



# Madagascar's Strategic Programme for Climate Resilience



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# 1. Country Background

*Climate change superimposes development challenges by further exacerbating frequency and intensity of weather events*

# 1.1 Development context

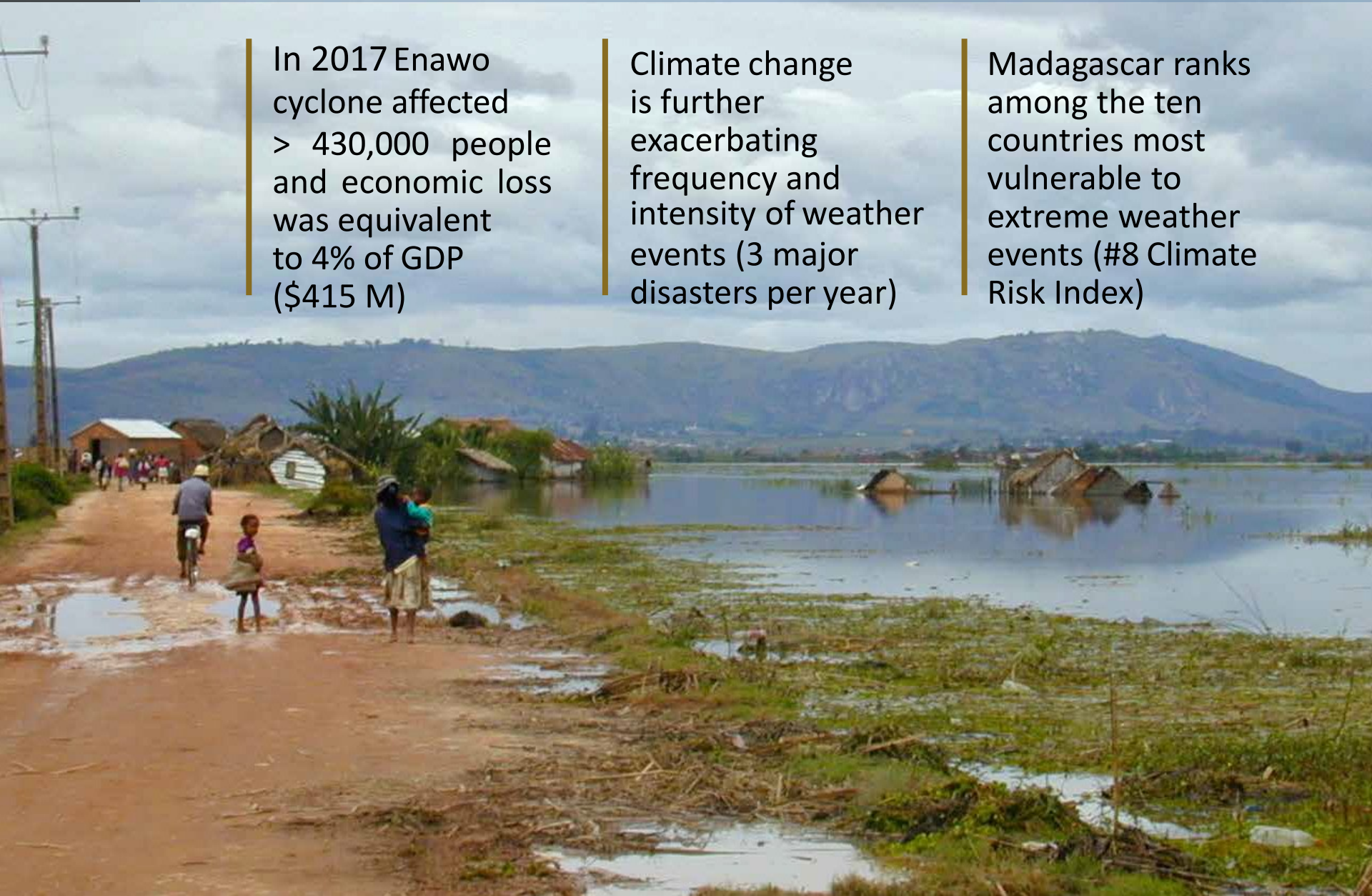
- ▶ A unique **natural capital**, key to development prospects
- ▶ **Persistent poverty**, poor rural female-headed families of particular concern (lack of access)
- ▶ A **growing population**, vulnerable communities in rural areas (80%) but increasingly urban too
- ▶ Recent **economic signs of recovery**...
- ▶ ...**Threatened** by challenges: political stability, education, connectivity, sustainable use of natural capital... and climate change
- ▶ **Extreme weather events** constitute an important driver of persistent poverty in Madagascar



In 2017 Enawo cyclone affected > 430,000 people and economic loss was equivalent to 4% of GDP (\$415 M)

Climate change is further exacerbating frequency and intensity of weather events (3 major disasters per year)

Madagascar ranks among the ten countries most vulnerable to extreme weather events (#8 Climate Risk Index)

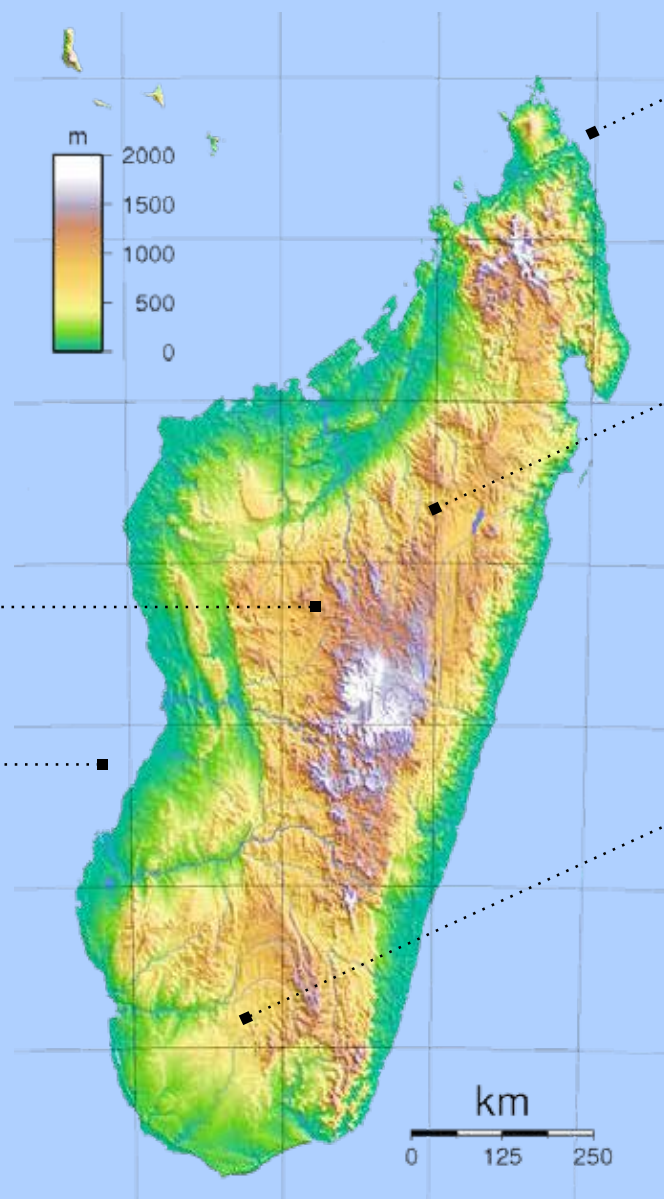


## 1.2 Major impacts climate-related



**LOCUST PLAGUES:** Increased climate variability could be favoring locust plagues. In 2012 a plague left 60 per cent of the Malagasy population at risk of food insecurity.

**SEA LEVEL RISE:** Projected to increase exponentially in 2100. Associated to SLR, coastal erosion threatens vital infrastructures and unique ecosystems in Madagascar. Salinization of water and land is aggravating food insecurity.



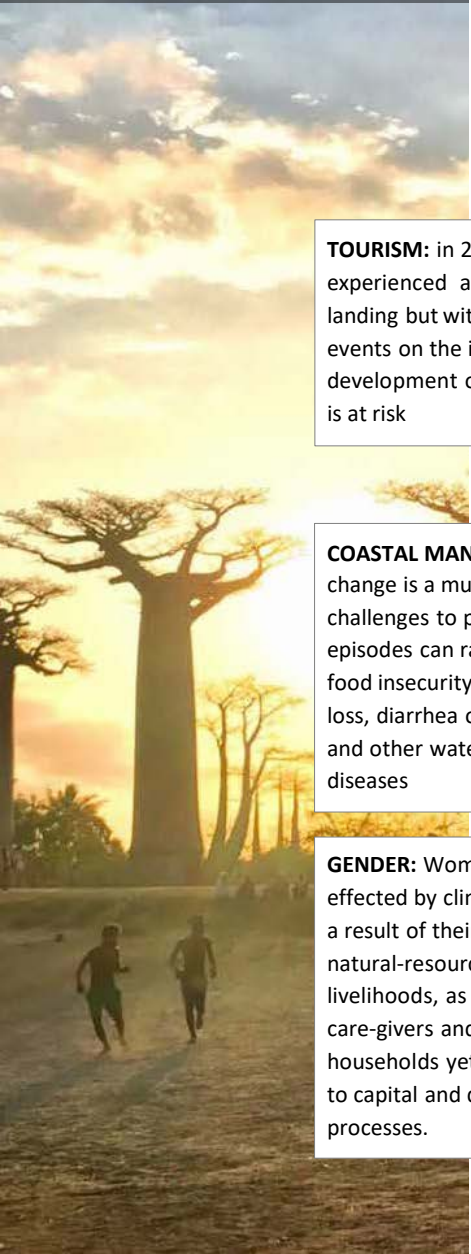
**CYCLONES:** 3–4/y hitting East coast worse. Due to climate change their intensity is projected to increase.

**FLOODS (AND LANDSLIDES):** Strong storms and tropical cyclones, coupled with increasing deforestation and poor land use practices lead to extensively damaging floods across the country.

**DROUGHTS:** Droughts rapidly lead to water shortages and crop loss and pose a severe threat to rural households' food security. Prolonged droughts observed in recent years, particularly in southern Madagascar.



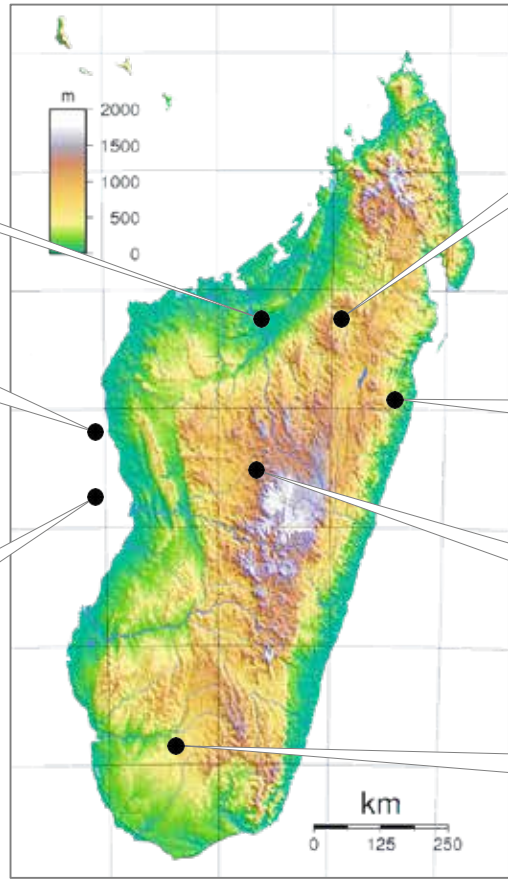
# 1.3 Sectoral Vulnerabilities



**TOURISM:** in 2016 the island experienced a 20% increase of tourists landing but with extreme weather events on the increase, the incipient development of tourism infrastructure is at risk

**COASTAL MANAGEMENT:** Climate change is a multiplying factor of the challenges to public health: flood episodes can rapidly translate into food insecurity crisis due to crop loss, diarrhea or cholera outbreaks and other water and vector-borne diseases

**GENDER:** Women are more intensely effected by climate impacts as a result of their dependence on natural-resources intensive livelihoods, as as water fetchers, care-givers and managers of households yet limited access to capital and decision-making processes.



**URBAN:** In a rapid urbanization process, with unfit land-use planning, informal settlements in risk-prone areas proliferate and vulnerability to climate impacts in urban settings magnify. Antananarivo and its large metropolitan area most exposed.

**INFRASTRUCTURE:** Over \$100 M/year loss in infrastructure mostly due to tropical cyclones (85%) and floods (13%). Toamasina concentrates the greatest risks followed by Antananarivo

**NATURAL RESOURCES:** Fisheries' stock, forests, biodiversity, water resources, etc. affected by extreme weather and slow onset events.

**AGRICULTURE:** 25% of GDP and 80% of employment. Water access and soil fertility effected by climate impacts.

## 1.4 Critical gaps

Critical gaps identified (consultations, stocktaking exercise):

- ▶ Capacity for **climate forecasting** and information systems oriented to end-users and decision-making.
- ▶ **Mapping of socio-economic vulnerabilities** and climate risk. 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.
- ▶ **Disaggregated data** by gender and vulnerable groups is needed to develop adequate responses in water management, health and social protection sectors to undertake a better assessment of opportunities to build resilience.





## 2. Approach to Madagascar's SPCR



*It is critical for Madagascar to develop and implement strategies to manage climate risk and to mobilize resources to finance priority actions*



## 2.1 Guiding principles

### Spatial Resilience

- ▶ Acknowledgement of the particular challenges of different regions in the country
- ▶ E.g.: Grand Sud (rural and coastal context) and Greater Tana (large urban area)

### Sectoral Resilience

- ▶ Addressing sector-specific vulnerabilities
- ▶ Focus on key sectors: the agriculture/ livestock/fisheries sector, water and sanitation sector, and other

### Communities Resilience

- ▶ Applying a community-based adaptation approach to all interventions
- ▶ Focus on the most vulnerable: e.g. female-led house-holds, informal dwellers

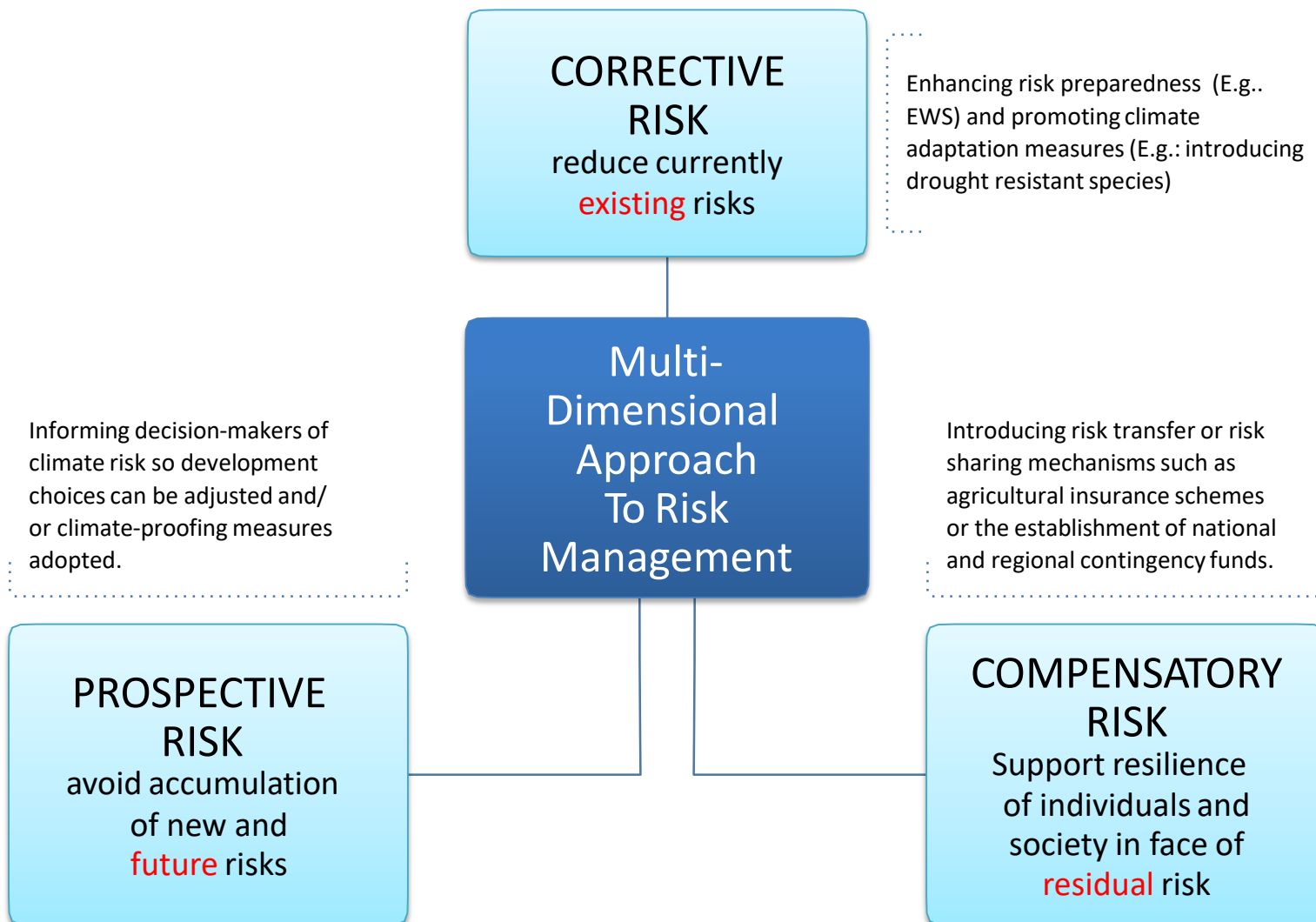
### Infrastructure Resilience

- ▶ Ensuring the climate-proofing of public investments and the adoption of risk-aware building codes
- ▶ Focus on critical infrastructure, e.g.: flood control, water supply, connectivity...

### Financial Resilience

- ▶ Approaching the vulnerability of public finances to climate shocks
- ▶ Promoting financial protection instruments: CATDDO, agricultural insurance, access to credit of most vulnerable, etc.

## 2.2 Multi-dimensional approach to risk





## 2.3 Climate proofing public investments

### SECTORAL PRIORITIES

- ▶ Hydromet
- ▶ Infrastructure
- ▶ Agriculture
- ▶ Tourism/biodiversity

### KEY THEMES

- ▶ Capacity building
- ▶ Community-based
- ▶ Ecosystem-based
- ▶ Climate-proofing public investment



## 2.4 Selection criteria for investments

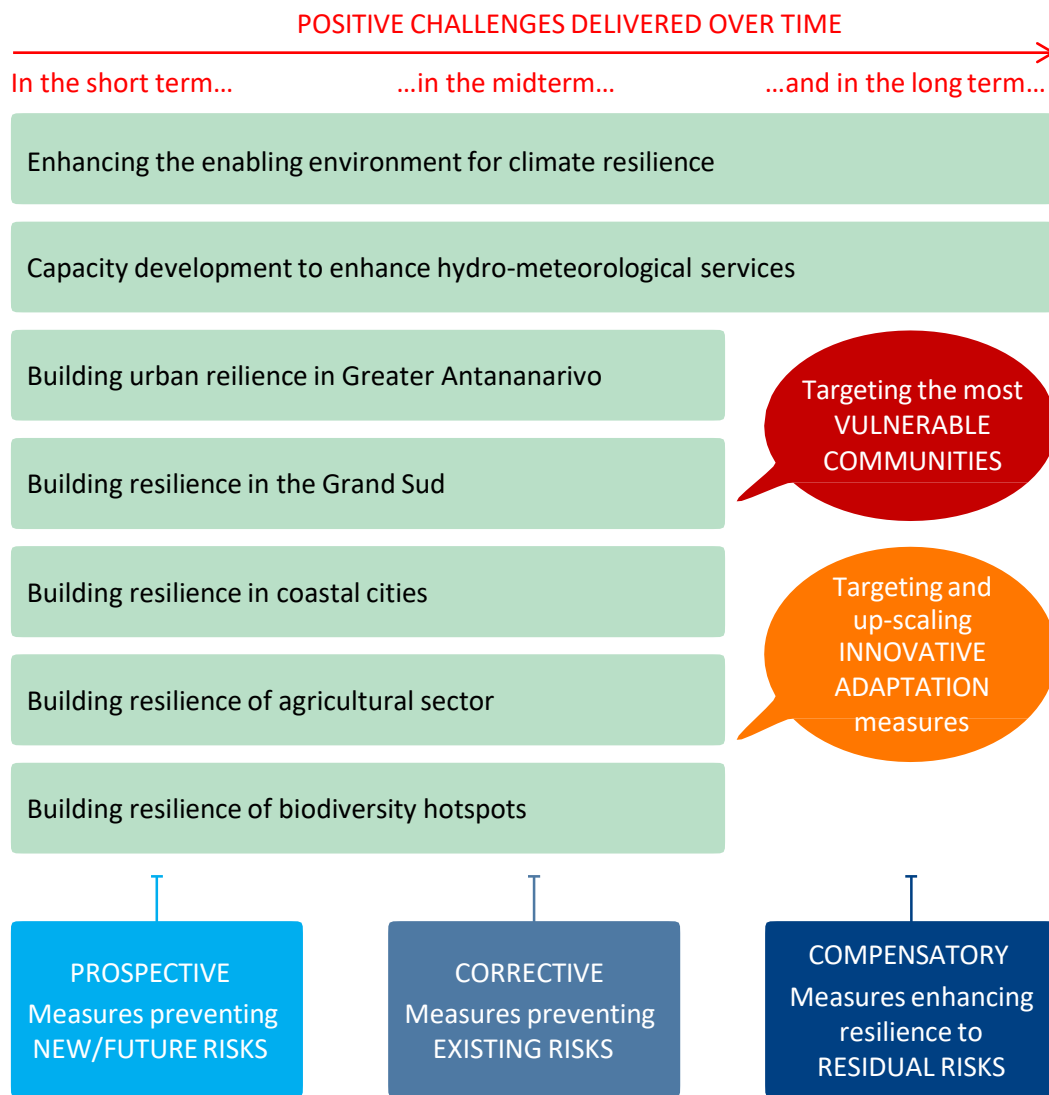
- ▶ Alignment with **development/climate priorities**  
(National Development Plan, NDC targets)
- ▶ Impact on **poverty reduction**
- ▶ Impact on **climate resilience**
- ▶ Cross-sectoral synergies/**co-benefits**
- ▶ Cross-sectoral trade-offs/**coherence**
- ▶ **Value** for money
- ▶ **Readiness**
- ▶ **Scale-up** potential
- ▶ Social **inclusiveness**





# 2.5 Theory of Change of the PPCR

## Building the Climate Resilience of Madagascar's Development



### MADAGASCAR'S PPCR THEORY OF CHANGE COMBINES:

- ▶ Guiding principles for resilience
- ▶ A multi-dimensional approach to risk management
- ▶ Key criteria for selection of investments

PPCR goal is to build the resilience of key institutions, sectors, and geographic areas

PILOTING A COMBINATION OF CLIMATE RISK MANAGEMENT APPROACHES

## 2.6 Other key factors in PPCR approach



- ▶ Putting the **most vulnerable first** while building communities' resilience (in rural, urban and coastal zones)
- ▶ **Innovative adaptation** measures will be piloted and where possible **up-scaled** (green urban infrastructure, ecosystem services, fiscal protection - CATDDO)
- ▶ **Contribute to NAP** process and seek synergies



## 2.7 Triggering transformational change

Beyond one-off investments, PPCR will seek broader impacts by:

- ▶ Contribution to an **enabling environment**
- ▶ Contributions to regulatory framework and **policy development**
- ▶ **Replicability**: innovations with a potential to scale-up, so the overall impact potential is multiplied
- ▶ Learning from practice and **knowledge management** measures (PPCR overall and by project)





## 3. Proposed Investment Plan

*Building climate resilience in some of the key institutions,  
sectors and regions...*



## 3.1 Political Commitment with Climate Change

- ▶ **1998: Ratifying the United Nations Framework Convention on Climate Change**
- ▶ **Law n°98-1068 of 18 December 1998 ratifying the UNFCCC**
- ▶ **2005: Implementing the Hyogo Framework for action**
- ▶ **2016: Ratifying the Paris Agreements**





## 3.2 Alignment with existing plans/policies

- 
- ▶ **National Policy for Climate Change** (2010)
  - ▶ **National Development Plan** (2015–2019):
    - Strategic Pillar 5: Valuing Natural Capital and Strengthening Disaster Risk Resilience
  - ▶ **National Strategy for Disaster Risk Management** (2016-2030)
  - ▶ **Nationally Determined Contribution** (2015–2030) priorities:
    - **NAP** formulation/implementation
    - Building **institutional capacity** for climate risk/info management
    - **Climate mainstreaming** in policy instruments
    - Climate-proofing measures in **key sectors**: infrastructures, agriculture, coastal and water management, ecosystem management

## 3.3 Programme's Structure

2015–2018

**Phase 1:** Strengthening the enabling environment through institutional and policy development

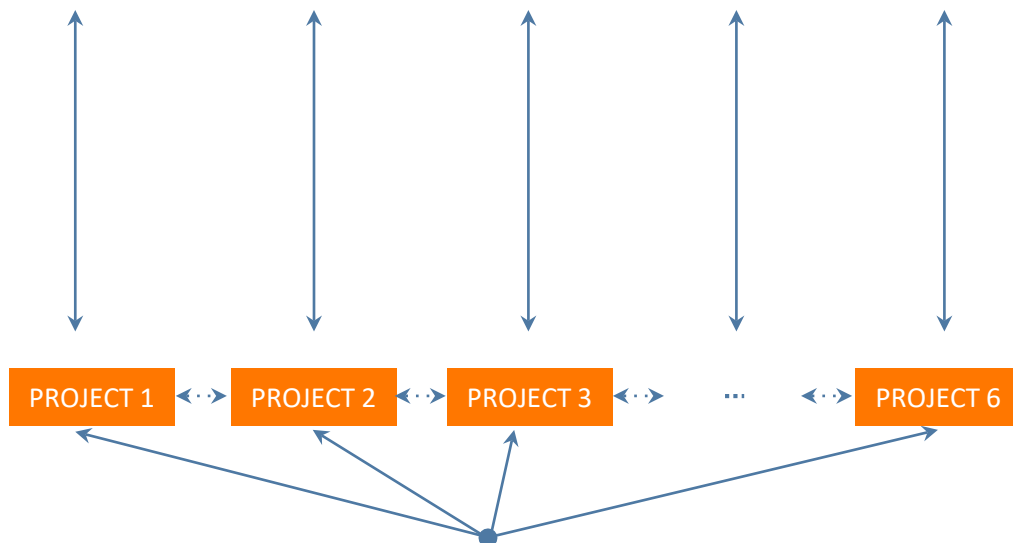
**Co-financing** strategy to implement the investment plan (through Climate Funds, MDBs', bilateral, GoM...)

2018–2028

**Phase 2:** Implementation of the investment plan: projects in key sectors and geographical areas

### PILOT PROGRAMME FOR CLIMATE RESILIENCE

**Objective:** Contribute to climate-proofing national development plans by building resilience in key institutions, sectors and geographical areas



**Overall program articulation:** institutional coordination, monitoring and evaluation, knowledge management.  
Delivering:

- ▶ Strategic/programmatic approach
- ▶ Synergies between NAP and PPCR processes
- ▶ Triggering transformational change

## 3.4 Phase 1: Strengthening the enabling environment

**Objective:** Strengthen institutional and technical capacities of the GoM to manage and mainstream climate risks into development policies, plans and programmes in key sectors.

- ▶ **COMPONENT 1** Enhancing the understanding of climate risks and implications (« vulnerability studies », needs-based technical assistance)
- ▶ **COMPONENT 2** Strengthen institutional and policy frameworks for climate resilience (institutional coordination, capacity development, reinforcing regulatory frameworks, development of fiscal protection instruments)
- ▶ **COMPONENT 3** Knowledge management
- ▶ **COMPONENT 4** Support to program implementation, coordination, M&E

Geographical scope: National

Estimated cost: \$1,5 million CIF grant for preparation of PPCR phase 2



## 3.5 Phase 2: Implementation of investment projects

- ▶ Investment project 1: Strengthen **HYDROMET** services
- ▶ Investment project 2: Building resilience of **INFRASTRUCTURE** and **COMMUNITIES** in Greater Antananarivo
- ▶ Investment project 3: Strengthen resilience of **COASTAL** cities
- ▶ Investment project 4: Climate-proof **SOCIAL INFRASTRUCTURE** in Grand Sud region
- ▶ Investment project 5: Strengthen climate resilience of **AGRICULTURAL** production, food security and nutrition in the Grand Sud
- ▶ Investment project 6 : Preserve biodiversity through **ECOTOURISM**



## IP 1: Strengthening Hydromet Services

**Objective:** Strengthen institutional capacities to collect, analyse and manage hydro-meteorological information in a timely and user-oriented manner.

- ▶ **COMPONENT 1** Reinforce the hydro-met stations' network for data collection and climate surveillance
- ▶ **COMPONENT 2** Strengthen hydro-met forecast systems and service delivery
- ▶ **COMPONENT 3** Strengthen the technical capacities for climate modelling, forecasts and early warning systems
- ▶ **COMPONENT 4** Project management, knowledge management and M&E

Geographical scope: National and regional coverage

Estimated cost: \$25 million

## IP 2: Enhancing Climate Resilience in Urban Communities & Infrastructure in Greater Antananarivo

**Objective:** Strengthen the living conditions of the most vulnerable communities in Antananarivo metropolitan area by improving service delivery and resilience to flooding and strengthening GoM's capacities for urban management and response to emergencies

- ▶ **COMPONENT 1** Improving urban environment, services and resilience in targeted areas
- ▶ **COMPONENT 2:** Strengthening institutional capacity for resilient urban governance
- ▶ **COMPONENT 3:** Project management, knowledge management and M&E
- ▶ **COMPONENT 4:** Contingent Emergency Response Component

Geographical scope: Greater Antananarivo

Estimated cost: \$100 million (\$70 million IDA co-financing)





## IP 3: Strengthening Climate Resilience of Coastal Cities

**Objective:** Strengthen the resilience of coastal cities to climate risks and strengthen the municipal and community capacities to effectively respond to impacts.

- ▶ **COMPONENT 1** Enhancing coastal protection by piloting measures against erosion (hard, green and hybrid infrastructure prototypes)
- ▶ **COMPONENT 2** Rehabilitation of public infrastructure (drainage systems) to manage floods and SLR situations
- ▶ **COMPONENT 3** Awareness raising and implementation of adaptation measures at community level
- ▶ **COMPONENT 4** Restoration of ecosystems and protection of coastal areas (reforestation and conservation of mangroves).
- ▶ **COMPONENT 5** Project management, knowledge management and M&E

**Geographical scope:** Coastal city sites TBD, Morondava pilot (SW coast)

**Estimated cost:** \$80 million

## IP 4: Climate Proofing Social Infrastructure in the Grand Sud

**Objective:** Strengthen climate resilience at regional level through the intensification of social protection, the rehabilitation of critical infrastructure (connectivity and water supply) and the diversification of communities' livelihoods in the Grand Sud

- ▶ **COMPONENT 1** Up-scaling social protection systems in place to build resilience (E.g.: cash-for-work in extreme vulnerable communities linked to climate risk management measures)
- ▶ **COMPONENT 2** Diversification of livelihoods through sustainable management of coastal resources (fisheries)
- ▶ **COMPONENT 3** Rehabilitation of water supply infrastructure (E.g.: distribution pipeline, solar pumping, desalinisation)
- ▶ **COMPONENT 4** Rehabilitation of road network (E.g.: rural roads and critical points to favour connectivity and access to social services and markets)
- ▶ **COMPONENT 5** Technical assistance (E.g.: in the Grand Sud's complex setting, vulnerability assessments and technical studies will inform the detailed formulation of this project)

**Geographical scope:** The project will focus on particularly vulnerable sites (TBD) from the Grand Sud region

**Estimated cost:** \$70 million (\$50 million IDA co-financing)



## IP 5: Enhancing Climate-Resilient Agricultural Production, Food Security And Nutrition

**Objective:** Enhancing climate resilient agricultural production, food security and nutrition in the Grand Sud region.

- ▶ **COMPONENT 1** 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)
- ▶ **COMPONENT 2** 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.)
- ▶ **COMPONENT 3** Sustainable development of the area (combating climate change, drinking water and sanitation, technical and vocational training, etc.)
- ▶ **COMPONENT 4** Project management, knowledge management and M&E

Geographical scope: Grand Sud region, specific sites TBD

Estimated cost: \$135 million



## IP 6: Biodiversity and Eco-Tourism Promotion

**Objective:** Promotion of ecotourism in national reserves as a means to preserve biodiversity and improve local communities' livelihoods.

- ▶ **COMPONENT 1** Improvement of the regulatory framework
- ▶ **COMPONENT 2** Development of basic infrastructure in touristic sites.
- ▶ **COMPONENT 3** Strengthen the capacities of local actors and the promotion of the destination Madagascar
- ▶ **COMPONENT 4** Legal support in negotiations and management of concessions
- ▶ **COMPONENT 5** Project management, knowledge management and M&E

Geographical scope: TBD after feasibility study

Estimated cost: \$25 million

## 3.6 Expected outcomes of SPCR

- ▶ **ENABLING ENVIRONMENT FOR CLIMATE RESILIENCE STRENGTHENED**  
Climate risk mainstreamed in key policy/plans/regulations/budgets. Fiscal resilience instruments, institutional coordination mechanisms and knowledge management tools in place.
- ▶ **CAPACITIES OF THE HYDRO-METEOROLOGICAL SERVICES ENHANCED**  
National capacity to generate reliable climate data enhanced. Decision-makers receive end-user friendly and timely data to manage climate risks and inform policy developments.
- ▶ **RESILIENCE OF KEY INFRASTRUCTURE FOR VULNERABLE URBAN COMMUNITIES ENHANCED**  
Communities in GA area are better protected from floods (80% reduction of flooding area), have improved access to watsan services (500,000 people).
- ▶ **RESILIENCE OF EXTREMELY VULNERABLE RURAL COMMUNITIES ENHANCED**  
Households in GS region benefit from extended Productive Safety Nets, livelihoods' diversification and access to key infrastructure (water supply, rural roads). Living conditions and resilience improved.

## 3.6 Expected outcomes of SPCR

- ▶ **RESILIENCE OF COASTAL PROTECTION INFRASTRUCTURE AND COMMUNITIES' LIVELIHOODS ENHANCED** Coastal protection is rehabilitated (hard/green infrastructure) and livelihoods based on coastal/marine diversified thus building communities' resilience.
- ▶ **RESILIENCE OF AGRICULTURAL SECTOR IS BUILT FOR IMPROVED FOOD SECURITY/NUTRITION** Enhanced agricultural productivity and irrigation infrastructure fosters economic investments and growth (agribusiness, value-chains, job creation).
- ▶ **BIODIVERSITY HOT SPOTS' RESILIENCE IMPROVED THROUGH ECOTOURISM SCHEMES** Eco-tourism pilots contribute to diversification of communities' livelihoods and financial sustainability of biodiversity conservation.



## 3.7 Investment plan's financial summary

Investments (in million US\$)	MDB	PPCR request	PPG	Co-financing			
				GCF	WB	AfDB	Other
Enhancing enabling environment (Phase 1)	WB	1,5 (grant)					
1. Strengthening Hydro-Met Services	WB	25	1	tbd			
2. Enhancing Climate Resilience of Urban Communities and Infrastructure in GA	WB	30			70 (IDA)		
3. Strengthening Climate Resilience of Coastal Cities	WB	30	2				50 tbd
4. Climate-proofing Social Protection Infrastructure in "Grand Sud"	WB	20	2		50 (IDA)		
5. Enhancing Climate- Resilient Agricultural Production/ Food Security in the "Grand Sud"	AfDB	35				100 tbd	
6. Biodiversity and ecotourism promotion	AfDB	25					
	<b>Total</b>	<b>166,5</b>	<b>5</b>		<b>120</b>	<b>100 tbd</b>	<b>50 tbd</b>

## 4. Institutional Coordination Framework and Consultation Process



*A broad-base of national and regional stakeholders identifying existing challenges, vulnerabilities and gaps with regards to climate adaptation in Madagascar*

## 4.1 Coordination mechanisms

**Objective:** Strengthen institutional and technical capacities of the GoM to manage and mainstream climate risks into development policies, plans and programmes in key sectors.

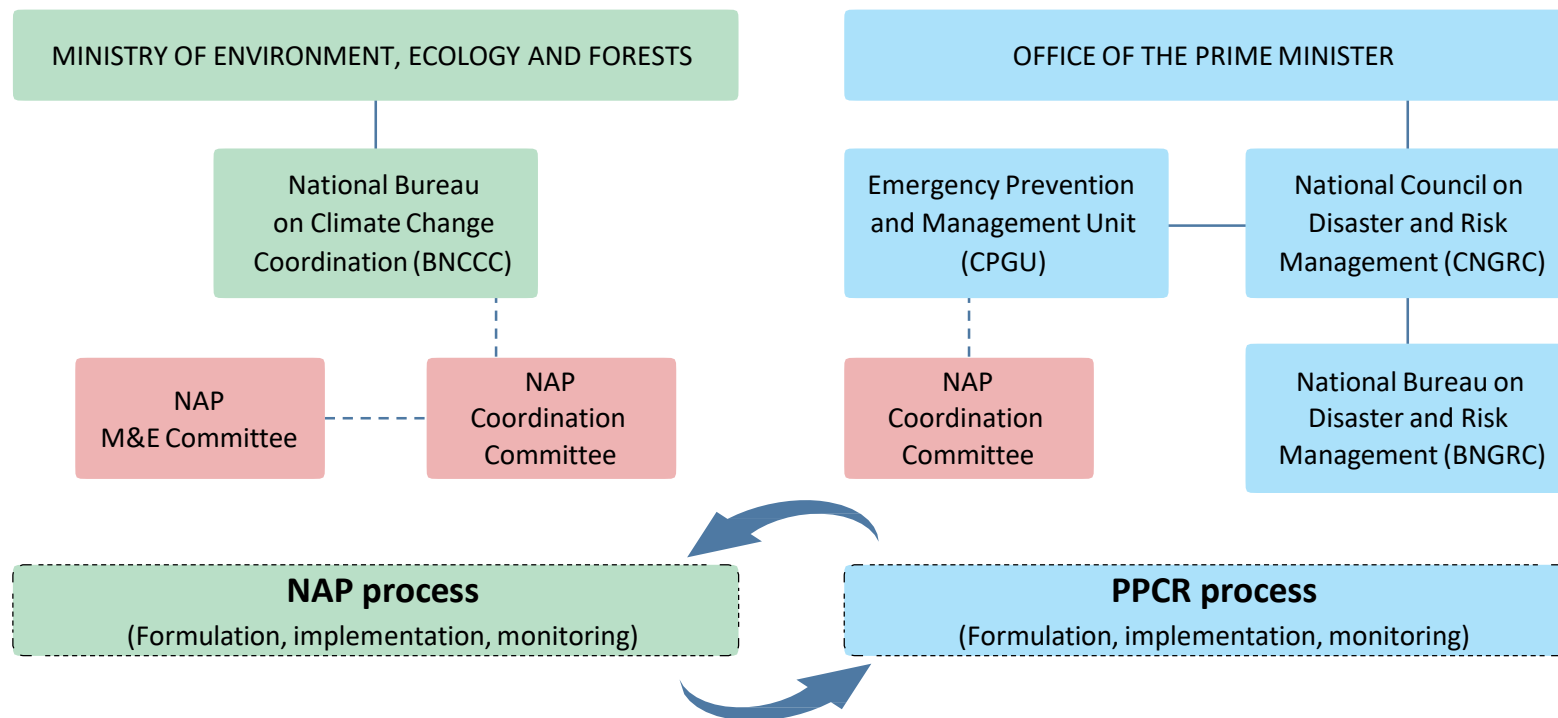
- ▶ **CPGU:** in charge of Disaster Risk Management
  - designated by PM as focal point for PPCR (IP for Phase 1) and Secretariat functions to **PPCR Steering Committee**
- ▶ **BNCCC:** in charge of Climate Change Adaptation
  - designated as focal point for climate funds and Secretariat functions to NAP Coordination Committee
- ▶ **Memorandum of Understanding** CPGU/BNCCC (since July 2017)
  - Establishing division of labour, ensuring coordination, laying foundations to **tap synergies between PPCR and NAP** formulation and implementation processes.





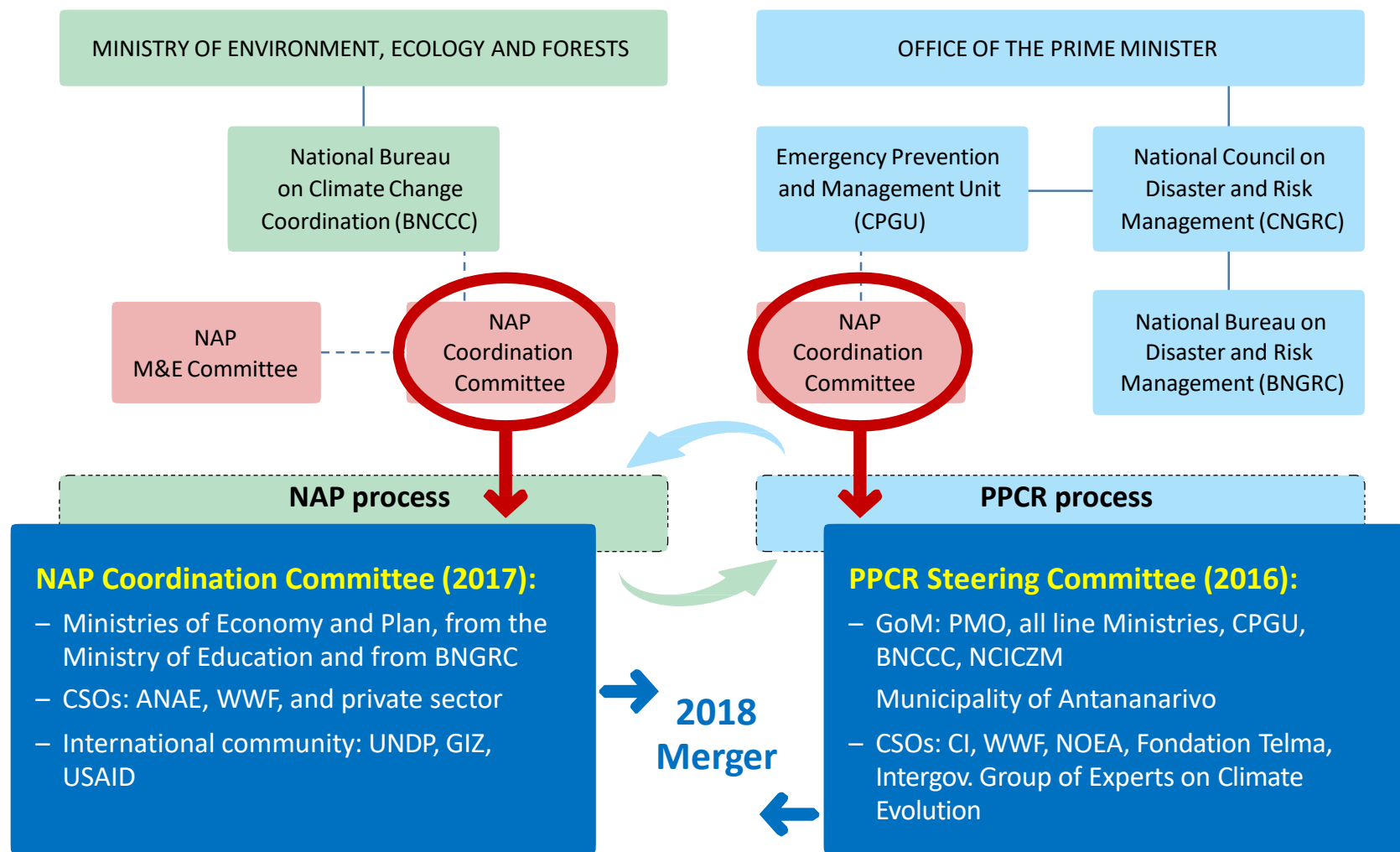
## 4.2 Institutional arrangements

### Setting for PPCR implementation and NAP process linkages



## 4.2 Institutional arrangements

### Setting for PPCR implementation and NAP process linkages



## 4.3 Consultative process in PPCR design

The PPCR design results from a consultative process facilitating joint-analysis of critical gaps and definition of principles/criteria/approach.

- ▶ Three joint missions (2016-2017):
  - National level: 4 rounds of **multi-stakeholder consultations**
  - **Sub-national** level: 3 consultations and identification fieldtrips
- ▶ Participation:
  - Overall: **over 250 representatives** from GoM institutions (technical staff and policy makers), CSOs, international organisations, donors
  - Bilateral meetings and sub-national **field trips** facilitating engagement, enriching approaches and grounding the PPCR in malagasy realities.
- ▶ **Gender balance** was sought overall the programme formulation (122/254 participants) to favour the consideration of gender dimensions all along the process.
- ▶ SPCR document underwent **public consultation and was endorsed** by GoM's cabinet (Octobre 2017)





# Participants in the consultation process

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 Sep.)	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



*“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



**THANK YOU!**