascar's SPCR adopts a *three-dimensional approach* to risk management introduced by UNISRD in its 2015 Global Assessment Report on Disaster Risk Reduction. This incorporates: Prospective risk management to prevent or avoid the accumulation of new and future risks; Corrective risk management to mitigate or reduce existing risks; and, Compensatory risk management: to support the resilience of individuals and societies in the face of residual risk. These three approaches to risk management are mutually supportive and can be used to break the silos of the disaster risk reduction, the climate change adaptation and the sustainable development communities of practice. In this way this three dimensional approach is seen as a paradigm shift in how Madagascar addresses climate change. The investment projects selected address the country's most urgent priorities and are designed to have an impact within each of the *three temporal scales - short, medium and long-term.* Investment projects 1 and 2 are intended to target the country's resilience in the short and medium terms, respectively, while investment projects 3, 4 and 5 will support the country's climate resilience in the long term. The phasing of activities is also a feature within projects (as well as across projects) for example as expressed in the SPCR for projects 2 and 4. In the short term under Project 1 the SPCR will assist the Government of Madagascar (GoM) to develop its capacity to identify, measure, map and manage current and future climate impacts to be able to mitigate risks. Project 1 will provide Madagascar with the climate data needed to ensure that climate-resilience measures can effectively be integrated into the country´s development plans and raise awareness about climate variability and change – this is expected to trigger a transformational change in decision making. Project 1 is designed the other Investment projects in Madagascar´s SPCR. In the medium term the SPCR will, for example, pilot approaches to addresses the challenges facing the coastline and the Antananarivo metropolitan area due to rapid urbanization. In order to enhance Madagascar's long-term resilience, the SPCR will include investment projects aimed at supporting multi-sectoral investment programs in climate-smart agriculture, sustainable ecosystem-based adaptation, social protection to withstand shocks and favouring policy reforms and risk financing instruments at national level. The long term may also be related to upscaling / embedding approaches at national scale / mainstreaming, but this is not specified in the SPCR. A Theory of Change for Madagascar's SPCR is sketched out in section 5, but requires further development to clearly articulate how the transformational change could be realized and the drivers and risks associated with each phase. A more transparent picture of the SPCR activities across the three times scales (and the actual time frames (number of years) these times scales reflect) and phases would also be useful at both the programmatic and project scale. It may be suitable to provide a diagrammatic road map of activities across the three proposed timescale to clarify the order that activities will take place and how they will feed into other activities (future and parallel activities across projects).	Thanks for this comment and for the useful suggestions on how to improve the Theory of Change diagram. àIt is agreed the diagram was still too sketchy and some more definition was missing. After discussions within the team, the final document integrates a better-defined (and with more resolution) picture and completes the explanation. It is important to note that the "time-scale" integrated in the diagram does not "sequence" the investments of the Phase I and Phase II projects, but rather seeks to provide an estimation of when expected results would be apparent. In particular: some projects (or project sub-components) may need to start getting implemented in the short term but may only deliver positive impacts in the long-run (in it is the case of "compensatory risk management approaches, such as the introduction of innovative instruments like the CatDDO within the "fiscal resilience" component of Phase I). The new version of the diagram seeks to provide clarity and more detail on impacts expected within different timeframes.

COMMENTS RECEIVED	TEAM'S RESPONSE
D. Provides for Prioritization of investments, capturing of lessons learned, M&E, and links to the PPCR results framework	
The SPCR provides for the **prioritization of investments**. The selection of the SPCR investment projects is based on the SPCR guiding principles agreed with stakeholders during the consultations and prioritization criteria, adapted from Ethiopia's SPCR, also agreed with stakeholders. The SPCR's 5 guiding principles are: (i) spatial resilience - acknowledgement of the particular challenges of different regions in the country; (ii) sectorial resilience - addressing sector-specific vulnerabilities in priority sectors; (iii) communities' resilience - applying a community-based adaptation approaches; (iv) infrastructures' resilience - ensuring the climate-proofing of public investments; and, (v) fiscal resilience - addressing the vulnerability of public finances to climate shocks. The seven prioritization criteria are: Contribution to national strategies and national development plans; Impact on poverty and distributional issues; Cross-sectoral synergies and co-benefits (positive impacts); Cross-sectoral trade-offs (negative impacts); Readiness; Scale-up potential; and, Social inclusiveness (gender and other vulnerable groups). The SPCR provides for **capturing of lessons learned** as discussed below. There is very limited reference to M&E in the Investment project descriptions. Project 1 states that M&E will be carried by the project management; and will be part of the overall PPCR Results Framework. This is an area of the SPCR that requires further development. The SPCR does provide for links to the PPCR results framework, but the M&E framework presented in Section VI of the SPCR is incomplete. **Note:** Text on SPCR prioritization criteria incomplete p47.	Thanks for this comment, for identifying gaps and for the suggestion of (useful) ways forward in making connections with the PPCR standard on Results Framework (as part of the review). ➜ In the final version of the SPCR document, the Results Matrix has indeed been completed with details (to the extent possible at the current stage of formulation) on expected results, indicators and targets. It should be noted though, that the 6 investment projects are at different phases of formulation and that more clarity can only be provided for projects that will be jointly formulated/implemented with MDB operations either on-going or in advanced phases of formulation. For others, concept notes have been provided that will need to be refined during Phase II of the PPCR (preparation of investment projects). ➜ The explanation of priority criteria within p 47 has now been completed. Thanks for spotting this.
E. Has been proposed with sufficient Stakeholder consultation and stakeholder engagement	
Yes, as set out in Section 7 of SPCR. Design of Madagascar's SPCR is based on a participatory approach involving representatives from the Government, Civil Society Organizations including the Private Sector and NGOs, development partners and local communities. National and regional consultations and workshops have been held to identify existing challenges, vulnerabilities and gaps with regards to adaptation to climate change in Madagascar and to frame how the PPCR could complement Madagascar's approach to climate change adaptation and disaster risk management. More meetings are planned to finalize the SPCR. Schedule of past and proposed meetings: A Scoping Mission was held in November 2015, the First Joint Mission was held in May 2017, with informal follow-up meetings held in May and June 2017. A mid-term workshop (national consultation dialogue) was held in August 2017 to provide an update on the work and present a first draft of SPCR to the Government and non-governmental stakeholders. A technical mission and consultations at regional level were held in August/ September 2017 in Fort-Dauphin and Ambovombé (Greater South region). A second joint mission is planned for the end of September 2017 to review the final version of the SPCR. Public consultation and communication to the Cabinet are also to be scheduled as part of the SPCR preparation process. **Note:** An annex on the PPCR consultation history (including agenda and list of participants) and an annex summarizing the SPCR consultation process, key decision and minutes are planned but not included in draft SPCR reviewed.	Thanks for spotting this. ➜ Indeed: annexes to the SPCR final document include: summary of consultations made, executive summaries of minutes of these and lists of participants (with gender disaggregated data).

COMMENTS RECEIVED	TEAM'S RESPONSE
F. Adequately addresses social and environmental issues, including gender	
The global significance of Madagascar's biodiversity and the importance of its natural capital to its sustainable development is highlighted in the SPCR. The SPCR notes that Madagascar's vulnerability to climate risk is magnified by: (i) the high climate-sensitivity of its economy and livelihoods, which are highly dependent on rain-fed agriculture and its natural capital; and, (ii) Increasing natural resource degradation that amplifies negative climatic impacts, as a result of population pressures, rapid urban growth, unsustainable agricultural activities, high rates of deforestation, wetland reclamation, encroachment into flood plains and protected areas and watershed degradation. (p.39) Social and environmental considerations are woven through the proposed investments. For example: (i) Project 1: Weather information will be made available to farmers and fishers to support productivity; (ii) Project 2 places emphasis on supporting the growing urban poor in Greater Antananarivo (GA), and addressing interlinked environmental concerns such the sustainable management of the areas large natural flood plain; Project 3 seeks to address poverty-natural resources-climate change vulnerability linkages in coastal areas. Tropical storms and cyclones risk physical damage to coral reefs, sea-grass beds and mangrove forests on which the local communities depend. It recognizes the importance of bottom-up adaptation measures to ensure that widely-dispersed, poor rural populations who are dependent on ecosystems and their services are able to cope with the immediate and long-term effects of climate change; Project 4 proposes to construct a dam in the vicinity of the Amboaetsy site on the Mandraré River to address water deficits (for domestic use, agriculture and energy) that result in chronic food and nutritional insecurity in the semi-arid South of Madagascar; Project 5 is designed to address the vulnerability of the rural poor, who are primarily reliant on rain-fed agriculture and increasingly exposed to extreme weather events; and, Project 6 has a strong environmental focus through its emphasis on protected area management, but also aims to improve the conditions of local communities living on the periphery of protected areas. Environmental and social assessments will be carried out during individual project design, in line with both the Government of Madagascar's (GoM) and Multi-lateral Development Banks' (MDB) requirements to ensure that projects are beneficial to the society and the environment (p.51). **Gender Issues** have been considered in the available investment project descriptions. For example, in Project 1 a detailed gender analysis will be conducted during project preparation to guide the design of appropriate interventions. Gender orientation/training will also be provided to key implementers; Project 4 states that women will be heavily involved in the production, processing and marketing of [agricultural] products and at least 30% of the production area will be allocated to enterprises created by women. The project will also support women to acquire agricultural processing equipment such as hullers and packaging; Project 6 includes support and capacity building for women's associations working around National Parks (e.g. in traditional accommodation and catering and the production of handicrafts). Income-generating activities for the supply of sites and eco-lodges through cooperatives will be initiated. **Note:** Gender information not provided in description of Investment Projects 2 & 3.	Thanks for the feed-back on these matters. ➜ While the team has put an effort to identify and build on opportunities to address gender-based vulnerabilities within the SPCR, we would still welcome further insights from the CIF gender expert to this regard. ➜ The team has further explored and strengthened the gender dimension within the formulation of concept notes for projects 2 and 3.

COMMENTS RECEIVED	TEAM'S RESPONSE
G. Supports new investments or funding additional to on-going/planned MDB investments.	
The SPCR supports a range of new Investments, and in some cases indicative cost are provided for these investments. However, no summary financial estimates are provided for the progamme overall or for the individual projects. This could be provided over the three proposed time dimensions, with a particular emphasis on funding requirements in the short term. Co-financing of projects from Government and other development partners is still to be agreed in most cases. While the SPCR recognizes the need for additional funding as a key challenge there is little elaboration on other potential sources of new investment or funding. The Green Climate Fund is flagged as a potential source and the SPCR broadly states that 'Ultimately, new tools for GHG emissions and adaptation benefits will be applied to help raise new and additional climate finance.' There is also no technical assessment of current sources of funding (domestic, international, private sector), and funding gaps and challenges. Insufficient financial resources to manage climate change are reportedly compounded by financial and economic instruments that in some cases promote inefficient natural resources use (although this is not elaborated on). The objective of the Policy Support activity under Pillar 1 (phase 1) is to promote fiscal protection at the national level, through the development and promotion of financial tools (e.g. budget support instruments, policy loans and/or contingent credit line instruments). It is not clear what the current fiscal practices and tool are or how the study/work on 'fiscal protection' will be undertaken (scope, institutional partners, approach). Some of the investments projects seek to address financial sustainability. For example - Project 1 suggest public-private partnerships to support improved performance and durability of the meteorological and hydrological services; Project 2 will look at improving financing mechanisms for better storm water drainage and flood protection service delivery.	Thanks for your insights on this. ➜ Please see response #3 above for clarification on the time-frame for delivery of expected results from the investment projects (which is not the same as sequencing of actions). ➜ To the extent possible (according to status of formulation) further details on the financial needs for investment projects have been provided in the final version of the SPCR document. N.B.: The financing strategy has been further developed for projects that are clearly co-financed by MDBs' operations either on-going or entering implementation phase (e.g.: projects 1 and 2). ➜ For other investment projects, and indeed for investments that would be necessary to build Madagascar's climate resilience but have not been prioritized under the SPCR, it should be noted that in the final SPCR document, "Phase 1" has included as one of its deliverables the production of a "Financing Strategy" that would at once: (i) identify sources for co-finance for the investment projects prioritized under the SPCR and (ii) serve as a key input to the NAP process, which should include the development of an "implementation" strategy integrating a financing plan. ➜ The NAP process (currently under formulation and led by BNCCC) includes a "mapping of actors" (including donors and funding sources) for climate action to identify existing gaps. The SPCR and the NAP process are expected to build on each other, also to this regard.

COMMENTS RECEIVED	TEAM'S RESPONSE
H. Takes into account institutional arrangements and coordination	
The SPCR is a multi-sector program and will require coordination between institutions at the national and sub-national level, as well as with international partners, civil society organizations and the private sector. Issues acknowledged by the GoM in the formulation of the SPCR include a need to: (i) strengthen the coordination between the disaster risk management (DRM) and the climate change adaptation communities. At present DRM and climate change programs, activities and policies are fragmented and there is a primary focus on DRM; (ii) strengthen local authorities' capacity to implement climate risk management; (iii) mainstream climate risk considerations into the country's planning tools (National Strategy, key sectoral policies and sub-national level plans), and into the budgeting instruments; and, (iv) Coordinate between development partners. Paramount to the success of the program will be the effective coordination between the Emergency Prevention and Management Unit (CPGU by its French acronym) which has oversight of the implementation of PPCR phase 1 and the National Bureau for Disaster and Risk Management (BNGRC, in its French acronym), which has oversight of the development of the National Adaptation Program-NAP). These institutions have started to deploy coordination mechanism. As part of the overall preparation of the program – [under Phase 1 of PPCR support or Pillar 1 of SPCR ?], the Multilateral Development Banks plans to support the GoM in undertaking a comprehensive institutional assessment to identify gaps and introduce mitigation measures (including technical assistance, capacity development plans and trainings to increase the program's sustainability). A diagram on the institutional setting for the PPCR implementation if provided on p28. This could be accompanied by text explicitly stating the agreed government focal points for the PPCR. The technical assistance in Phase 2 [of Pillar 1 of the SPCR?] of the PPCR seeks to enhance institutional coordination, thereby promoting synergies on climate change adaptation and DRM activities across, Government, CSOs, NGOs and the private sector. An inventory of functions and an institutional assessment of the needs and gaps in different sectors is planned as part of the SCPR (Phase 2). This is aimed at avoiding duplication and enhancing coordination in terms of planning, evaluation and monitoring of climate adaptation and DRM programs and to strengthen the collaboration between the BNCCC and the CPGU. At the Investment project level, most of the projects have highlighted their implementation arrangements. For example: Project 1 - the Directorate General of Meteorology (DGM) will lead the implementation of the project, through a project management unit; Project 2 - the Ministry attached to the Presidency, in charge of Presidential Projects, Land Use Planning and Equipment (M2PATE) will lead the project supported by the Municipality of Antananarivo (Commune Urbaine d'Antananarivo - CUA), the Antananarivo Flood Protection Agency (Autorité pour la Protection contre les Inondations de la Plaine d'Antananarivo - APIPA) and AGETIPA (Agence d'Exécution des Travaux d'Intérêt Public et d'Aménagement); Project 4 will establish a steering committee chaired by the General Secretary of the Ministry of Agriculture, which will include focal points from different sectors and departments; For Project 6 a steering Committee chaired by the Director General of National Parks will be set up and will include representatives from concerned ministries, regional authorities and the private sector.	Thanks. ➜ Yes, it was agreed further details needed to be provided to accompany and complete the institutional diagram. This was subject to on-going discussions between CPGU and BNCCC and pending decisions about the Steering Committee for the SPCR (a proposal is under consideration to adopt the NAP Coordination Committee as a reference body). Decisions on this to be taken by CPGU/BNCCC and the technical support team during the Second Joint Mission (late September 2017).

COMMENTS RECEIVED	TEAM'S RESPONSE
I. Promotes poverty reduction	
'Impact on poverty and distributional issues' is one of the seven criteria used to prioritize investment projects. The investment projects have a strong poverty reduction focus across urban areas, coastal areas, rural agricultural areas and the south of the country where extreme poverty is concentrated. For example: (i) The objective of Project 2 is to improve living conditions of the poor in selected low-income neighborhoods of Greater Antananarivo through enhancing basic service delivery and flood resilience. Priority neighborhoods have been identified in the most flood exposed areas where close to 750,000 poor are estimated to be living; and, (ii) Project 4 has a geographical focus on the poorest region of the country (South Madagascar) and will undertake a number of social interventions targeted at the segment of the population under the poverty line. See also Part II.	Thanks for your feed-back on this point.
J. Sufficiently considers cost effectiveness of proposed investments	
There is no formal assessment of the cost-effectiveness or the cost benefit of the program overall or of the individual projects, which may be appropriate at the detailed design phase. However, cost saving approaches are considered. The SPCR intends to blend SPCR investments with existing or pipeline investments of the supporting Multilateral Development Banks (AfDB and World Bank). This will mainstream SPCR funds into larger investment projects, achieving impacts at scale and lower transaction costs. For example – World Bank projects - Sustainable Landscape Management Project (P154698) Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756). Information still to be completed on this on p.50 of the SPCR, and it would be good to present more concrete or potential examples. Local-level interventions proposed under Project 3 are intended to complement high-level policies to cost-effectively address climate change impacts.	Thanks for the comments. ➜ On financial estimates, please refer to response #7: investment projects prioritized are at different status of formulation and it will only be possible to provide further details on costing for those that are at a more advanced phase. ➜ In any case, a complete CBA would only be possible as part pf the project preparation in PPCR Phase II, since further investment decisions would need to be made based on technical studies programmed (e.g.: sites, specific actions, targets, existing support, etc.). ➜ On the two projects mentioned (investments to be blended with other operations from the WB), further details have been provided in the final version of the SPCR.

COMMENTS RECEIVED	TEAM'S RESPONSE
II. Compliance with the investment criteria of SPCR	
A. Clim. risk assessment: The SPCR has been developed on the basis of available information on the assessment of the key clim. impacts in the country; the vulnerabilities in all relevant sectors, populations and ecosystems; and the economic, social and ecological implications of climate change impacts.	
The SPCR summaries these aspects in Section 2. The analysis is quite brief and no narrative is provided on the uncertainty around the climate models discussed. Implications of the climate risk assessment are reflected in the investment proposals. *Paragraphs 22-23 of the SPCR summarizes recent climate trends based on Direction Générale de la Météorologie's* (DGM) research and data. This indicates that temperatures in Madagascar have been consistently increasing since 1970, rainfall patterns are increasing variable and drought is more frequent. While the frequency of cyclones has remained constant the intensity has increased, and there is lower precipitation nationally but with regional differences (e.g. a decrease in the north and an increase in the south). Paragraphs 24-27 presents climate change projections. According to DGM's projections, by 2050 the mean annual temperature in most regions of Madagascar will increase in 2°C, compared to the average in 1960-90. Erratic rainfall is expected to increase in a large part of the country, thus aggravating the risk of flooding, except in the East, where rainfall would decrease from July to September. The trend of ever more intense cyclones is expected to continue. Future temperature changes in Madagascar have been projected using a regional climate model based on 13 Global Climate Models (GCM) that project to the period 2046-2065. For the Sahel region as a whole, the Intergovernmental Panel on Climate Change (IPCC) uses a suite of GCMs to produce a regional climate model. Based on this, as well as a collection of 23 downscaled stations across the country (available from the Climate Systems Analysis Group at the University of Cape Town), climate projections have been developed for Madagascar. Climate models predict warming across the island (with regional differences) and areas of both increasing and decreasing precipitation (see paragraphs 26-28). **The vulnerability of key sectors, populations and ecosystems** to climate change is discussed in paragraphs 35-42 covering agriculture, fisheries, water resources, coastal resources, health, urban, biodiversity and forestry and infrastructure. Paragraphs 29-34 present sobering information on the recent impacts of cyclones, floods, drought, sea-level rise and locust plagues on human lives, infrastructure, key economic sectors and livelihoods. According to the "Disaster Risk Profile of Madagascar", Madagascar experiences over USD 100 million in combined direct losses from earthquakes, floods and cyclones each year. Tropical cyclones are by far the most significant risk, causing approximately 85% of the annual average loss, followed by flooding (13%). At the national level, the highest combined loss occurs in the Toamasina region. Antanarivo has the highest flood risk in terms of economic loss. Key research needs identified include research on the impacts of climate variability and change on the health sector and on urban areas / coastal zones.	Thanks for the insights on this. ➜ Some further details of the climate modeling studies used for the SPCR narrative have been included in the final version of the document. ➜ Research needs identified have been revisited in the final version of the SPCR document in light of the results of the preliminary stocktaking exercise undertaken by the technical team with CPGU and BNCCC.

COMMENTS RECEIVED	TEAM'S RESPONSE
B. Institutions/ co-ordination: The SPCR specifies the coordination arrangements to address climate change: cross-sectoral; between levels of government; and including other relevant actors (e.g., private sector, civil society, academia, donors, etc).	
Section 4 provides an institutional analysis covering institutions related to climate change and DRM and emergencies. The implementation of existing programs related to climate change is based on the engagement of Governmental institutions, Civil Society Organizations including NGOs and the Private Sector, and Technical and Financial Partners such as the *Agence Française de Développement* (AFD); the *Gessellschaft fur Internationale Zusammernarbeit* (GIZ); the European Union (EU); the Japan International Co-operation Agency (JICA) and the United States Agency for International Development (USAID). The **Ministry of Environment, Ecology and Forests** leads on climate change. Under this Ministry, the **National Bureau on Climate Change Coordination** (BNCCC) was established in 2016 to coordinate climate change activities. In 2017 and as part of the process to facilitate the formulation of the NAP, the BNCCC has set up a **Coordination Committee and a Monitoring Committee** where government institutions, technical and financial partners and non-government actors that are active in climate adaptation agendas are invited to participate. Emergencies and Disaster and Risk Management (DRM) are under the direct responsibility and supervision of the Prime Minister and his office. A **National Council on Disaster and Risk Management** was established in 2005 (CNGRC, by its French acronym). In 2012, the CNGRC established a national contingency fund that aims at reinforcing decentralized operating structures and the coordination of DRM efforts at the national level. In 2009, a Thematic Group on Climate Change (GT-CC) was created as a multisectoral platform for dialogue between the Government, CSOs and technical and financial partners to support the BNCCC efforts, share knowledge and best practices, and provide policy and strategic recommendations. A **Private Sector Humanitarian Platform** launched in 2014 aims to increase the involvement of the private sector in DRM, with more than 40 active member companies. These government co-ordination mechanisms could support the implementation of the SPCR and the project designs could more explicitly set out how they may engage with / build on these established co-ordination groups. The SPCR states that it is designed to leverage the experience and portfolios of the MDBs and other development partners. Concrete evidence needs to set out in the detail design phase. More emphasis could be placed on potential private sector roles and engagement.	Thanks for your insights on this. You touch on an issue that the team has been reflecting on extensively so far and agree with your assessment. ➜ On multi-stakeholder coordination: a PPCR Steering Committee has been constituted and is expected to endorse the SPCR document. Several multistakeholder consultations (including a variety of relevant actors) have been hosted so far. In the future, CPGU and BNCCC are seeking agreement on further coordination mechanisms between the two institutions and involving other actors (donor community, CSOs, private sector). The NAP reference groups could be adopted as coordination mechanisms for the PPCR too. Pending agreement at GoM level during the Second Joint Mission (late September 2017), the final version of the document will reflect the decisions on this point from the GoM PPCR focal point. ➜ The final version of the SPCR document (in its Part II describing investment projects) has integrated further insights on: (a) how previous experience from MDBs portfolios can be relevant to PPCR projects and (b) how the private sector could potentially be further engaged/attracted to the operations.
C. Prioritization: The SPCR has adequately prioritized activities taking into account relevant clim./risks and vulnerabilities and development priorities, sectoral policies; ongoing policy reform processes and existing, relevant activities and strategies.	
Prioritization of Investments is discussed in Part II D. The SPPC's phased approach, framed around three time dimensions – short, medium and long term – further prioritizes activities in terms of priority needs and /or what needs to be done first to develop projects (prerequisites). For example, the output from the hydro-met activities in Investment Project 1 (hydro-met) will contribute to the on-going project development and implementation of the other projects in the SPCR. Further profiling / prioritization of activities within projects should be possible at the detailed design phase.	Thanks for these comments: ➜ Please refer to response #3 for clarification on the timing issue for investments and expected results. ➜ The final version of the SPCR document has further clarified this point, and indeed, added some more details on the expected outcomes of the investment projects proposed as part of the ToC.

COMMENTS RECEIVED	TEAM'S RESPONSE
D. Stakeholder engagement/ participation: The SPCR has identified and addressed the needs of highly vulnerable groups.	
'Social inclusiveness, gender and other vulnerable groups' is one of the seven criteria used to prioritize projects. The SPCR states that the most vulnerable population in Madagascar is mostly concentrated in the South, and those particularly impacted by climate change tend to be women-led rural households. The investment projects address these groups as discussed in Part II F and I. The SPCR states that 'the PPCR support will keep a focus on the realities of these families and communities in all its interventions'	Thanks for this comment. The focus of the investment projects will indeed remain in delivering positive impacts for the most vulnerable communities (especially though investment projects 2, 3, 4, 5 and 6).
III. Compliance with PPCR principles, objectives and M&E requirements (as specified in design documents and programming modalities)	
PPCR principles:	
A. Embedded in the broader context of sustainable development	
Madagascar's SPCR goal is to contribute to climate proofing the Country's **National Development Plan** (2015-2019) by building resilience in key geographical areas, sectors and institutions. The NDP refers to international commitments and adopts the Sustainable Development Goals (SDGs) framework and targets. The NDP's action plan points to the "integration of climate change actions in the promotion of a resilient national economy". Moreover, the SPCR aims to contribute to Madagascar's goal of climate-resilient and low-carbon development consistent with the SDGs.	Indeed.
B. Ambitious and innovative in their objectives towards climate resilience	
The SPCR is ambitions. It provides for national, regional and local scale initiatives, covers a range of sectors (e.g. agriculture, infrastructure, tourism and ecosystem management), addresses priorities in urban, rural and coastal areas across the different climatic conditions and risks faced in Madagascar, combines both soft investments (such as capacity strengthening) and hard investments (such as climate proofing public works highly vulnerable areas and dam construction), and ranges from national level policy mainstreaming to community based adaptation initiatives. Areas of innovation include the assessment and potential uptake of green infrastructure flood management solutions in urban areas.	Thanks for your assessment on this point. ➜ Further innovative tools will be introduced in Phase I to set the ground to address fiscal resilience in the future (E.g.: CatDDO instrument).

COMMENTS RECEIVED	TEAM'S RESPONSE
C. Strengthen collaboration and complementarity with other development partners and seek to identify other sources of financing	
Collaboration and complementarity with other development partners. The SPCR lists development partners currently active in domains relevant to the SPCR such as climate risk management in coastal and rural areas, rural resilience and ecosystem management and the infrastructure sector -see page 26. An Annex detailing this is also proposed but not provide in the draft. Thus, an overview of how other development partner's on-going and proposed initiatives link to specific Investment projects presented in Part II of the SPCR is not apparent. There is little insight on this at the project investment level, with the exception of Project 1 which suggests collaborating with the regional earth observation centers and programs such as the SERVIR-Africa, FEWS-NET, African Centre of Meteorological Applications for Development (ACMAD), environmental monitoring program and security in Africa (MESA), the TIGER initiative. The SPCR does seek to identify additional sources of funding. 'The formulation of Madagascar's PPCR needs to explore potential sources of co-finance for the investment projects conceived within its strategy. The operationalization and sustainability of the actions will depend on the ability of the GoM to mobilize international (and/or domestic) resources to trigger implementation'. The Green Climate Fund is mentioned as a possible source of funding, but this (and other potential funding sources) is not elaborated on. (see also Part II G)	Thanks for spotting this and for your assessment. ➜ Indeed: coordination of relevant actors (including the donor community) is one of the key areas for collaboration between SPCR and the NAP process (and CPGU and BNCCC). PPCR Phase I seeks to contribute to this goal and has included an Institutional Assessment to determine capacity development needs and to map existing support so far. ➜ Results from that assessment will be key for the preparation phase of Phase II of the PPCR and at that stage the investment projects will be able to include more details on "financial readiness". ➜ The final version of the SPCR document includes an annex with some advances on the mapping exercise of key actors (including active donors) engaging in the SPCR and/or the NAP process. This exercise is led by BNCCC with support from WWF and GIZ. ➜ Indeed, as part of the expected outputs of PPCR Phase I, a "Financing Strategy" will be developed that will enrish the analysis of potential sources of financing for the SPCR and the NAP in the future.

COMMENTS RECEIVED	TEAM'S RESPONSE
D. Build on existing efforts supporting climate resilience (including NAPAs), taking care not to duplicate	
Section 3 presents an overview of climate related policies at the national and sector level (covering agriculture, livestock and fisheries, coastal management, environment, forestry and biodiversity, and health), and disaster risk reduction planning. Madagascar's SPCR has been designed to align with national and relevant sectoral development goals and priorities as articulated in Vision 2030, National Action Program for Adaptation to Climate Change (NAPA) 2006, the National Policy for Climate Change (NPCC) 2010, the Intended Nationally Determined Contribution (INDC) 2015 – 2030 and the NDP 2015-2019. In terms of prioritizing SPCR investment 'Contribution to national strategies and national development plans' is used as filtering criterion to verify that the proposed investment activity meets the basic requirement of contributing to the Government's key targets set out in the national strategies and development plans. Every activity proposed under the SPCR was expected to fulfill this criterion in at least two of the country's strategies/plans (i.e. NPCC, NDP and INDC) or the agreed SPCR guiding principles. Within the adaptation segment of the **Nationally Determined Contribution** (NDC) 2015 under the UNFCCC, agriculture, coastal zone management, and public health are highlighted as the most vulnerable sectors to climate impacts. Additionally, the NDC notes ecosystem-based adaptation as an area for exploration. The priority actions identified in the NDC have informed the SPCR's investment proposals. For example, 'Strengthen climate adaptation mainstreaming in all strategic/framework documents' under the NAP, is aligned to the SPCR's various actions to build institutional capacity to manage climate information and risk. Madagascar's **National Adaptation Plan** (NAP), which will draw on the priorities in the NDC, is scheduled to be launched in 2019. It is expected the PPCR design and formulation process will constitute a key input to the NAP elaboration process. The NDC is expected to identify priority adaptation needs across key sectors, to assess financial mobilization requirements at country level (key to SPCR implementation), and to articulate an implementation strategy in the medium and long term. At the project investment level, the modernization of the hydro-met services and systems has been consistently flagged as a priority in Madagascar's NAPA (2006), NDC (2015), but has lacked investment to date. Project 1 builds on an integrated assessment of the hydro-met services in Madagascar conducted in 2016, and subsequent National Action Plan for the Improvement of Hydro-meteorological Services (NAPIHMS) prepared for Madagascar in 2017. The program is planned for implementation in three phases. The SPCR will cover Phases 1 and 2 of the NAPIHMS, amounting to almost 40% of the total investment cost. Project 3: Priority areas of intervention were identified in the National Strategy for Sustainable Development of Coastal and Marine Areas of Madagascar (2010). According to the SPCR Project 3 is based on 'various projects and studies in progress and carried out for the town of Morondava' – but these are not listed.	Thanks for your assessment on this point. ➜ Re. investment project 3, the final version of the SPCR document includes specifications on studies cited.

COMMENTS RECEIVED	TEAM'S RESPONSE
E. Outline how lessons learned will be captured and widely shared	
The SPCR states that the Government of Madagascar (GoM) together with the MDBs plan to document and highlight results, lessons learnt and best practices from project implementation and from on-going monitoring and evaluation. Pilot experiences will be systematized and the replication of successful initiatives and good practices will be fostered. Evaluation exercises will stimulate reflection, adaptative programming and iterative learning about what works and what does not work by engaging with project managers and stakeholders as well as assessing outputs and outcomes. Lessons and best practices arising from Phase 1 of the SPCR (2017-2025) will inform preparation of the following NDP, Madagascar's second NDC under the Paris Agreement and the follow up phase of the SPCR projects. With CIF support, for example under the Evaluation & Transformational Change Learning Partnership and through Pilot Country Meetings, the MDBs will work with GoM to prepare knowledge products and share reports on project progress, monitoring and evaluation with GoM, Development Partners and stakeholders (p.51). The SPCR states that the results of ongoing analytical studies [from Phase 1 ? List of analytical studies proposed not provided] will be used to strengthen the design of the SPCR projects and will also be relevant to other stakeholders and project developers as they design adaptation and mitigation strategies over time. Knowledge management will be considered under project coordination. The available project investment descriptions include a section on knowledge management.	Thanks for spotting gaps here and for the suggestions on ways forward. ➜ On lessons learned: indeed, the SPCR intends (during phase I and beyond, as part of the investment project's components) to strengthen the Knowledge Management components. The suggestion to seek guidance from CIF on knowledge products has been integrated in the last version of the document. ➜ On the list of existing studies/assessments by sector: these had not been fully listed previously, but in the last version of the SPCR document a Stocktaking Summary table (based on information provided by the GoM) has been included in Section 3.
PPCR Objectives: Help countries transform to a climate resilient development path, consistent with poverty reduction and sustainable development goals. As a pilot program and supporting learning-by-doing, PPCR implementation ultimately aims to result in an *increased application of knowledge on integration of climate resilience into development.*	
F. Pilot and demonstrate approaches for integration of climate risk and resilience into development policies and planning	
According to the SPCR the investment projects are conceived as pilot interventions, targeting the most vulnerable groups and pursuing a demonstration effect with potential for replication / scale up. This approach will support the integration of climate risk and resilience into policy developments in the future. Examples include: (ii) enhancing the climate resilience of urban communities in Greater Antananarivo through the development of **green infrastructure solutions** to climate-proof key public infrastructure (drainage canals and sanitation infrastructure) combined with a **community-based approach** to integrated urban development and resilience. The most promising options will be piloted in selected communities. This innovative experience for Madagascar is expected to generate lessons and guide the upscaling of these solutions within Antananarivo and possibly other cities, and to inform national and local development plans. (ii) Investment Project 3 is being conceived as a pilot project characterized by an integrated approach to increasing the resilience of the coastal city of Morondava in the southwest of Madagascar, with a view to scaling up successful activities in the rest of the priority coastal areas.	Thanks for your comments on this point.
G. Strengthen capacities at the national levels to integrate climate resilience into development planning	
Yes, this is a core objective of the SPCR under Pillar 1.	Agreed.

COMMENTS RECEIVED		TEAM'S RESPONSE
H. Scale-up and leverage climate resilient investment, building on other ongoing initiatives		
The SPCR states that its intention is to serve as a catalyst for a shift in the country's developing path by piloting climate-proofing approaches and mobilizing additional investments from development partners capable to scale-up actions and engaged in climate resilience. More concrete actions to achieve this would be useful in terms of additional funding / investment sources and links with on-going / proposed initiatives beyond the SPCR.		Thanks for the comment and suggestion. ➜ In terms of favoring up-scaling: this is partly the intention with the weight given to Knowledge Management (repository and guidance products) and with the relevance given to the delivery of a "Financing Strategy" that would serve as an implementation instrument for the successful pilots from the SPCR and for the NAP. Both these aspects have been stated more clearly in connection to the "up-scalability" objective in the final version of the SPCR doc.
I. Enable learning-by-doing and sharing of lessons at country, regional and global levels		
Sharing of lessons at the country level is discussed above in Section on PPCR Principles E. Examples of how the Investment projects could generate lessons of interest at the regional / global scale include: (i) Project 4: The lessons learned will reinforce the MDB's experience in the development of hydro-agricultural infrastructure and serve as a model for other similar projects in semi arid areas. In addition, the project, involving beneficiaries and their associations in the design, implementation, management and maintenance of community structures, aims to demonstrate how well-trained and well-equipped farmers can sustain agricultural production; (ii) Project 6: The review and drafting of new laws and regulations under this project, intended to promote quality investment, could be a case study for the MDBs and other donors on how to develop this emerging eco-tourism activity. Implementing incentives for private sector involvement is intended to promote ownership, profitability and sustainability of investments. The lessons learned from this project will enrich this debate as well as strengthen the MDB's experience in biodiversity conservation and tourism development and serve as a model for other similar projects. The SPCR could explicitly outline how it will promote learning by doing.		Thanks for the comment and suggestion. ➜ Please refer to responses # 12, 19 and 22 for this. ➜ Regarding specific projects: Agreed that the development of ecotourism in Madagascar could be perceived as knowledge development to promote lessons learnt for similar biodiversity rich countries in Africa. In fact, countries that are well endowed in biological resources are paradoxically the poorest and there is need for MDBs to learn how to unlock these resources for better preservation and poverty reduction.
PPCR Results Framework adequacy		
J. Assessment towards the PPCR results framework		
Madagascar's SPCR Results Framework is provided in Section VI. This is incomplete and requires further development. However, it is structured to be consistent with the PPCR Results Framework – a mapping of PPCR results and indicators with those of the Madagascar SPCR is outlined in the table below. The Madagascar Results Framework is organized in the following sections – A. Global – PPCR final outcome, B- Transformational Impact, C- Program Level, D – Project level.		Thanks for you analysis of M&E linkages and for your suggestions on this. ➜ Pls. refer to Results Framework table from the Independent Reviewer to check correspondence (see table below for guidance)

COMMENTS RECEIVED	TEAM'S RESPONSE
IV. Conclusions and Recommendations	
A. Conclusions	
Timing of Independent Review. The draft SPCR has been largely developed over a period of 3.5 months (the first joint mission was held in May 2017). This independent review is based on an incomplete draft of the SPCR (dated 9 September 2017), and ahead of the second joint mission planned for the 29th September 2017, which will review the final draft SPCR. This final consultation mission is also intended to allow for the development of several issues including integration of gender issues, detail arrangements for knowledge sharing, capacity building initiatives, roles and responsibilities of the PPCR implementing agencies and next steps for SPCR submission and approval. With this in mind, while incomplete the draft SPCR largely meets the PPCR criteria considered in the independent review and with the further planned activities and uptake of recommendations contained in this review, should be able to satisfy all the criteria in the final version of the SPCR.	Thanks for the insights on this. ➜ on Gender dimension: the team is expecting comments/inputs from CIF's gender expert. ➜ on roles/responsibilities for the institutional framework: the team is expecting agreements within the GoM during the Second mission. ➜ Knowledge management aspects covered under Phase "Enabling environment" component have been strengthened in the final SPCR document.
Overview of gaps in SPCR version presented for expert review. While not an exhaustive list, gaps and missing information includes: (i) Acronyms, Table of Contexts, list of tables, figures etc to be added; (ii) Annexes, that will support the information in the main report, are missing; (iii) Project descriptions in Section V are incomplete - for examples information is variously missing on Value Added and Sustainability, Gender Lens, Knowledge Management, Implementation Arrangements, Readiness and Project Expected Results and Outcomes across project 2, 3 and 5. There is no information provided in Section V for project 4 and very limited information on Project 6. An 'alternative' Project 3 appears to be offered: 'Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud"' – however, no information is provided on this. Project risks need to be clearly articulated; (iv) the results framework is incomplete; and, (v) an Ex. Sum is needed.	Agreed, all these pieces were indeed missing and have been incorporated in the final version of the document.
The SPCR offers timely support to the Government of Madagascar as it will be able to work alongside and support the NAP formulation and initial activities are ready for implementation. Phase 1 of Pillar 1's Technical Assistance project will be funded by available PPCR preparatory funding. Project 1 will be implemented under the umbrella of the World Bank's Sustainable Landscape Management project and could be ready for implementation as soon as funding becomes available. Advancement of Project 2 is benefiting from a USD 2 million Project Preparation Advance signed with the Government of Madagascar in February 2017 to cover (i) the preparation of all the Project safeguard documents and social impact studies; (ii) the preparation of all technical studies and preparation of bidding documents for priority and urgent urban drainage and flood mitigation works; and (iii) the capacity building of Government Agencies and the Municipality for project implementation.	Indeed.

COMMENTS RECEIVED	TEAM'S RESPONSE
B. Recommendations	
Clarity of relationship between Phase 1 and Phase 2 PPCR support. Based on information in the SPCR Phase I of the PPCR was approved in 2015, with a US$1.5 million grant and is expected to run from 2016 to 2018, and is therefore on-going. Phase 1 of the Technical Assistance under the SPCR will be financed through the US $1.5 Million PPCR grant and will be implemented during 2017 and 2018. Phase 2 of the technical [assistance?] is envisioned to start in 2019. It would be good to set out: (i) what PPCR Phase 1 support has and has not achieved to date (for example what technical assessments and studies, such as vulnerability studies, have been undertaken and what are still to be done); (ii) the overlap with the SPCR – specifically Pillar 1 of the SPCR. This could be built into a Road Map setting out the delivery of the SPCR, which would clarify the relationship between projects and activities, and how they will be profiled through the PPCR phases (phase 1 preparation and Phase 2 implementation) and the three time dimensions to achieve a transformational change. Section 6 presents the structure of the SPCR but the text and figure in this section should be developed to make the structure and (transformational) process more transparent.	Thanks for your feed back and suggestions on this. ➜ on the grant support for Phase 1 and preparation of projects (studies and other): XXX ➜ on the need to clarify the ToC and the timeframe for expected positive impacts out of the PPCR program: please refer to responses # 3 (and subsequent). The final version of the SPCR document has provided further details and clarification on the Theory of Change and the time-dimensions for building climate resilience.
Project 6 seeks to develop ecotourism in a way that makes a significant contribution to Madagascar's National Parks budget. For example, it is hoped that the self-financing index of the Parks and Reserves network managed by MNP will reach 50% and that the revenues from admission fees paid by tourists will have doubled in the fifth year. However, there does not appear to be any specific financial and economic studies or national park management / business plan development proposed a part of the SPCR to inform how best to achieve these targets, or indication that such studies are planned by other development partners. There is some focus in this project on managing (foreign) investments through regulations and standards. However, in parallel it is important to ensure that National Park's development benefits poor / local communities, and that leakage of profits away for local communities is minimized (as well as stringent environmental safeguards maintained).	Thanks for your insights on this. ➜ A diagnostic of the tourism sector and the regulatory framework are planned to be undertaken and this will help on financial furcating… in addition, the government and the various national players will be assisted in negotiations and transactions in order to remedy the asymmetry between the negotiating capacities of international investors and Malagasy stakeholders. The sustainability of biological resources in Madagascar lie on the involvement of local communities and how ecotourism can improve their livelihoods, therefore this component of communities profits is the essence of such projects.
Private sector engagement. While the private sector is mentioned in the SPCR (e.g. in relation to projects 4 and 6), identification of their concrete involvement in terms of leveraging investment, technical innovation etc is fairly limited and this could be developed in the SPCR as well as being elaborated on at the detailed design phase.	Thanks for your insights on this. For project 6 kindly note that private sector had initiated discussions and negotiations with the government that unfortunately had been stopped by the political crises. Most of them still reiterating their interests and are mostly major ecotourism companies operating in southern and eastern Africa.
Editing. It is recommended that the final version of the SPCR is carefully edited to ensure the language is clear. Some additional comments are provided in the marked-up version of the SPCR.	Many thanks for your editing suggestions over the text. Most of them have been integrated in the last version of the SPCR document.

ANNEX VIII

Madagascar's PPCR Results Framework

EXPECTED RESULTS/ OUTCOMES	POTENTIAL PERFORMANCE INDICATOR(S)	LINK TO PPCR RESULTS FRAMEWORK	RELATED PROGRAM ACTIVITY	BASELINE	PERFORMANCE TARGET	REPORTING RESPONSIBILITY
A. Transformational Impact (Time Frame: Beyond 10 Years): **Increased resilience of communities and sectors most exposed to climate variability and change in Madagascar**						
A-R1: Increased resilience of highly vulnerable households, communities, business, sectors, society, livelihoods and assets to climate variability and climate change **PPCR RESULT A1**	**Indicator A-R1.1:** Change in percentage of households (in areas at risk) whose livelihoods have improved (acquisition of productive assets, food security during sensitive periods of the year)	INDICATOR A1.1	IP2, IP3, IP4, IP5, IP6	Baseline year: TBD 0	Clear upward trend (e.g.10% increase by end of Program)	
	Indicator A-R1.2: Change in damage/losses ($) from extreme climate events (as % of GDP) in areas at risks that are the geographical focus of PPCR intervention	INDICATOR A1.2	IP2, IP3, IP4, IP5, IP6	Baseline year: TBD on the basis of the assessments to be undertaken as part of the TA Program	Clear downward trend (e.g.10% decrease by end of Program)	
	Indicator A-R1.3: Percentage of people with year-round access to reliable and safe water supply (domestic, agricultural, industrial), disaggregated by gender	INDICATOR A1.4	IP2, IP4	Baseline year: TBD on the basis of the gender assessment to be undertaken as part of the TA	Clear upward trend (e.g.10% increase by end of Program)	
A-**R2:** Strengthened integration of climate change into development planning **PPCR RESULT A2**	**Indicator A-R2.1:** Degree of integration of climate change in national, including sector, and local government planning Policy to promote fiscal protection in light of climate risks developed, approved and operational. Number of national, sectoral and local strategies which integrated climate risks	**CORE IaNDICATOR A2.1**	TA PROGRAM	Baseline: NAPA (2006), NPCC (2010), NDP (2015-2019) Health and Agriculture sectors already have a climate change adaptation plan	Fiscal Protection Policy developed, approved and operational by end of Program Mainstreaming of Climate Change issues in at least 5 existing sectoral by end of Program	
	Indicator A-R2.2: Budget allocation to support climate action (at national, sector and sub-national level) increased	Variation of INDICATOR A2.2	IP1, IP2, IP3, IP4, IP5, IP6	Baseline year: TBD on the basis of the assessments to be undertaken as part of the TA Program	Clear upward Trend (e.g. 50% increase by end of Program)	

B. PROGRAM LEVEL (TIME FRAME: 2 – 10 YEARS)

Program Development Objective: To mainstream climate resilience into Madagascar's core development planning, [contributing to climate proofing the Country's National Development Plan (2015-2019) by building resilience in key geographical areas, sectors and institutions].

B-R1: Share of population vulnerable to climate impacts reduced	**Indicator B-R1.1:** Number of people supported by the PPCR to cope with the effects of climate change, disaggregated by gender	**CORE INDICATOR A1.3**	IP2, IP3, IP4, IP5, IP6	Baseline year: TBD on the basis of the gender and other assessments to be undertaken as part of the TA	TBD based on detailed project preparation	CPGU with support from BNCCC and other line ministries
B-R2: Increased awareness and understanding of climate risks of Malagasy society	**Indicator B-R2.1:** Number of beneficiaries from awareness raising activities		TA PR. IP1, IP2, IP3, IP4, IP5, IP6	Baseline year: TBD 0	Clear upward trend TBD based on detailed project preparation	
B-R3: Strengthened adaptive capacities **PPCR RESULT B1**	**Indicator B-R3.1:** Extent to which vulnerable households, communities, business and public-sector services use improved PPCR supported tools, instruments, strategies and activities to respond to climate vulnerability or climate change	**CORE INDICATOR B1**	IP1, IP2, IP3, IP4, IP5, IP6	Baseline year: TBD 0	TBD based on detailed project preparation	
B-R4: Improved institutional framework in place **PPCR RESULT B2**	**Indicator B-R4.1:** Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience	**CORE INDICATOR B2**	TA PR. IP1, IP2, IP3, IP4	Baseline year: TBD 0	TBD based on detailed project preparation	
B-R5: Climate responsive investment approaches identified and implemented **PPCR RESULT B5**	**Indicator B-R5.1:** Quality and extent to which climate responsive instruments/investment models are developed and tested	**CORE INDICATOR B5**	TA PR. IP1, IP2, IP3	Baseline year: TBD 0	TBD based on detailed project preparation	
B-R6: Increased use of climate-related information (e.g., risk maps, vulnerability maps, climate change scenarios) in decision making, within the sectors and by vulnerable groups **VARIANT OF PPCR RESULT B3**	**Indicator B-R6.2:** Number of sub-national authorities with access to vulnerability and risk maps		TA PR. IP1, IP2, IP3	Baseline year: TBD on the basis of the assessments to be undertaken as part of the TA Program	Clear upward trend (e.g. 20% increase by end of Program)	
	Indicator B-R6.3: Evidence showing that climate information products/services are used in decision making in climate sensitive sectors	**INDICATOR B3**	TA PR. IP1, IP2, IP3, IP4	Baseline year: TBD on the basis of the assessments to be undertaken as part of the TA Program	Clear upward trend TBD based on detailed project preparation	

C. PROJECT LEVEL (TIME FRAME: 2 – 10 YEARS)						
Pillar 1: Enabling environment for mainstreaming climate resilience - Strengthening institutional and policy frameworks						
C1: Creating an enabling environment for sustainability of investments	**Indicator C1.1:** Mechanism for coordination of state and non-state actors and international partners in relation to climate change issues established			Baseline year: 2017 0	Coordination mechanism established	CPGU with support from BNCCC and other line ministries
Technical Assistance Program **TA Program Development Objective:** *To strengthen the institutional and technical capacity of the GoM to mainstream climate change resilience into key economic sectors, and to improve the evidentiary basis for future development policy and planning, with a view to establishing the enabling environment for the implementation of the SPCR.*						
Component 1: Improving the Understanding of Climate Risks and their Gender Implications						
C1.1-R1: Strengthened knowledge of climate resilience and climate risk management in Madagascar	**Indicator C1.1-R1.1:** Number of sectoral hazard, vulnerability and risk assessments developed			Baseline year: 2017 0	2 Hazard, vulnerability and risk assessments developed by end of 2018	CPGU with support from BNCCC and other line ministries
	Indicator C1.1-R1.2: Study to identify key evidence gaps on building resilience to climate impacts developed			Baseline year: 2017 0	Study completed by end of 2018	
	Indicator C1.1-R1.3: Sectoral and technical assessments and studies completed on key resilience information gaps			Baseline year: 2017 0	3 Sectoral assessments on key resilience information gaps developed	
	Indicator C1.1-R1.4: Atlas of climate risks targeting sensitive sectors and regions finalized and disseminated			Baseline year: 2017 0	Atlas of climate risks finalized and disseminated by the end of 2018	
	Indicator C1.1-R1.5: Sector-wide gender assessment developed			Baseline year: 2017 0	Sector-wide gender assessment completed by end of 2018	

Component 2: Strengthening Institutional and Policy Frameworks for Climate Resilience						
C1.2-R2: Strengthened national institutional capacity and framework for climate resilience	**Indicator C1.2-R2.1:** Multi-Sectoral Institutional and Gap Assessment developed			Baseline year: 2017 0	Multi-sectoral institutional assessment completed by the end of 2018	CPGU with support from BNCCC and other line ministries
	Indicator C1.2-R2.2: Analysis of economic and financial impacts of disasters and climate change developed			Baseline year: 2017 0	Impact analysis completed by end of 2018	
	Indicator C1.2-R2.3: Multi-sectoral climate change strategy developed in support to the NAP process			Baseline year: 2017 0	Multi-sectoral strategy in support of NAP process completed by the end of 2018	
	Indicator C1.2-R2.4: Climate Risk National Finance Strategy developed			Baseline year: 2017 0	Finance Strategy developed by the end of 2018	
C**1.2-R3:** Strengthened policy frameworks for climate resilience	**Indicator C1.2-R3.1:** Development Policy Operation targeting the most critical reforms for climate resilience prepared				DPO prepared/ appraised and ready for implementation by the end of 2018	
Component 3: Knowledge management and evidence building						
C1.3-R1: Enhanced Knowledge Management mechanisms for strengthened climate resilience	**Indicator C1.3-R1.1:** Dissemination Workshops at national and sub-national levels undertaken to share lessons from studies carried out through the TA program			Baseline year: 2017 0	3 dissemination workshops to share the outcomes of the studies/assessments/ strategies developed	CPGU with support from BNCCC and other line ministries
	Indicator C1.3-R1.2: Relevant sector guidelines prepared			Baseline year: 2017 0	2 Sector guidelines completed by the end of 2018	
	Indicator C1.3-R1.3: Strategic Program for Climate Resilience (SPCR) Knowledge Management System designed and establish for population under Phase II of Madagascar's PPCR program			Baseline year: 2017 0	SPCR KMS developed and populated with data from the TA program by the end of 2018	

Component 4: Support for SPCR implementation, coordination and M&E						
C1.4-R1: Enhanced coordination and networking on climate action among state and non-state actors, and between sectors	**Indicator C1.4-R1.1:** Network of climate change actors exchanging climate information			Baseline year: 2017 0	Network established by end of 2018	CPGU with support from BNCCC and other line ministries
C1.4-R2: Strengthened national, regional and local capacity for climate resilience	**Indicator C1.4-R2.1:** Number of government staff from central, regional and local authorities, and local community representatives that engage in trainings on targeted sectors (disaggregated by gender)			Baseline year: 2017 0	250 government staff trained on targeted sectors	
	Indicator C1.4-R2.2: Number of institutions with capacity to manage climate change programs			Baseline year: 2017 x number of institutions	Clear upward trend (e.g. 10% increase by end of 2018)	
Pillar 2: Catalyzing Priority Investment Projects for Strengthening Climate Resilience in Madagascar						
IP1: Strengthening Hydro-Met Services to Support the Modernization of Madagascar's Hydro-Met System **Project Development Objective:** *to (i) enhance the weather, climate and hydrological information and monitoring networks, and early warning systems, and (ii) strengthen the capacity of hydro-met institutions to collect and analyse data, and provide quality and timely climate-weather services.*						
Component 1: Strengthen climate and hydrological monitoring networks						
Component 2: Strengthen weather and hydrological forecasting systems and service delivery						
C2.1.1-R1: Enhanced hydro-met Information and monitoring networks, and early warning systems supporting timely, user-friendly and accurate information available for informed planning and decision-making process	**Indicator C2.1.1-R1.1:** Number of national observational /monitoring network stations (meteorological & hydrological) put in place and/or upgraded to international standards, functioning adequately			Baseline year: 2017 NAPIHMS	TBD based on NAPIHMS and detailed project preparation	DGM
	Indicator C2.1.1-R1.2: Number of timely and accurate weather and hydrological forecasts for the country			Baseline year: 2017 NAPIHMS	TBD based on NAPIHMS and detailed project preparation	
	Indicator C2.1.1-R1.3: Number of districts linked to and with operational water resources monitoring capacity			Baseline year: 2017	TBD based on detailed project preparation	

Component 3: Strengthen national capacity in climate modeling, forecasting and early warning systems						
C2.1.3-R1: Strengthened capacity of hydro-met institutions to collect, generate and analyse reliable hydro-met data, and provide quality and timely climate /weather services.	**Indicator C2.1.3-R1.1:** Number of government institutions with an installed capacity to collect, process, standardize and share climate-related information Number of people accessing climate information, disaggregated by gender			Baseline year: 2017 NAPIHMS	TBD based on NAPIHMS and detailed project preparation	DGM
	Indicator C2.1.3-R1.2: Modelling, forecasting and early warning systems in place and being utilized			Baseline year: 2017	TBD based on NAPIHMS and detailed project preparation	
	Indicator C2.1.3-R1.3: Number of national/regional and sectoral climate change scenarios developed and utilized Communication and information dissemination capacity enhanced			Baseline year: 2017	TBD based on detailed project preparation	
C2.1.3-R2: Improved community preparedness during extreme events	**Indicator C2.1.3-R2.1:** Number of districts utilising early warning systems			Baseline year: 2017	TBD based on detailed project preparation	

IP2: Enhancing Climate Resilience of Urban Communities and Infrastructure in Greater Antananarivo Project Development Objective: to improve living conditions of the poor in selected low-income neighbourhoods of Greater Antananarivo through enhancing basic service delivery and flood resilience; and to strengthen the Government's capacity for integrated urban management and effective response to eligible crises and emergencies.						
Component 1: Improving urban environment, services and resilience in targeted areas						
C2.2.1-R1: Improved climate-proofing of key urban infrastructure	**Indicator C2.2.1-R1.1:** Number of green infrastructure measures for climate proofing key urban infrastructure in place			Baseline year: 2017 0	TBD based on detailed project preparation	M2PATE with support from APIPA, AGETIPA and CUA
	Indicator C2.2.1-R1.2: Number and type of urban infrastructure complying with climate resilient standards			Baseline year: 2017 0	TBD based on detailed project preparation	
	Indicator C2.2.1-R1.3: Incidence of seasonal flooding reduced as a result of green infrastructure measures			Baseline year: 2017 0	Extent of flooding area is expected to be reduced by almost 80%	
Component 2: Strengthening institutional capacity for resilient urban governance						
C2.2.2-R1: Standards and codes of practice for climate resilient infrastructure, developed and adopted by municipal governments	**Indicator C2.2.2-R1.1:** Guidelines for the use of green infrastructure for climate proofing key urban infrastructure, developed and adopted by municipal governments			Baseline year: 2017 0	Guidelines on the use of green infrastructure for climate resilience developed by the end of project implementation	M2PATE with support from APIPA, AGETIPA and CUA
	Indicator C2.2.2-R1.2: Ecosystem-based adaptation strategies adopted focusing on green measures to improve urban flood management			Baseline year: 2017 0	TBD based on detailed project preparation	
C2.2.2-R1: Enhanced capacity of national and local authorities, and civil society for the development of climate-proofing urban infrastructure	**Indicator C2.2.2-R1.1:** Awareness and training programs implemented for government officials, contractors and regulators			Baseline year: 2017 0	Number of government officials, contractors and regulators to be trained will be determined during project preparation	

IP3: Strengthening Climate Resilience of Coastal Cities Project Development Objective: to strengthen the resilience of coastal cities to natural hazards and climate risk and strengthen the municipal and community capacities to effectively respond to their impacts.						
Component 1: Strengthening the Understanding of Hazard and Climate Risks						
C2.3.1-R1: Strengthened institutional capacity to collect and analyze risk information and address climate change impacts in selected coastal sites	Indicator C2.3.1-R1.1: Number of local and national government staff trained in the collection, processing and analysis of oceanographic, hazard and risk information			Baseline year: TBD 0	Number of government officials to be trained will be determined during project preparation	Potentially MEEF with support from DGM
C2.3.1-R2: Improved Information and tools for coastal risk reduction	**Indicator C2.3.1-R2.1:** Coastal Multi-hazard vulnerability and risk assessments developed for selected coastal communities			Baseline year: TBD 0	Number of Coastal multi-hazard and vulnerability assessments to be developed will be determined during project preparation on the basis of the number of coastal areas to be targeted	
	Indicator C2.3.1-R2.2: Number of instruments installed for collection of oceanographic data in selected coastal areas			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.3.1-R2.3: High resolution (LIDAR) bathymetric and topographic data collected for target areas			Baseline year: TBD 0	LIDAR data collected for target coastal areas	
	Indicator C2.3.1-R2.4: Methodology (and benchmark values) to value contribution of ecosystem interventions to coastal risk reduction is in place and applied by line ministries			Baseline year: TBD 0	Methodology developed by end of project implementation	

Component 2: Implementation of Coastal Protection Measures for Risk Reduction						
C2.3.2-R1: Strengthened adaptive capacity and reduced exposure and vulnerability of communities to climate risks	**Indicator C2.3.2-R1.1:** Number of people protected from coastal hazards (disaggregated by gender)			Baseline year: TBD # Male/Female protected	TBD based on detailed project preparation Clear upward trend (e.g. 50% increase by end of project implementation)	Potentially MEEF, M2PATE, MTP
	Indicator C2.3.2-R1.2: Length of shoreline (m) protected by new or restored coastal infrastructure (grey, green, hybrid)			Baseline year: TBD 0	TBD based on detailed project preparation	
C2.3.2-R2: Reduced vulnerability of selected communities through ecosystem-based and hybrid coastal interventions	**Indicator C2.3.2-R2.1:** Share of coastal population (%) protected by ecosystem-based and hybrid interventions, disaggregated by gender			Baseline year: TBD xx% Male/Female protected	TBD based on detailed project preparation Clear upward trend (e.g. 50% increase by end of project implementation)	
	Indicator C2.3.2-R2.2: Meters of shoreline protected by ecosystem-based and hybrid interventions			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.3.2-R2.3: Hectares of reforested area			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.3.2-R2.4: Number of jobs generated through mangrove restoration efforts in comparison with other protection measures (i.e. hard infrastructure)			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.3.2-R2.5: Number of women engaged in mangrove restoration efforts			Baseline year: TBD 0	TBD based on detailed project preparation	

Component 3: Valuation and Implementation Capacity for Ecosystem-Based Approaches						
C2.3.3-R1: Natural Capital associated to differentiated mangrove forests quality has been defined in multiple locations in Madagascar	**Indicator C2.3.3-R1.1:** Habitat quality maps for selected coastal areas developed (presenting the potential of mangrove ecosystems to provide coastal protection to shoreline communities)			Baseline year: TBD 0	Habitat quality maps developed for selected coastal areas	
C2.3.3-R2: Ecosystems' (e.g. mangroves) coastal protection services have been accounted as avoided socioeconomic losses in different coastal settings in Madagascar	**Indicator C2.3.3-R2.1:** Wave and wind attenuation and erosion control by mangroves in multiple locations in Madagascar.			Baseline year: TBD 0	TBD based on detailed project preparation Clear increase in wave attenuation and decrease in erosion (e.g. 80% by end of project implementation)	Potentially MEEF
	Indicator C2.3.3-R2.2: Share (%) of avoided infrastructure damages Share (%) of avoided costs of shoreline stabilization/protection Share (%) of avoided loss of livelihoods (fisheries, tourism etc) All disaggregated by gender.			Baseline year: TBD 0	TBD based on detailed project preparation Clear downward trend	
	Indicator C2.3.3-R2.3: Maps of Coastal protection services for various locations across Madagascar.			Baseline year: TBD 0	Maps of coastal protection services developed for selected coastal areas by end of project implementation	

IP4: Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud" Project Development Objective: *To build climate resilience by scaling up social protection efforts, rehabilitating selected lifeline infrastructure and strengthening livelihood diversification of selected communities in the Grand Sud.*						
Activity Group 1 - *Scaling-up Social Protection Systems for Strengthening Social Resilience*						
C2.4.1-R1: Major social infrastructure upgraded to climate resilience	C2.4.1-R1: Indicator C2.4.1-R1.1: Number and type of climate resilient social infrastructure supported by SPCR funds, e.g.: i) Water harvesting, ii) Soil and water conservation structures, iii) Water storage facilities, iv) Mini irrigation schemes, etc.			Baseline year: TBD 0	TBD based on detailed project preparation	Potentially MPSPPW, FID
	Indicator C2.4.1-R1.2: Percentage of community assets maintained one year after their completion.			Baseline year: TBD 0	TBD based on detailed project preparation	
C2.4.1-R2: Increased number of beneficiaries of the safety net programs (HDCT, PSN) belonging to the 30% poorest population	Indicator C2.4.1-R2.1: Number of beneficiaries of safety net programs (of which female), consisting of: - Number of beneficiaries of conditional cash transfers (number) - Number of beneficiaries of cash-for-work and public works programs			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.4.1-R2.2: Number of employment days created under the PSN and the disaster response cash–for-work activities			Baseline year: TBD 0	TBD based on detailed project preparation	

Activity Group 2 - *Natural Resources Management, Livelihood Diversification and Coastal Resilience*						
C2.4.2-R1: Improved management of the natural resources	Indicator C2.4.2-R1.1: Number of natural resources management plans (e.g. marine conservation plans) developed			Baseline year: TBD 0	TBD based on detailed project preparation	Potentially MEEF
C2.4.2-R2: Strengthened livelihood diversification and improved access to productive inputs	Indicator C2.4.2-R2.1: Percentage change in rural livelihood improvement			Baseline year: TBD 0%	TBD based on detailed project preparation Clear upward trend	
	Indicator C2.4.2-R2.2: Number of rural community's climate change adaptation livelihood improvement programs implemented			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.4.2-R2.3: Number of community members involved in natural resources management programs (e.g. marine conservation programs), disaggregated by gender			Baseline year: TBD 0	TBD based on detailed project preparation Clear upward trend	

Activity Group 3 - R***ehabilitation of Water Resources Infrastructure***						
C2.4.3-R1: Improved access to water for selected communities	Indicator C2.4.3-R1.1: Share of rural population with access to water			Baseline year: TBD 0%	TBD based on detailed project preparation Clear upward trend	Potentially MEEH, MTP
	Indicator C2.4.3-R1.2: Number of wells restored and servicing selected communities			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.4.3-R1.3: Number of connections to pipeline rehabilitated and servicing selected communities			Baseline year: TBD 0	TBD based on detailed project preparation	
C2.4.3-R2: Improved water and sanitation infrastructure	Indicator C2.4.3-R2.1: Share of rural population with access to improved/rehabilitated water and sanitation infrastructure			Baseline year: TBD 0%	TBD based on detailed project preparation Clear upward trend	
	Indicator C2.4.3-R2.2: Area provided with improved water and sanitation infrastructure			Baseline year: TBD 0	TBD based on detailed project preparation	
C2.4.3-R3: Strengthened local and regional capacities for water resources management	Indicator C2.4.3-R3.1: Integrated Water Resources Management Strategy and Action Plan for the Grand Sud, that integrates the participation of communities in the development and implementation of the necessary solutions, developed			Baseline year: TBD 0	Integrated Water Resources Management Strategy and Action Plan developed	
	Indicator C2.4.3-R3.2: Number of community members, local and regional staff engaged and participating in the development of the Integrated Water Resources Management Strategy and Action Plan, disaggregated by gender			Baseline year: TBD 0	TBD based on detailed project preparation	

Activity Group 4 - ***Rehabilitation of Road Infrastructure***						
C2.4.4-R1: Improved/restored selected road infrastructure	Indicator C2.4.4-R1.1: Number of communities with rehabilitated road infrastructure to access markets in project areas			Baseline year: TBD 0	TBD based on detailed project preparation	Potentially ARM and MTP
	Indicator C2.4.4-R1.2: Share of rural population with access to an all-season road (%) Number of persons with access to an all-season road, disaggregated by gender			Baseline year: TBD 0%	TBD based on detailed project preparation Clear upward trend	
	Indicator C2.4.4-R1.3: Length of roads rehabilitated;			Baseline year: TBD 0	TBD based on detailed project preparation	
	Indicator C2.4.4-R1.4: Number of bridges rehabilitated/ reconstructed;			Baseline year: TBD 0	TBD based on detailed project preparation	
IP5: Enhancing Climate- Resilient Agricultural Production, Food Security and Nutrition in the "Grand Sud" **Project Development Objective:** *To promote shared economic growth based on the drivers of growth and local livelihoods and reduce poverty and vulnerability zoned.*						
Component 1: Hydro-agricultural development						
Component 2: Support for the development of irrigation schemes						
IP6: Biodiversity and Ecotourism Promotion **Project Development Objective:** *To preserve biodiversity, develop ecotourism to accelerate economic growth, improve the conditions of communities living on the periphery of protected areas, promote the emergence of a local private sector that invests in green growth, and increase the resilience of biodiversity to climate change.*						
Component 1: Improvement of the regulatory framework.						
Component 2: Develop basic infrastructure in tourist sites						
Component 3: Strengthen the capacities of the actors and the promotion of the destination Madagascar						
Component 4: Legal support in negotiations and development of concessions						

ANNEX IX

List of Priority Projects Identified in the NAPA (2006)

(1) Réhabilitation et/ou construction des barrages et digues de protection

(2) Mise en place et redynamisation des associations de gestion de l'eau

(3) Appui à l'intensification de la production végétale et animale à travers notamment l'acquisition de matériels agricoles, la distribution d'intrants, le développement des activités génératrices de revenus dans les différentes filières porteuses régionales, Appui à la promotion de la campagne de vaccination bovine.

(4) Adoption de la lutte anti-érosive par les techniques de défense et de restauration du sol (conservation des sols) ainsi que la stabilisation des dunes.

(5) Mise en place de structure légère et/ou renforcement du Service Météo décentralisé

(6) Mise en place des infrastructures tels que les digues, les épis au fur et à mesure que le niveau de la mer s'élève

(7) Remise en état des secteurs dégradés par la déflation au reprofilage du bourrelet littoral, pose de brise vent par les reboisements des filaos, des plantations des mangroves, enrochement des bords de la mer/ façade de la côte etinstallation des Brises vagues

(8) Reboisement des zones rurales disposant de plans de reforestation avec des espèces adaptées / appropriées

(9) Promotion des transferts de gestion des forêts aux communautés locales de base (GELOSE, GCF)

(10) Désenclavement des zones de production potentielle, par la réhabilitation des réseaux de communication et de télécommunication pour favoriser les échanges et la commercialisation.

(11) Développement de l'IEC par des supports appropriés (opération radio ; système d'information)

(12) IEC de la population sur : les causes de la maladie et les mesures adéquates à entreprendre pendant la période propice à sa transmission, la nécessité de rejoindre les centres de santé, la construction de latrines, la nutrition, la nécessité des moustiquaires imprégnées

(13) Renforcement, consolidation de la capacité des services de santé de base par la décentralisation du personnel, le renforcement des équipements, des médicaments pharmaceutiques communautaires appropriés, par la valorisation du COSAN (communauté sanitaire),par les mesures préventives de constitution de stocks, intensification de la surveillance Épidémiologique

(14) Dotation des ressources nécessaires pour la prévention et la lutte contre les vecteurs des maladies

(15) Élaboration, communication et application des normes en matière de conception et de construction couvrant l'ensemble des infrastructures pour s'assurer qu'elles peuvent résister à d'importants bouleversements météorologiques

ANNEX X

Ongoing Process to Mainstream Climate Issues in Health Sector Planning in Madagascar

In 2008, an interagency working group on climate change and health (*Groupe de travail – Santé et Changement Climatique*, GTSCC) was established to identify the climate and weather information and service needs of the health sector, including gaps in current data, information and service delivery, and to help the Madagascar Meteorological Service meet the specific needs of the health sector. It also aimed to help the health sector use climate data and information efficiently for the prevention of epidemics and for guiding response activities for climate-sensitive diseases in the country.

The working group has been a catalyst for resource mobilization and climate and health engagement across the government which has only grown in recent years. The country has also identified a national focal point for climate change in the Ministry of Health and is actively engaged in continuing to build institutional and technical capacities to work on climate change and health. The focal point plays a coordination role between the MoH and the country's climate change institutions. Given the expected impact of climate on nutrition, the National Nutrition Office (ONN) is also an important stakeholder.

Health National Adaptation Plans (HNAPs) are recommended by the WHO to follow the Assessment of Climate and Health Vulnerability and Adaptation needs, in order to operationalize and plan for the implementation of adaptive actions (http://www.who.int/globalchange/publications/guidance-health-adaptation-planning/en/). In Madagascar, the *Plan d'Action National d'adaptation du secteur sante au changement climatique* (PNASS) was conducted in 2016, and represents a strong commitment of the government to take action in this area. It is an important unifying framework for climate change and health issues in country and highlights Malagasy priority areas in the field. The list of recommendations is also relatively exhaustive and includes interventions that span multiple sectors, though the primary focus is within health.

Recognizing this demand from the GoM, and building of established institutional practices, the World Bank has conducted an in-country analysis of climate and health risks and opportunities in Madagascar, and made recommendations for embedding interventions in World Bank investments. The results can be found in the soon to be published "Madagascar Climate Change and Health Diagnostic: An assessment of risks and opportunities for climate-smart health (and nutrition) investment."

ANNEX XI

Key assistance related to climate resilience provided by development partners

Organisation	Activités
GIZ **Enveloppe budgétaire :** **8.7 millions euros**	**Coopération technique :** • **2 programmes techniques pour gestion de l'environnement adaptation au changement climatiques** • 5 composantes dont changement climatique : 4 régions : gestion de l'**environnement vert** • Adaptation des chaines de valeur agricoles au changement climatique : 2 volets : • Climate insurance, renforcement des capacités notamment en matière de météorologie : **Renforcement des capacités :** cofinancement avec UE • **PRCCC** : mise en œuvre dans programme PAGE : composantes 3 et 5 avec BNCC • 3 volets : travail: durée de 4 ans : • A débuté en mai 2016 jusqu en juin 2005 : analamanga, boeny, diana • **Renforcement des capacités durables d'adaptation au changement climatique** : plan national, régional local • **formations de base**, dont 40 % pour femmes **et diffuser formations de base** : gender approach • **intégration dans schémas communaux** : pour renforcement capacités DGM • Le renforcement des capacités institutionnelles directes et en termes de coordination : • CPGU, BNCCC : un défi
USAID	**résilience climatique** : partie intégrante des domaines d'intervention sectoriels : sécurité alimentaire, environnement, santé, nutrition **climate risks** fait partie intégrante des programmes Programme sécurité alimentaire : food security and disaster assistance, plus for DRM Appui au BNGRC pour réponses rapides en cas de cyclones etc., Quelques initiiitiatives autres : • **US Forests services** • programme atlas • **adaptation urbaines** : tana & tulear : analyse des capacités des villes à s'adapter aux effets néfastes du changement climatique • Promouvoir l'**économie solidaire** • Comment rendre effective la question de l'**assurance** • **Problèmes / planification territoriale** • ICTs : e-service, e-gouvernance, e-administration : **applications mobiles** • Education et intégrer culture de la **résilience dans les programmes scolaires**
AFD	**Projets agricoles** : composante diffusion de **bonnes pratiques environnementales, renforce résilience exploitations agricoles** Projet de s**écurisation foncière** : communes aux alentours de TANa, **création de guichets fonciers** Projets de sécurisation agricole : projet PADCAM(?), **PADA** **Projet Grand Tana** **Recherche appliquée Cirad / Gsdm**

Organisation	Activités
CRS	CRS : Projet financé par USAID : Réduire risques et vulnérabilité : 3 volets : • **Gestion des ressources naturelles** • **Activités à réponse** • **Considération de la résilience** Résilience : un des volets stratégiques
FAO	Projet Aina financé par l UE achevé : projet de sécurité alimentaire : Task force TEFNAD: **Agriculture intelligente face au climat** : Techniques qui renforcent les **moyens de subsistance agriculteurs et éleveurs** **Mise à échelle des techniques** : besoin / processus d'élaboration de cette stratégie
Conservation International	• **ecosystem based adaptation** et comment intégrer cette approche dans PNA • Financement Green climate change • Climate smart agriculture : dans deux corridors **Renforcement des capacités** : travail dans le cadre de l'**éducation** : échanges d'expériences CI développe aussi l'**atlas de résilience** : outil d'aide : développement de différentes cartes à l'intention de quels décideurs gouvernements, ministères, et niveau régional
WCS	**Analyse de vulnérabilité des espèces** **Renforcement des écosystèmes** pour populations locales qui en dépendent **122 aires protégées : considération résilience climatique** or si non résilience, fort impact sur les écosystèmes **Infrastructures vertes (rurales)** **migrations** **GCF : financement accepté** depuis décembre : voir comment intégrer ces aspects : Pousse **approche paysage et multisectorielle**
WWF	**13 études de vulnérabilité** par type de site : mangrove etc. Collaboration avec **DGM pour stations climatiques au niveau des aires protégées**
GRET	**Grand Sud**, travail depuis 2001 sur l'aspect **adaptation** associées à d'autres activités : **agroforesterie, activités de filières** **semences adaptées à la sécheresse** qui assurent une **sécurité alimentaire** malgré les faibles pluies financé par UE Stratégie pour travail essentiellement **développement agricole** : associés à ONG Aussi projets **gestion durable des terres** **Résiience de la population**
AIM	Renforcement résilience population Pensent que pour PPCR : • nécessaire de s'assurer de la relation entre la recherche et la diffusion • Capital**isation et mise à l'échelle des projets** mis en œuvre car tendance à faire des projets fragmentés **Approche territoriale : appliquer une approche différenciée dans la méthodologie d'intervention** Travailler sur les supports terre : **résilience et accès à la terre : sécuriser les investissements par sécurisation foncière**
TELMA	Engagement **pour combler les gaps** : P**roblème de coordination des actions** : important **d'inclure secteur privé pas uniquement en tant que partenaire financier mais également pour services** Barrières; **transparency in the needs, resources allocation,** **Need for recognition in texts / laws etc.** The private sector should not be penalized financially for its actions: **fiscal incentives**

NOVEMBRE
2017

PILOT PROGRAM FOR CLIMATE RESILIENCE **Project/Program Preparation Grant Request**[1]			
1. **Country/Region**:	Madagascar	2. **CIF Project ID#**:	(Trustee will assign ID)
3. **Project Name:**	*Strengthening Climate Resilience of Coastal Cities*		
4. **Tentative Funding Request (in USD million total) for Project**[2] **at the time of SPCR submission (concept stage):**	*Loan:*	*Grant: US$ 30 million*	
5. **Preparation Grant Request (in USD million):**	*US$ 2 million*	*MDB:*	
6. **National Project Focal Point**:	*Gérard ANDRIAMANOHISOA, Directeur Général de l'Aménagement du Territoire et de l'Equipement (DGAT/M2PATE):* dgate@mepate.gov.mg		
7. **National Implementing Agency (project/program):**	*M2PATE, CNGIZC (tbc)*		
8. **MDB PPCR Focal Point and Project/Program Task Team Leader (TTL)**:	*Headquarters-PPCR Focal Point: Kanta Kumari Rigaud, World Bank*	*TTL: Michel Matera, World Bank*	

[1] A separate template needs to be presented for each project and program preparation grant request listed in the SPCR.
[2] Including the preparation grant request.

Description of activities covered by the preparation grant:
This intervention is conceived as a pilot project that will use an integrated approach to increasing the climate resilience of coastal cities, with a view to scaling up successful activities in the rest of the priority coastal areas identified in the SNGIZC. Key objectives are: (1) Improving the capacity of government institutions to generate climate risk information relevant to coastal communities; (2) Test appropriate measures to build resilience: hard infrastructure, green infrastructure (ecosystem-based) or hybrid measures in selected project sites; (3): Strengthen the capacity of national and local governments and communities to implement ecosystem-based and hybrid coastal interventions to scale-up successful measures at broader geographical level.
The activities under the project preparation grant (PPG) will assure that the project concept presented in the SPCR Investment Plan will be developed into a project ready for appraisal, including detailed contents of each component (institutional capacity needs assessment, identification of sites for pilot investments, technical specification needs, etc.), modalities of collaboration between the project stakeholders and a program of investments for the first 18 months ready to be implemented as of effectiveness. Further, the PPG program includes activities to assure that the Implementing Partner will be fully ready to assure implementation as of effectiveness.
The activities to be financed under the PPG are outlined below:

- Carrying out of technical studies and preparation of bidding documents (including specification of project's site/s, choice of technical solutions guiding hard, green and hybrid investments, CBA, financing needs, etc.)
- Preparation of the Project safeguards documents, including the environmental and social management framework and the resettlement policy framework
- Carrying out institutional capacity and needs assessment informing design of trainings for staff from M2PATE/CNGIZC and ministries/agencies/local authorities responsible for project implementation and establishment of fiduciary arrangements;
- Preparation of the Project's economic and financial analysis
- Preparation of the Project's manual of procedures and implementation manual
- Acquisition of goods for the project implementation unit within the Implementing Partner
- Provision of Operating Costs for Project preparation

9. **Outputs:**

Deliverable	**Timeline**
(a) Technical studies and corresponding bidding documents	3 months prior to board approval date
(b) Safeguards instruments	3 months prior to board approval date
(c) Economic and Financial Analysis	3 months prior to board approval date
(d) Project Implementation Manual	3 months prior to board approval date
(e) Project Implementation Unit established and operational	4 months after PPG effectiveness (if CNGIZC is confirmed)

10. **Budget (indicative):**

Expenditures[3]	**Amount (USD) -** estimates
Consultants	950,000
Equipment	150,000
Workshops/seminars	150,000
Travel/transportation	250,000
Others (admin costs/operational costs)	200,000
Contingencies (max. 10%)	300,000
Total Cost	**2,000,000**
Other contributions:	

[3] These expenditure categories may be adjusted during project preparation according to emerging needs.

• Government	
• MDB	
• Private Sector	
• Others (please specify)	

11. **Timeframe** (tentative)
Submission of pre-appraisal document for PPCR Sub-Committee Approval: December 2019
Expected Board/MDB Management[4] approval date: September 2019

12. **Other Partners involved in project design and implementation**[5]:
Presidency (in charge of "Presidential Projects"), Ministry Land Use Planning and Equipment, Ministry of Public Works; Ministry of Water & Ministry of Environment, Ecology and Forestry and provincial/local authorities in project's sites.

13. **If applicable, explanation for why the grant is MDB executed: n/a**

14. **Implementation Arrangements** (incl. procurement of goods and services)**:**
The final Implementing Partner for the execution of the project is yet to be defined (identification will result from PPG activities), the two options under consideration are M2PATE and CNGIZC. Capacities to implement at the sub-national level also need to be determined. In this setting, for an effective and timely implementation of the project preparation activities, it is advised to rely on M2PATE that works in close collaboration with line Ministries and sub-national authorities. As part of the PPG activity plan, coordination mechanisms will be put in place (or, where they exist, strengthened) encompassing: relevant national institutions (Ministries and Agencies), relevant institutions at sub-national level (provincial authorities, local authorities at project site and other stakeholders) and potential co-financers of the project's implementation.
M2PATE will be responsible for the implementation of the proposed PPG. A Procurement Capacity Assessment, including training needs and arrangements, will be conducted as part of project preparation. Similarly, the World Bank Financial Specialist will assess fiduciary capacities and propose financial management arrangements that are suitable for the project implementation and acceptable to the Bank. A PIU will be created and be staffed (within the Implementing Partner for the project) with at least one Project Coordinator, one Procurement Specialist, one Financial Manager and one Accountant. A detailed procurement plan will be prepared. The main categories of procurement are (a) services (for assessments, studies and organizational support), inclusive of some services for training; and (b) goods and non-consulting services. The following methods, other than International Competitive Bidding, may be used for procurement of goods and non-consulting services for those contracts that are specified in the procurement plan: (a) Shopping; and (b) Direct Contracting. The following methods, other than Quality- and Cost-based Selection, may be used for the procurement of consultants' services for those assignments which are specified in the Procurement Plan: (a) Least Cost Selection; (b) Selection based on Consultants' Qualifications; (c) Single-source Selection of consulting firms; (d) Selection of Individual Consultants; and (e) Sole Source Procedures for the Selection of Individual Consultants.

[4] In some cases activities will not require MDB Board approval
[5] Other local, national and international partners expected to be involved in design and implementation of the project.

PILOT PROGRAM FOR CLIMATE RESILIENCE **Project/Program Preparation Grant Request**[1]			
1. **Country/Region**:	Madagascar	2. **CIF Project ID#**:	(Trustee will assign ID)
3. **Project Name:**	*Climate-proofing Social Infrastructure and Regional Development in the "Grand Sud" region.*		
4. **Tentative Funding Request (in USD million total) for Project**[2] **at the time of SPCR submission (concept stage):**	*Loan:*	*Grant: US$ 20 million*	
5. **Preparation Grant Request (in USD million):**	*US$ 2 million*	*MDB: World Bank*	
6. **National Project Focal Point**:	*Gérard ANDRIAMANOHISOA, Directeur Général de l'Aménagement du Territoire et de l'Equipement (DGAT/M2PATE): dgate@mepate.gov.mg*		
7. **National Implementing Agency (project/program):**	M2PATE (tdb)		
8. **MDB PPCR Focal Point and Project/Program Task Team Leader (TTL)**:	*Headquarters-PPCR Focal Point: Kanta Kumari Rigaud, World Bank*	*TTL: Michel Matera, World Bank*	

[1] A separate template needs to be presented for each project and program preparation grant request listed in the SPCR.
[2] Including the preparation grant request.

Description of activities covered by the preparation grant:

This project's objective is to build climate resilience by scaling up social protection efforts, strengthening livelihood diversification and rehabilitating lifeline infrastructure for rural communities in the Grand Sud, the most vulnerable region in Madagascar. To this end, immediate responses will be delivered in an integrated manner: under the umbrella of a social protection programme, selected activities within key sectors are proposed to address climate-related risks. A menu of options for this project and a set of criteria to select final priority activities for implementation is presented in SPCR Invested Plan (see box) but further analytical efforts and institutional readiness will be necessary during the Project Preparation Phase to swiftly implement selected activities as of effectiveness.

Menu of options for the project:

1. Scaling-up Social Protection Systems for Strengthening Social Resilience (options to enhance access to safety nets by the extremely vulnerable households)
2. Rehabilitation of Road Infrastructure (focus on critical points in the rural network that could enhance regional connectivity and access to social infrastructure and markets)
3. Rehabilitation of Water Resources Infrastructure (focus on lifeline infrastructure -water supply and distribution- strategic to amplify reach and long-term access)
4. Natural Resources Management, Livelihood Diversification and Coastal Resilience (up-scale options that are less sensitive to climate shocks).

Criteria that will determine the final project interventions:

- Potential to preserve critical lifeline infrastructure/ household incomes,
- Readiness for implementation for rapid delivery of results on the ground,
- Value added, absence of alternative means of supporting the intervention (donor coordination),
- Sustainability potential, capacity to maintain intervention/outcomes.

Activities to be financed by the PPG are listed below:

- Carrying studies for a better understanding of social dynamics (including collaboration, connectivity, gender issues) to identify the most efficient ways to promote collective action towards resilience.
- Carrying out of technical studies and preparation of bidding documents (including technical specifications, CBA and financial analysis) related to hard investments (road and water rural infrastructure)
- Strengthening institutional coordination mechanisms (within government institutions and within development partners) to articulate more effective responses and support the completion to local development plans
- Select and prepare lead implementing partner/s (identification & needs-assessment, training of staff and establishment of fiduciary arrangements for project implementation)
- Preparation for project management: safeguards documents (including the environmental and social management framework and the resettlement policy framework), Project's manual of procedures and implementation manual
- Acquisition of goods for the project implementation unit and Provision of Operating Costs for Project preparation

9. **Outputs:**

Deliverable	**Timeline**
(a) Social and technical studies and corresponding bidding documents	3 months prior to board approval date
(b) Safeguards instruments	3 months prior to board approval date
(c) Economic and Financial Analysis	3 months prior to board approval date
(d) Project Implementation Manual	2 months prior to board approval date
(e) Project Implementation Unit establishment and operationalization	4 months after PPG effectiveness

10. **Budget (indicative):**

Expenditures[3]	**Amount (USD) -** estimates
Consultants	950,000
Equipment	150,000

[3] These expenditure categories may be adjusted during project preparation according to emerging needs.

Workshops/seminars	150,000
Travel/transportation	250,000
Others (admin costs/operational costs)	200,000
Contingencies (max. 10%)	300,000
Total Cost	**2,000,000**
Other contributions:	
• Government	
• MDB	
• Private Sector	
• Others (please specify)	

11. **Timeframe** (tentative)
Submission of pre-appraisal document for PPCR Sub-Committee Approval: May 2019
Expected Board/MDB Management[4] approval date: September 2019

12. **Other Partners involved in project design and implementation**[5]:
Ministry of Water; Ministry of Environment; FID; BNGRC; CPGU
Local authorities in Grand Sud (provincial level and project site) and local stakeholders
UN agencies and IDPs engaged in emergency response in the Grand Sud

13. **If applicable, explanation for why the grant is MDB executed: n/a**

14. **Implementation Arrangements** (incl. procurement of goods and services)**:**
The final Implementing Partner for the execution of the project is yet to be defined (identification will result from PPG activities). The multi-dimensional approach to the project implies involvement of different implementers (at national and sub-national level): none of them currently has the capacity to deploy a cross-sectoral approach. Capacities to implement at the sub-national level also need to be determined. In this setting, for an effective and timely implementation of the project preparation activities, it is advised to rely on M2PATE that works in close collaboration with line Ministries and sub-national authorities. As part of the PPG activity plan, coordination mechanisms will be put in place (or, where they exist, strengthened) encompassing: relevant national institutions (different Ministries and Agencies are relevant in light of the multi-dimensional approach taken for this project), relevant institutions at sub-national level (provincial authorities, local authorities at project site and other stakeholders) and IDPs active in the region (UN agencies and other).
M2PATE will be responsible for the implementation of the proposed PPG. A Procurement Capacity Assessment, including training needs and arrangements, will be conducted as part of project preparation. Similarly, the World Bank Financial Specialist will assess fiduciary capacities and propose financial management arrangements that are suitable for the project implementation and acceptable to the Bank. A PIU will be created and be staffed (within the Implementing Partner for the project) with at least one Project Coordinator, one Procurement Specialist, one Financial Manager and one Accountant. A detailed procurement plan will be prepared. The main categories of procurement are (a) services (for assessments, studies and organizational support), inclusive of some services for training; and (b) goods and non-consulting services. The following methods, other than International Competitive Bidding, may be used for procurement of goods and non-consulting services for those contracts that are specified in the procurement plan: (a) Shopping; and (b) Direct Contracting. The following methods, other than Quality- and Cost-based Selection, may be used for the procurement of consultants' services for those assignments which are specified in the Procurement Plan: (a) Least Cost Selection; (b) Selection based on Consultants' Qualifications; (c) Single-source Selection of consulting firms; (d) Selection of Individual Consultants; and (e) Sole Source Procedures for the Selection of Individual Consultants.

[4] In some cases activities will not require MDB Board approval
[5] Other local, national and international partners expected to be involved in design and implementation of the project.

PILOT PROGRAM FOR CLIMATE RESILIENCE

Project/Program Preparation Grant Request[1]

1. **Country/Region**:	Madagascar	2. **CIF Project ID#**:	(Trustee will assign ID)
3. **Project Name:**	Strengthening Madagascar's Hydro-meteorological Services		
4. **Tentative Funding Request (in USD million total) for Project[2] at the time of SPCR submission (concept stage):**	*Loan:*	*Grant: US$ 25 million*	
5. **Preparation Grant Request (in USD million):**	*US$ 1 million*	*MDB:*	
6. **National Project Focal Point**:	Marie-Louise Rakotondrafara, mlrakoto@gmail.com		
7. **National Implementing Agency (project/program):**	Direction Générale de la Météorologie (DGM)		
8. **MDB PPCR Focal Point and Project/Program Task Team Leader (TTL)**:	*Headquarters-PPCR Focal Point:*	*TTL: Michel Matera, World Bank*	

Description of activities covered by the preparation grant:

The program of activities under the project preparation grant (PPG) will assure that the project concept presented in the SPCR Investment Plan will be developed into a project ready for appraisal, including detailed contents of each component (institutional strengthening and investments), modalities of collaboration between the project stakeholders and a program of investments for the first 18 months ready to be implemented as of effectiveness. Further, the PPG program includes activities to assure that the DGM will be fully ready to assure implementation as of effectiveness. The activities to be financed under the PPG are outlined below:

- Carrying out of technical studies and preparation of bidding documents
- Preparation of the Project safeguards documents, including the environmental and social management framework and the resettlement policy framework
- Carrying out of training of staff from ministries and agencies responsible for project implementation and establishment of fiduciary arrangements;
- Preparation of the Project's economic and financial analysis
- Preparation of the Project's manual of procedures and implementation manual
- Acquisition of goods for the project implementation unit in DGM
- Provision of Operating Costs for Project preparation

9. **Outputs:**

Deliverable	**Timeline**
(a) Technical studies and corresponding bidding documents	3 months prior to board approval date
(b) Safeguards instruments	3 months prior to board approval date

[1] A separate template needs to be presented for each project and program preparation grant request listed in the SPCR.
[2] Including the preparation grant request.

(c) Economic and Financial Analysis	3 months prior to board approval date
(d) Project Implementation Manual	2 months prior to board approval date
(e) Project Implementation Unit established and operational	2 months after PPG effectiveness

10. **Budget (indicative):**	
Expenditures[3]	**Amount (USD) -** estimates
Consultants	550,000
Equipment	100,000
Workshops/seminars	50,000
Travel/transportation	50,000
Others (admin costs/operational costs)	100,000
Contingencies (max. 10%)	150,000
Total Cost	**1,000,000**
Other contributions:	
• Government	
• MDB	
• Private Sector	
• Others (please specify)	

11. **Timeframe** (tentative)

Submission of pre-appraisal document for PPCR Sub-Committee Approval: September 2018
Expected Board/MDB Management[4] approval date: December 2018

12. **Other Partners involved in project design and implementation**[5]:

13. **If applicable, explanation for why the grant is MDB executed: n/a**

14. **Implementation Arrangements** (incl. procurement of goods and services)**:**

DGM will be responsible for the implementation of the proposed PPG. A Procurement Capacity Assessment of DGM, including training needs and arrangements, will be conducted as part of project preparation. Similarly, the World Bank Financial Specialist will assess fiduciary capacities and propose financial management arrangements that are suitable for the project implementation and acceptable to the Bank. A PIU will be created under the DGM and will be staffed with at least one Project Coordinator, one Procurement Specialist, one Financial Manager and one Accountant. A detailed procurement plan will be prepared. The main categories of procurement are (a) services (for assessments, studies and organizational support), inclusive of some services for training; and (b) goods and non-consulting services. The following methods, other than International Competitive Bidding, may be used for procurement of goods and non-consulting services for those contracts that are specified in the procurement plan: (a) Shopping; and (b) Direct Contracting. The following methods, other than Quality- and Cost-based Selection, may be used for the procurement of consultants' services for those assignments which are specified in the Procurement Plan: (a) Least Cost Selection; (b) Selection based on Consultants' Qualifications; (c) Single-source Selection of consulting firms; (d) Selection of Individual Consultants; and (e) Sole Source Procedures for the Selection of Individual Consultants.

[3] These expenditure categories may be adjusted during project preparation according to emerging needs.
[4] In some cases activities will not require MDB Board approval
[5] Other local, national and international partners expected to be involved in design and implementation of the project.