

## Evaluation of Natural Capital to Support Land Use Planning, Improved management effectiveness of Terrestrial Protected Areas, deployment of SLM practices and Creation of Eco-Villages in Central Madagascar

### Part I: Project Information

**GEF ID**

10389

**Project Type**

FSP

**Type of Trust Fund**

GET

**CBIT/NGI**

CBIT

NGI

**Project Title**

Evaluation of Natural Capital to Support Land Use Planning, Improved management effectiveness of Terrestrial Protected Areas, deployment of SLM practices and Creation of Eco-Villages in Central Madagascar

**Countries**

Madagascar

**Agency(ies)**

UNEP

**Other Executing Partner(s)**

**Executing Partner Type**

**GEF Focal Area**

Multi Focal Area

**Taxonomy**

Focal Areas, Land Degradation, Sustainable Land Management, Community-Based Natural Resource Management, Restoration and Rehabilitation of Degraded Lands, Sustainable Agriculture, Sustainable Forest, Sustainable Livelihoods, Sustainable Fire Management, Climate Change, Renewable Energy, Climate Change Mitigation, Biodiversity, Biomes, Tropical Dry Forests, Tropical Rain Forests, Grasslands, Financial and Accounting, Natural Capital Assessment and Accounting, Protected Areas and Landscapes, Productive Landscapes, Community Based Natural Resource Mngt, Species, Wildlife for Sustainable Development, Threatened Species, Influencing models, Transform policy and regulatory environments, Demonstrate innovative approaches, Strengthen institutional capacity and decision-making, Stakeholders, Communications, Awareness Raising, Education, Public Campaigns, Behavior change, Beneficiaries, Local Communities, Private Sector, Financial intermediaries and market facilitators, Capital providers, Individuals/Entrepreneurs, Type of Engagement, Consultation, Partnership, Information Dissemination, Participation, Civil Society, Community Based Organization, Non-Governmental Organization, Academia, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Sex-disaggregated indicators, Women groups, Gender results areas, Participation and leadership, Access to benefits and services, Knowledge Generation and Exchange, Capacity Development, Capacity, Knowledge and Research, Knowledge Generation, Learning, Theory of change, Adaptive management

**Rio Markers**

**Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 0

**Duration**

60 In Months

**Agency Fee(\$)**

537,075.00

**Submission Date**

10/11/2019

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-3	GET	2,000,000.00	6,165,000.00
LD-1-4	GET	1,613,836.00	6,595,683.00
BD-2-7	GET	2,039,589.00	12,217,432.00
	<b>Total Project Cost (\$)</b>	<b>5,653,425.00</b>	<b>24,978,115.00</b>

## B. Indicative Project description summary

### Project Objective

To promote the use of NCA as a tool for Land Use Planning to achieve PA management effectiveness, deployment of good SLM practices, and operationalization of Ecovillages in Central Highlands of Madagascar.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
1: Strengthening policy and institutional frameworks for NCA	Technical Assistance	1.1 Madagascar development strategic framework integrate policies, regulatory, and institutional arrangement on NCA and creation of EcoVillages	1.1.1 Training and necessary tools on NCA and Accounting are provided to national and regional experts.  1.1.2 Capacity of line ministries (Ministry of Agriculture, Ministry of Energy, Ministry of Rural Development, Ministry of Finance) strengthened for the integration of NCA, biodiversity conservation in sectoral development strategies and policies including LUP in the Central Highlands  1.1.3. Two (2) regional NCA valuations reports highlighting sectoral components are produced.	GET	800,000.00	3,147,536.00

<p>2. Enabling Policy (Land Use Plans) and tools in support of management of natural resources and biodiversity conservation in the Central Highlands</p>	<p>Investment</p>	<p>2.1 Alternatives to enhance conservation, effectively managed PA, reduce deforestation and land degradation while enhancing livelihoods of rural communities pilot tested</p> <p>2.2. Effective, credible, and efficient Ecovillage governance in the sustainable governance and management of natural resources and environment</p>	<p>2.1.1. Integrated Land Use Plans are developed using the NCA results from component 1 and their implementation are piloted through landscape approach and ecovillage model focusing on SLM and biodiversity conservation activities on at least 250,000 ha in 2 regions of the Central Highlands.</p> <p>2.1.2. Two PAs are effectively managed including through ecovillage model to conserve Habitat of Mantella cowani and other threatened and endemic species in Central Highlands</p> <p>2.2.1. Support provided to Ecovillages for community – centered conservation in CH through the identified 5 Principles of post 2020 Global Biodiversity Framework and taken into consideration the NCA and experiences from other past and ongoing initiatives including from Senegal.</p>	<p>GET</p>	<p>3,000,000.00</p>	<p>9,850,736.00</p>
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3. Pilot EcoVillages to reduce rates of deforestation, protect habitat, improve landscape productivity and enhanced livelihoods	Investment	3.1 [Pilot] EcoVillages lead to reduced rates of deforestation, conserve habitat, improve landscape productivity and enhance livelihoods	<p>3.1.1. Criteria, technical guidelines, approach, and local process for the creation of Ecovillages are defined with due consideration of experiences elsewhere (e.g. Senegal) and internalized by key stakeholders in the 2 Central Highlands regions</p> <p>3.1.2. At least 16 Ecovillages are created, and their governance structures developed in Central Highlands, taken into consideration the global experience on Ecovillages including from Senegal; the NCA reports, Land Use Plans, SLM and biodiversity conservation priorities actions</p> <p>3.1.3. A network of 16 Ecovillages in Central Highlands is used and monitored as a local investment model for reducing deforestation, conserving Mantella cowani habitat, improving landscape productivity, and sustaining livelihoods.</p>	GET	1,214,215.00	7,730,940.00
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4. Communication, Knowledge Management and project monitoring and Evaluation	Technical Assistance	4.1. Generated knowledge and communication products are available for dissemination at different levels and adaptive management ensured	<p>4.1.1. Communication and knowledge products are generated by the project and disseminated at local, national and regional levels to create awareness for NCA, Biodiversity conservation and SLM</p> <p>4.1.2. Madagascar key actors including those involved in environmental accountability and natural resources management are actively engaged</p> <p>4.1.3. As a result of experience gained, regulatory framework including governance structures, sensitization, and awareness-raising tools on ecovillages are developed and training modules developed and administered on Ecovillages concept, approaches and potential for generating multiple environmental benefits</p> <p>4.1.4. Project implementation is adequately monitored, and relevant evaluations are conducted.</p>	GET	370,000.00	3,000,000.00
<b>Sub Total (\$)</b>					<b>5,384,215.00</b>	<b>23,729,212.00</b>
<b>Project Management Cost (PMC)</b>						
GET					269,210.00	1,248,903.00
<b>Sub Total(\$)</b>					<b>269,210.00</b>	<b>1,248,903.00</b>
<b>Total Project Cost(\$)</b>					<b>5,653,425.00</b>	<b>24,978,115.00</b>

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Ministry of Environment and Sustainable Development	In-kind	Recurrent expenditures	3,000,000.00
Recipient Country Government	Ministry of Environment and Sustainable Development	Grant	Investment mobilized	900,000.00
Donor Agency	European Union-FFEM-HIER	In-kind	Recurrent expenditures	7,913,115.00
Donor Agency	Conservation International (CI) - Green Climate Fund for adaptation and mitigation project: COFAV NPA	Grant	Investment mobilized	13,000,000.00
Civil Society Organization	Kew-Madagascar - Foundation of Protected Areas and Biodiversity of Madagascar (FAPBM) Agreement	Grant	Recurrent expenditures	165,000.00
<b>Total Project Cost(\$)</b>				<b>24,978,115.00</b>

**Describe how any "Investment Mobilized" was identified**

The Green Climate Funds through Conservation International is financing a more that \$15 million project to support adaptation and resilience in COFAV corridor located in the CH. This investment provide tangible baseline investment which will provide ground for GEF support to the COFAV and Itremo PAs effective management to generate Global Environment Benefits of conservation some of important biomes in Madagascar hosting emblematic and endemic species of both animals and grasses. The Investment mobilized come also from the annual investment the Foundation of Protected Areas and Biodiversity of Madagascar (FAPBM) is doing through Kew-Madagscar Botanical Garden to support management of Itrema PA. the GEF investment will feel the gaps of endemic species habitat conservation not finaced by the Foundation.The Government of Madagascar has allocated considerable resources to the reforestation and conservation of degraded landscapes which also provide investment opportunities in the project area.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Madagascar	Biodiversity	BD STAR Allocation	4,039,589	383,761	4,423,350.00
UNEP	GET	Madagascar	Land Degradation	LD STAR Allocation	1,613,836	153,314	1,767,150.00
<b>Total GEF Resources(\$)</b>					<b>5,653,425.00</b>	<b>537,075.00</b>	<b>6,190,500.00</b>

E. Project Preparation Grant (PPG)

PPG Required



PPG Amount (\$)

100,000

PPG Agency Fee (\$)

9,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Madagascar	Biodiversity	BD STAR Allocation	70,000	6,650	<b>76,650.00</b>
UNEP	GET	Madagascar	Land Degradation	LD STAR Allocation	30,000	2,850	<b>32,850.00</b>
<b>Total Project Costs(\$)</b>					<b>100,000.00</b>	<b>9,500.00</b>	<b>109,500.00</b>

## Core Indicators

### Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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50,331.00	0.00	0.00	0.00
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### Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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0.00	0.00	0.00	0.00
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Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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### Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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50,331.00	0.00	0.00	0.00
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Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
COFAV (Corridor Forestier Ambositra Vondrozo) PA	555549464	Wilderness Area	23,000.00						
Itremo PA		Wilderness Area	27,331.00						

**Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
250000.00	0.00	0.00	0.00

**Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)**

Ha (Expected at PIF)

Ha (Expected at CEO Endorsement)

Ha (Achieved at MTR)

Ha (Achieved at TE)

250,000.00

**Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)**

Ha (Expected at PIF)

Ha (Expected at CEO Endorsement)

Ha (Achieved at MTR)

Ha (Achieved at TE)

Type/Name of Third Party Certification

**Indicator 4.3 Area of landscapes under sustainable land management in production systems**

Ha (Expected at PIF)

Ha (Expected at CEO Endorsement)

Ha (Achieved at MTR)

Ha (Achieved at TE)



The project will contribute to the 2020 vision for the Aichi Targets that "biodiversity is valued, conserved, restored and used wisely, ensuring the maintenance of ecosystem services, keeping the planet healthy and healthy, providing essential benefits for all peoples" and will contribute to Objectives, 1, 2, 4, 5, 7, 14 and 15. By carrying out (component 1) an assessment of the natural capital of the highlands of Madagascar, (component 2) a landscape use plan production, and (iii) public awareness efforts to encourage adoption within the Ecovillages network of good practices for conservation and development of natural capital, thereby ensuring Madagascar's contribution not only to achieving Aichi objectives, but also to its following voluntary targets commitment to Land Degradation Neutrality (LDN) : (a) 200,000ha of parcels under sustainable agriculture, and (b) 400,000 ha of restored landscapes assisted with green infrastructure.

## Part II. Project Justification

### 1a. Project Description

Geography. The Republic of Madagascar is an island nation located 400 km off the east coast of Africa between latitudes 11°57' and 25°35'S and longitudes 43°14' and 50°27'E. It is separated from the African continent by the Mozambique Channel and is 1,600 km long (north-south) and 580 km wide (east-west), with a land area of 587,041 km<sup>2</sup> and 6,597 km of coastline.<sup>[1]</sup> Given its isolation and separation from other landmasses for approximately 60-80 million years, Madagascar has extraordinary high numbers of endemic fauna and flora species.<sup>[2]</sup> Together with its renown for its rich and high biodiversity, it is similarly renowned for the high population growth rate, elevated degree of environmental degradation, low agricultural productivity, and extreme poverty. Madagascar's various ecosystems are home to more than 250,000 species of plants and animals, most of which do not exist anywhere else. Madagascar is subdivided into seven terrestrial ecoregions, five freshwater ecoregions, and two marine ecoregions, all of which are home to endemic flora and fauna.

Climate: In recent years Madagascar and its people have faced many of the impacts of climate change. The Climate regions include tropical along the coast, temperate inland, arid in the south. The hot and rainy season typically lasts from November to April, while the dry season is from May to October. South-eastern trade winds from the Indian Ocean affects the region. Land use: agricultural land: 71.1% forest: 21.5% other: 7.4%. Madagascar's current annual average temperature is between 23 - 27 °C. The projected temperature is expected increase 2.5 - 3.5 °C by 2100. The years between 1961 and 2005 saw the daily minimum temperature increase across almost the entire country. This is largely due to the global emissions of greenhouse gases. This increase in temperature also causes a hotter and dryer dry season, and a wetter rainy season. This means longer droughts in the central, western, and southern parts of Madagascar during the dry season. Droughts can become very extreme when the effects of El Nino come into effect every two to seven years. Due to rising global temperatures and the subsequent increasing ocean temperatures, cyclone intensity is increasing. Their path on land is also shifting northward. Madagascar is the most vulnerable country in Africa when it comes to cyclones, as it is an island nation in the direct path of any storms blowing east from the Indian Ocean. There is an average of 3-4 cyclones per year. The increasing average global temperature is causing the polar ice caps to melt, leading to rising sea levels. Madagascar, An island nation with 4828 km of coastline, is very vulnerable to the effects of rising sea levels. Currently, the ocean is rising at an average of 7 to 8 mm per year on the coast. This also leads to coastal erosion and receding shorelines. Along with rising water levels, the water surface temperature is also rising. Floods are also a natural hazard that is increasing due to climate change. This is due to the increase in cyclone intensity and the increase of rainfall during the rainy season brought on by global warming. This causes river flooding.

A majority of the Malagasy people are already predominantly rural and poor, putting them even more at risk of the dangers caused by climate change. Approximately 50% of the population is stunted and more than 40% of the population is anemic at least partially due to undernutrition. Rising temperatures bring with them an increase in the range of disease-carrying vectors (such as mosquitoes). It also causes droughts, reducing natural bodies of water (rivers, swamps, lakes) resulting in less drinking water and less water for crops. This has resulted in 30-60% of the people of Southern Madagascar suffering from food insecurity. Flooding during the rainy season and rising sea levels also leaves large amounts of standing water and contaminates water supplies. An increase in vector-borne diseases, water-borne diseases, heat related mortality, undernutrition, acute respiratory diseases (number one cause of death in children under five). An increase in flooding, droughts, soil degradation, and erosion, and crop-damaging pests are all a result of warming temperatures. They all also damage crops or reduce yields, and kill livestock. This is a major problem when 75% of the countries population works in agriculture. In 2016, the El Nino effect caused a rainfall drop of 75% compared to the past 20 years in the south. This caused harvest losses of up to 95%. The fishing industry is also hurt

due to rising ocean and surface temperatures, as fish move elsewhere. Damage to infrastructure due to rain, cyclones, and sea levels is also a problem, especially since the population is expected to increase by 40% by 2030. Damages due to floods and cyclones from 2010 to 2015 were estimated to be about 470-940 million USD a year.

Climate Change is impacting all living things in Madagascar; not just humans. The environment is also at risk. Madagascar is an isolated island and is estimated to contain 5% of all species, 80% of which can be found nowhere else on Earth. This is astonishing, and yet unique species such as the ring-tailed lemur have become endangered. Mangrove forests and animal habitats are being destroyed due to floods and rising sea levels. Warming and polluted oceans are also killing coral reefs and other ocean ecosystems, resulting in less marine diversity in the area.

The Directorate of Climate Change under the Ministry of Environment and Forests was created in 2010. It is responsible for coordinating all national response actions to climate change and represents Madagascar at international negotiations. They have implemented programs such as IARIVO (Disaster risk reduction for flood-prone areas) and Promoting Climate Resilience in the Rice Sector.

In terms of mitigation, the government plans to implement policies to reduce GHG emissions and create Intensive awareness-raising campaigns. The Goals:

- reduce 30 MtCO<sub>2</sub> of GHG emissions (14% of national emissions) by 2030. (If nothing is done, it is estimated to reach 214 MtCO<sub>2</sub> by 2030)
- Create more renewable forms of energies (increase from 35% to 79%)
- Rural electrification
- More energy-efficient stoves in 50% of households by 2030
- Implementation of intensive/improved rice farming techniques
- Reforestation (35,000 hectares before 2020)
- increase the compost of organic waste

Biodiversity. Madagascar is a mega-biodiversity country with a high concentration of endemic species. There are between 12,000-14,000 vascular plant species, 90% of which are endemic,<sup>[7]</sup> 370 species of reptiles, 244 species of amphibians, 154 species of fish and 99 species/sub-species of lemurs. Malagasy biodiversity provides significant economic, sociocultural, ecological, and scientific values. The ecological services provided by diverse species and habitats, include soil protection and restoration, preservation of water resources and hydrological systems, and atmospheric carbon sequestration by vegetation. In economic terms, biodiversity and ecosystem services provide livelihood benefits to an estimated 80% of the population, most of whom depend primarily on natural resources for their daily existence. Socially, biodiversity plays a significant role as a source of food, domestic energy, building materials, and traditional medicines, and species are important for Malagasy cultural traditions, including various tree species (baobabs, tamarinds) and animals (lemurs) that are regarded as sacred. Madagascar is home to 43 species of bamboo, of which more than two-thirds are endemic to the country<sup>[8]</sup> and provide habitat for some of the most iconic and threatened species in Madagascar, including various lemurs, several reptiles, and the critically endangered Angonoko Tortoise (*Geochelone yniphora*).<sup>[9]</sup>

Pressures on remaining ecosystems, particularly fragile terrestrial habitats have accelerated over the past 50 years and Protected Areas are increasingly becoming islands surrounded by fields, grasslands, and severely degraded natural areas. The practice of burning forests to clear land for dry rice cultivation has denuded most of the landscape, especially in the central highlands (360,000 hectares of forests are lost per year). Rainforests are concentrated on the steep hillsides along a slender north-south axis bordering the east coast, from the Tsaratamana Massif in the north to Tolagnaro in the south. Secondary growth has replaced the original forest and consists of a large extent of traveler's palms (*Ravenala* species), raffia, and baobabs. The vegetation of the central highlands and the west coast is for the most part savanna or steppe, with coarse prairie grass the predominant species in areas where erosion has not exposed the lateritic soils.

The freshwater fishes of Madagascar are considered the island's most endangered vertebrates. Habitat degradation due to deforestation and agriculture, overfishing, and introduced species are considered the main causes of species decline. Deforestation of upland forests has resulted in siltation, temperature increases, algal blooms, and flow increases from runoff. Overfishing has played a major role in the decline of the island's native cichlid fauna and possibly some of the larger *Rheocles* species (Madagascar Rainbowfish). Exotic fish species now dominate many rivers and streams, the most problematic exotic species being Green Swordtail *Xiphophorus helleri*, Common Carp *Cyprinus carpio*, the Goldfish *Carassius auratus*, Largemouth Bass *Micropterus salmoides*, Redbelly Tilapia *Tilapia zillii*, Banded Tilapia *T. sparrmani*, and Snakehead Fish *Ophiocephalus striatus*. Invasive aquatic plant species include water hyacinth (*Eichhornia crassipes*) and floating fern (*Salvinia natans*).

Socio-economic context: Madagascar is a low-income country with a national economy depending essentially on natural resource-based sectors including agriculture, mineral extraction, tourism, fishing, and aquaculture. It is one of the least developed countries (LDCs) in the world, with growth hampered by several political and social crises. Madagascar's GDP per capita in 2017 was estimated at US\$ 449.7<sup>[10]</sup> with an annual growth rate of 1.4<sup>[11]</sup>. In 2012, it had a poverty headcount ratio at national poverty lines of 70.7%, i.e. the population lives permanently below the poverty line of US\$ 1 per day.<sup>[12]</sup> In the same year, its GINI index stood at 42.6<sup>[13]</sup>. In 2018, it occupied the 161<sup>st</sup> rank out of 189 countries with a Human Development Index (HDI) of 0.519<sup>[14]</sup>. The poverty rate of Madagascar stands at more than 80% of the population.<sup>[15]</sup> While it is already subject to climate variability and extreme weather events (e.g., cyclones), the country is at risk of increased vulnerability and degradation from anticipated climate change. In 2017, Madagascar's population was estimated at 26.4 million inhabitants,<sup>[16]</sup> with an annual growth rate of 2.5%, indicating that the Malagasy population will continue its rapid growth trajectory for the foreseeable future. The population is predominantly rural and poor; chronic malnutrition is prevalent, and large families are the norm. Madagascar's population is forecast to double in the next 20 years and reach 53.8 million in 2050.<sup>[17]</sup> The urban population percentage has increased considerably since 1975, and is currently 36.4% of the population, with an annual rate of urbanization of 4.47% (2015-20 estimate).<sup>[18]</sup>

The agriculture and livestock sector remains the basis of Madagascar's economy and provides 95% of national food supplies, employment to more than 70% of the active population, 30% of GDP, and more than 75% of foreign exchange earnings.<sup>[19]</sup> Some 60% of rural families depend on livestock for daily needs. Cattle, mainly zebu, are distributed throughout the island and smallholders keep large numbers of pigs, sheep, goats, chickens, ducks, geese, and turkeys. One of the key challenges facing agriculture in Madagascar is that the sector is predominantly rain-fed, i.e. heavily dependent on weather conditions. Climate variability and factors such as deforestation and slash and burn (*tavy*) practices are having a significant impact on the sector, leading to disruption in soil fertility, reduced agricultural productivity, loss of biological diversity and food insecurity. As many farmers do not have the capacity or resources to adopt effective adaptation measures, they remain highly vulnerable to the predicted future climate change impacts. There is an urgent need to improve agricultural

performance for economic growth and poverty reduction. Some of the constraints to sectoral transformation include: (i) low level of utilization (<10%) of available arable land due to inadequate infrastructure, irrigation, equipment, and available financing; (ii) declining soil fertility, soil erosion, and land degradation, aggravated by unsustainable agricultural practices; (iii) climate change-related events such as droughts, cyclones, and floods, as well as salt water intrusion into coastal lands as a result of sea-level rise.

Madagascar's energy balance shows that about 80% of energy consumption is based on biomass (68% firewood, 10% charcoal, and 2% 'other'), 17% on petrol (transport), 2% on electricity (hydropower and diesel power plants) and 1% on coal.<sup>[20]</sup> Access to electricity remains low with only 20% of the population having access, 5% of this access being in rural areas (compared to more than 60% of urban households with access to electricity). The installed capacity of electricity production in Madagascar accounts for some 650 MW only (production in 2008 = 486 GWh). For all households, but especially in rural areas, firewood and charcoal (for heating and cooking), and kerosene and candles (for lighting) are the most important energy sources. Rural households spend on average €8 per month on lighting and batteries (radios, torches) and €3.5 per month on cooking fuel.<sup>[21]</sup>

The World Bank Group has spearheaded a partnership to advance the accounting for natural wealth and the valuation of ecosystem systems around the world. The WAVES partnership aims to promote sustainable development by ensuring that the value of natural resources is incorporated into the national accounts used to measure and plan economic growth. Its objectives are more specifically the following: a) encourage countries to adopt and apply consistent accounting as well as develop a body of experience; b) develop methods of accounting for ecosystems; c) create a global platform for training and knowledge sharing; and d) recognize internationally the importance of accounting for natural capital. Madagascar is a target country for the WAVES project and evaluations of the water, forest and mining accounts have been carried out with the result that the water assessment findings are being used as a strategic planning tool in Diana and Alaotra Mangoro Regions. Further, in the north of the country, the Indian Ocean Biodiversity Commission carried out a project to evaluate and account for ecosystem services and lessons learned and results will be considered during this project.

**Project area:** The project is being proposed for the Central Highlands (CH) of the country. The central highlands (defined by the current administrative regions of Bongolava, Analamanga, Itasy, Vakinankaratra, Amoron'i Mania and Haute Matsiatra) cover an area of approximately 96,000 km<sup>2</sup>, contain three of the island's largest cities (including the capital), and support nearly half (ca. 7.5 million) of the island's human population. Total annual rainfall decreases westward, with the eastern portion of the highlands hosting tropical rainforests, while the western portion is mostly composed of low productivity rangeland. The human imprint on Madagascar's highlands is characterized by a mix of irrigation infrastructure and extensive cattle grazing, illustrating the blending of African and Asian cultural heritages. Farmers cultivate irrigated rice and a number of upland crops, such as manioc, sweet potatoes, beans, and potatoes. All farms keep at least some animals, and the region's grasslands are typically burned nearly every year to provoke late dry season forage for cattle and to prevent bush encroachment. These fires, combined with the region's ubiquitous erosion gullies, known as lavaka, have given the highlands a reputation as a site of environmental degradation<sup>[22]</sup>. The average annual temperature in the Central Highlands is between 16°-19°C. Since 2000, temperature increases have had a significant impact on crops and growing cycles.<sup>[23]</sup> Dry periods have tended to become longer in the Central Highlands and the eastern coast, whereas on the western coast, rains have become more intense.<sup>[24]</sup>

The project is being proposed in the following regions of Central Highlands: Amonon'i mania and Haute Matsiatra. The rationale behind the choice of these regions is based on the fact that there is an opportunity to build on natural capital to trigger nature-based local development, respectful of sustainability and scaling up potential in areas facing various environment challenges. Details on the size of each Region, its human population, environmental challenges and conservation sites (Protected Areas, Reserves, potential ecotourism sites, reserves under creation) are provided in Table 1. The location of the target Regions is provided in the Maps found in Annex A.

The project is being proposed for the Central Highlands of the country. It is being proposed in the following regions: Amonon'i mania and Haute Matsiatra. The rationale behind the choice of these regions is based on the fact that there is an opportunity to build on natural capital to trigger nature-based local development, respectful of sustainability, and scaling-up potential in areas facing various environmental challenges. Details on the size of each Region, its human population, environmental challenges, and conservation sites (Protected Areas, Reserves, potential ecotourism sites, reserves under creation) are provided in Table 1. The location of the target Regions is provided in the Maps found in Annex A.

**Table 1. Human population data and Conservation Challenges in the 2 targeted Regions.**

Region	Population (2015)	Land area (hectares)	Environmental Challenges & Conservation Sites
Haute Matsiatra	1,264,951	2,095,900	<p><u>Environmental challenges:</u> invasive species such as Heather <i>Erica</i> sp, Silver Wattle or Mimosa <i>Acacia dealbata</i>, and Khasi Pine <i>Pinus kesiya</i>.</p> <p><u>Protected Areas:</u> Ranomafana (6,258.85 hectares), Andringitra (5,841.38 ha), Fandriana Vondrozo (125,193.41 ha)</p>
Amonon'i mania	754,241	1,751,600	<p><u>Environmental challenges:</u> forest exploitation and degradation, siltation and soil erosion, unsustainable exploitation of forest natural resources, land tenure insecurity, mining and mining pollution, bush fires, <i>tavy</i> culture, over-fishing.</p> <p><u>Protected Areas:</u> Anjoman'Ankona (2,600 ha), Vohibola (3,000 ha), Maroando (1,000 ha), Ambatofy (13,100 ha), Betsimisotra (14,000 ha), Forêt Domestique de Vatonsangana (10 ha), Marolambo (26,756 ha), Itremo PA (24,788 ha), COFAV NPA (314,000 ha), Ibity-Itrem (46,641 ha). Ibity-Itrem (46,641 ha).</p>

In the Central Highlands (CH) of Madagascar, the subhumid forests and ericoid thickets characterize the terrestrial forest ecosystem, which also hosts freshwater ecoregions that are the principal watersheds and include a distinct assemblage of species. For example, the Ifanindrana watershed in CH plays a major role in the sustainable management of water resources on which farmers in the whole area depend on the irrigation of farms and paddy fields and on which the Sahatona hydroelectric power station which supplies the 3 adjacent municipalities also depends for electricity. The vegetation of the central highlands is for the most part savanna or steppe, with coarse prairie grass, the predominant species, in areas where erosion has not exposed the lateritic soils. The CH host in Itremo PA, Tapia vegetation, which is unique in the world, ensuring the survival of wild silkworms which are also endemic to Madagascar. The site also hosts some individuals of Propithecus lemurs which are located inside the remaining wet forests mainly located in the valleys. There are also several terrestrial orchid species in the environment, two palm species including *Dypsis ambositrae* which is a local endemic palm, and only found in the NPA of the Itremo Reef. Itremo contains several species of succulent plants endemic to Madagascar including the *Euphorbia* and *Aloe*.

**Key biodiversity in the project area include (See Maps in Annex A2):**

- **The Itremo Massif National Protected Area:** The New Protected Area of the Itremo Massif (IUCN Category VI PA) covers a total area of 24,788 ha dominated by grassy biomes (70% of the land area). The PA has been established as a protected area in 2015 (established by decree n° 2015-713 of the Ministry of Environment, Ecology, Sea and Forests), and is located in the southern part of the central highlands. The Itremo Massif is 117 km west of Ambositra, Ambatofin-andrahana district, Amoron'i Mania Region, ex-Province of Fianarantsoa. The Itremo Massif NPA holds one of the largest areas of Tapia forest in Madagascar. The humid forests, even fragmented and in the form of gallery forest, protect the hydrographic sources of the Itremo Massif. The Itremo Massif PA is home to 549 known species of plants in 278 genera and 99 families, with 77% of species endemic to Madagascar, and 30 local endemics (Kew Madagascar Conservation Centre 2012). The vegetation of Itremo Massif is composed of gallery forests, tapia forests, grasslands, swamps, and rock outcrops, as well as secondary vegetation types (Birkinshaw et al. 2008, Kew Madagascar Conservation Centre 2012). Bush fires, mining exploitation, and uncontrolled forest product collections are the main pressures causing the degradation of natural habitats at this site.

- **The Corridor Forestier Ambositra-Vondrozo (COFAV) National Protected Area:** Established on 23 July 2015 by decree n°2015-755. The PA cut across 5 regions including Matsiatra, Amoron'i Mania, Vatovavy Fitovinany, Atsimo-Atsinanana and Ihorombe. The part of the PA in project regions (Amoron'i Mania) is estimated at 36,000 ha. The COFAV is the last vestige of low, medium and high altitude tropical rainforests that once covered most of the south-eastern of Madagascar. It is currently a strip of forest over a length of approximately 300 km and 1 to 50 km in width. It links several protected areas that were previously disconnected: the Ranomafana and Andringitra National Parks and the Pic d'Ivohibe Special Reserve. This Corridor, characterized by its great richness in biodiversity whose regional and national flora and fauna endemism rate is very high, attracts researchers international and national tourists. Its forests are the refuge of 800 species of plants, 300 species of animals, including 17 species of lemurs (including *Hapalemur aureus*, *Prolemur simus*, *Eulemur cinereips*), 36 species of micromammals, 110 species of amphibians including *Mantellabernardhii*, reptiles such as *Matoatoa spanringi*, and 94 species of birds. It performs important ecological functions: water tower; carbon sequestration, etc. It also plays major socio-economic roles for its neighboring populations.

Environmental challenge - Unsustainable forest clearance: Agriculture is the mainstay of the rural economy and one of the largest drivers of unsustainable, and often illegal, forest clearance, as well as due to the declining productivity of existing croplands. The Malagasy population is highly dependent on CO<sub>2</sub>-emitting energies (charcoal, firewood, kerosene), especially in rural areas where wood is used daily by more than 90% of the inhabitants (mainly by women) and accounts for >75% of the country's primary energy consumption. Without investment and information on alternative fuel efficient techniques, i.e. improved carbonization techniques, efficient fireplaces, reforestation actions, fuel-efficient stoves, deforestation and land degradation will accelerate (as the human population expands), with an associated decline in water availability for agriculture, drinking water, and, potentially, hydroelectric power. The charcoal-making processes and cookstove technologies typically have biomass conversion rates as low as 10% and energy efficiency rates of just 10-17%. At the national level, each household consumes 5,531 m<sup>3</sup> of firewood annually.<sup>[25]</sup> Praene et al. (2017)<sup>[26]</sup> identify four main uses of wood energy in Madagascar that are contributing to changes in forest cover in the country: a) Home cooking and industrial use;<sup>[27]</sup> b) brick-making;<sup>[28]</sup> c) wood-processing industries;<sup>[29]</sup> d) Mixing with organic fertilizers.<sup>[30]</sup> Illegal logging is also a major contributing factor to forest loss in Madagascar.<sup>[31]</sup> Overall, loss of natural habitat in the country is estimated at 0.55% per year; given that more than 80% of plants, mammals, and amphibians in reptiles are endemic in Madagascar, this rapid destruction and degradation of natural habitats are of immense global significance (Harper et al. 2007). A recent assessment of 2,300 floral species in Madagascar determined that 78% of the species were under threat of extinction, and according to the WB Data Portal, 540 plant species, 119 mammal species, and 87 fish species are threatened in the country.

In the project target areas, key environment challenges include:

**Deforestation and Erosion as result of agricultural and pastoral practices,** : The project intervention area is characterized by traditional agro-sylvo-pastoral practices that have a very strong impact on natural environments (especially areas with high biodiversity value such as National Protected Areas (NPAs) or areas that play a key ecological role (watershed)). Overall, the area is subject to very significant deforestation and land erosion due to the practice of bush fires for livestock or slash-and-burn for agricultural expansion. In parallel, the pressure of direct exploitation of woody forest products (for construction wood, charcoal or species used to make traditional local rum "*lora taoka*") accentuates the loss of biodiversity and degradation of natural habitats of remarkable species such as *Mantella cowani*. The highlands, such as the Itremo Massif and the municipality of Antoetra, are among the regions most frequently burned in Madagascar. Among the inhabitants, the extensive breeding of zebus is a traditional practice and a large part of the population uses in particular the Itremo Massif or the area of Fohisokina as a grazing place. Further, the rapid development of geranium farming for the production of essential oil in the region of Haute Matsiatra and Amoron'i Mania requires more land availability, which is often obtained from the clearing of Eucalyptus plantations and/or natural forests. The geranium planting is done in many areas on steep slopes without erosion control measures. In addition, the extraction of essential oil requires large volumes of wood energy which may increase deforestation.

**Illegal mining:** The presence of semi-precious stones (quartz, tourmaline, amethyst) in this region encourages the local populations to exploit in an artisanal and illicit way with an irreversible destruction of the exploitation sites, in particular in the Itremo Massif NPA (tapia forest). This attractive activity generates immigration which increases the need for natural resources.

*The drivers of deforestation and environment issues* in the eastern regions where this project will be implemented, can be divided into three categories: a) structural drivers (e.g, climate change, population dynamic, etc.) b) direct drivers (ie land-use change, firewood consumption), and c) indirect drivers (high unemployment rates in the rural areas, weak regulatory institutions, poor policies).

The Regions, where the project will be implemented, contains potential forest sites needing conservation. The richness of the ecosystems makes it possible to envisage solutions based on the ecosystems which make essential a concerted management of the resources. An integrated territorial approach at the level of one or more regions is necessary, which takes into account the preservation of ecosystem services, particularly at the watershed level for the sustainable development of communities, in particular by creating opportunities for local youth through significant investments. To achieve these the following barriers need to be removed:

**Barriers** to ensuring conservation of biodiversity in the Central Highlands of Madagascar and reducing the rate of deforestation are:

**1. Lack of national capacity to mainstream Natural Capital Assessment in sector policies.** According to Mark Gough, Executive Director, Natural Capital Coalition, all businesses have both an impact and a dependency on natural capital. Understanding this complex relationship between nature, individual businesses, and the global economy can provide invaluable insights on how to protect and enhance the health not only of the planet but of our social and economic systems too. There is an abundance of ways that natural capital data can be utilized in order to improve the health of the environment, the success

of the economy, and the welfare of human beings. At its heart, what this comes down to is an ability to make robust and informed long-term decisions. However, there are obstacles that have stood in the way of scaling natural capital approaches, and in training organizations in how to identify nature-based solutions. The capacity to integrate natural capital into national accounting systems remains limited and budget allocation is not adequate to equip fully the agencies dealing with environmental issues and biodiversity conservation. By providing the tools (framework in the form of the Natural Capital Protocol and sector guides) the project will attempt to remove the barrier standing in the way of wide-scale sector adoption and accelerate progress in the mainstreaming of NCA in Madagascar.

**2. Limited financial resources and capacity, including the capacity for Community Based PA management, to enforce regulations and develop land-use plans for sustainable development.** Madagascar has limited resources for surveillance and enforcement, particularly given the size of the country, the wide distribution of the protected area landscape, and the dispersal of surrounding, resource-dependent rural communities. Governance is decentralized and there is provision for local regulation through the *dina*, comprising locally-developed and applicable laws that regulate resource use within designated areas and which have been in operation since the early 1990s. However, there is a lack of qualified technical experts and equipment in Municipal offices tasked with land management and enforcement of the policy. Also, land tenure in Madagascar is complex and unclear. Rural communities will continue to rely on natural resources to meet their daily needs and it is a challenge to ensure that valuable natural resources are accounted for and used sustainably and legally. Public policies historically have been oriented exclusively towards the development of farming, including encouraging farming activities in forests or rainforest lands. In general, policy instruments such as soft credits, land access, farming incentives, and technology transfer to encourage industrial development have not included environmental goods and production of services. There are also limited resources for PA management and capacity in integrating community perspectives and needs into protected area management. Participatory management is also constrained by the very limited capacities of most community structures/organizations; this also affects the development of models for conservation-based livelihoods programs that can benefit both PAs and local communities, and as a result, there are few good models for such programs in the country to learn from. Communities in the project area have a tremendous amount of Traditional Ecological Knowledge (TEK) that could help to guide efforts to conserve biodiversity and also to identify collaborative livelihood activities with PA management structures. However, at present, this knowledge is often overlooked and/or undervalued by PA managers and other resource management stakeholders.

**3. Inadequate financing mechanism to support the creation of biodiversity-friendly income-generating activities in the Central Highlands.** Madagascar is not in a position to allocate scarce public funds to conservation and forestry-focused agencies and institutions. Financial sustainability is very weak and constitutes the main challenge for the future of Madagascar's PA network. The legal frameworks are not adequately developed to ensure revenue generation, such as taxes, entry fees, and other environmental taxes. The National Parks created are only starting to develop their business plans and have not finalized their funding needs or budget allocations to ensure effective management of the PAs. One of the main challenges of the Malagasy PNEDD[32] is the sustainable management of natural resources to improve food and energy security in the face of population growth and climate change. The financial sustainability of environmental actions is one of the strategic axes to which this project can contribute effectively by making the link between electrification, access to drinking water, and watershed preservation. An investment financing mechanism and framework is required to ensure that conservation goals are supported in the long-term. The project will assist with the provision of the necessary groundwork to address creation of EcoVillages and will assist with mobilization of funding support from other donors and the private sector.

The project is designed to address the barriers noted above and build national capacity to assess and integrate natural capital in the Central Highlands of Madagascar, develop land-use plans that will facilitate the creation of EcoVillages, and develop investment and financing mechanisms to ensure the operationalization of EcoVillages in the 2 regions of Central Highlands of Madagascar.

***Baseline scenario and any associated baseline projects***

The project has been informed by other activities focused on biodiversity conservation, agriculture, energy, sustainable forest management, and sustainable land management, all of which are pivotal in building a case for natural capital assessment and accounting in Madagascar. There is a strong political and technical committee for the NCA in Madagascar. The country has implemented natural capital accounting through the WAVES Program with the World Bank (launch 2011 and 2014 report). The “National Biodiversity Strategy and Action Plan” 2015-2025 translates the 20 Aichi targets at the national level, including in particular objective 2: “By 2025, the values of biodiversity, the opportunities and benefits derived from its conservation and sustainable use, will be recognized and integrated into the country’s socio-economic development activities”. In 2015, Madagascar developed a roadmap on ecosystem accounting for natural capital in accordance with the NBSAP. The methodology devised at the level of the Convention on Biological Diversity was taken to complete the roadmap. It is Ecosystem Accounting of Natural Capital (CECN), some of which include: Antrema PA, Bombetoka, CMK, and the case of Nosy be. This methodology highlights: the land cover account, ecosystem carbon account, ecosystem water account, account of the functional services of ecosystem infrastructure, an account of ecosystem capability as well as monetary valuation. A Working Group called Ecosystemic Natural Capital Accounting Working Group (GTCECN) has been in place since 2015. The current main constraint is the lack of financial resources to continue this process.

The UNEP Division of Ecosystems, through its Ecosystem Services Economics Unit, work on supporting governments and other stakeholders to mainstream ecosystem services values into national economic and development planning and policy choices. This is achieved by providing technical advice, building the capacity of stakeholders to generate scientifically credible information on how ecosystems and the services they provide related to human well-being, and development of tools and methodologies for ecosystem services economics. The priority area for the Unit is agriculture and food systems and the team is charged with taking forward the food systems task the force within the Division. In particular, the main areas of focus include: (i) Economic valuation (in monetary and non-monetary terms) of ecosystem services for policy appraisal at national and sub-national level, and for the business community; (ii) Capacity building to support valuation and policy assessment; (iii) Application of natural capital accounting at the macro level applying the System of Environmental Accounting Experimental Ecosystem Accounting (SEEA-EEA); (iv) Agricultural landscapes: assessment of positive and negative externalities and impacts using the TEEB Agri-Food Evaluation Framework; and (v) Business and biodiversity, in partnership with the Capitals Coalition, with a particular focus on the agri-food sector. The project will benefit from the UNEP Ecosystems Services Economics Unit experience and tools to support Madagascar NCA process.

The concept of the eco-village has its anchor in the total involvement of its inhabitants in the process of protecting its environment, and promoting its socioeconomic and cultural development. It is, therefore, a model of housing and economic development that strives to respect ecosystems and preserve the environment and natural resources. It allows local populations to become autonomous, and even self-sufficient, taking into account the following 4 dimensions: ecology, economy, social and cultural. Given that in each ecovillage, good ecological practices will be adopted by each household, to satisfy, agricultural practices, management of household waste, etc.; thus, adopting the ecovillage approach constitutes a solution for Madagascar to resolve the various environmental problems that have existed for years, to mention among others deforestation following the heavy dependence on forest resources for household energy needs (firewood and charcoal), land degradation following the practice of slash-and-burn crops, air, water and soil pollution following the lack of infrastructure for adequate management of household waste, etc. These good ecological practices will constitute ecological alternatives allowing the populations of an eco-village to reduce pressures on natural resources and restore the quality of ecosystems and at the same time encourage the creation of green jobs. EcoVillages will assist Madagascar with natural capital assessment and will draw on the expertise and experiences of other donor-funded projects taking place in the country, including projects addressing: a) agricultural productivity in the Central Highlands,<sup>[33]</sup> b) support services to farmers on investment skills and agricultural diversification,<sup>[34]</sup> c) land tenure security and safeguarding land rights of smallholder farmers,<sup>[35]</sup> d) management of natural resources and establishing a landscape approach to sustainable agriculture.<sup>[36]</sup> ; e) The Senegal UNDP/GEF 4 Project titled “Participatory Biodiversity Conservation and Low Carbon Development in Pilot Ecovillages in Senegal”. The lessons learn from the project (See Annex I bellow in this PIF), particularly related to the use of stoves to reduced pressure on natural resources will be assessed and adapted to the Madagascar context; f) The Republic of Guinea GEF 6 project titled

“Integrated management of natural resources in Middle and Upper Guinea” (GEF ID 9783), even though at early implementation, can be a source of inspiration on how the ecovillages are being established in the country. During the PPG, an in-country visit by Madagascar project team to Senegal and Guinea will provide insight on the processes in those countries. The sustainability issue particularly in Senegal where the project has come to an end will be one of the key element of the in-country visit objectives.

### ***Baseline projects***

- **Kew-Madagascar - Foundation of Protected Areas and Biodiversity of Madagascar (FAPBM) Agreement:** The Itremo’ NPA has a development and management plan since 2012. It is currently being updated for the next 5 years. The PA is classified as category VI (protected terrestrial landscape) according to IUCN criteria. The PA management model is through by co-management with the grassroots communities. Kew-Madagascar is the delegated manager of the PA. The PA management plan is currently financed by the Foundation of Protected Areas and Biodiversity of Madagascar (FAPBM) through an agreement signed with Kew- Madagascar since 2013. Through this agreement the PA received annually \$33,000 to cover staff cost, the implementation of firebreaks, the creation of “fire” associations, the control of pines (invasive species), participation in World Environment Day (WED), validation meeting of the PAG, patrol in the NPA, ecological monitoring of conservation targets, monitoring of income-generating activities (IGAs), reforestation and restoration.
- **Conservation International (CI) - Green Climate Fund for adaptation and mitigation project: COFAV NPA** is Classified as Protected Area of category V of IUCN (harmonious protected landscape). It has a management and development plan developed in 2015. The plan is under review and the updated version will be available by the end of 2020. The COFAV is managed by Conservation International (CI) as delegated manager according to decree No13114 of June 04, 2018. Local communities contribute to the management as co-manager. COFAV currently funded from the Green Climate Fund for adaptation and mitigation activities to climate change, for a total funding of US \$ 18,500,000 for a five years period. The GCF funding are being used to implement the Project on “Sustainable Landscapes in Eastern Madagascar”, through grants to *Vondron’Olona Ifotony (VOI- Contractualizing Community Based Organisation)* or other groups (deemed vulnerable to climate change) for IGAs so that they can be much more resilient to climate change. The GCF project support agricultural activities with short cycles (beans, rice, etc.) and long cycles (cash crops) with support to enable them to access the market. The climate change adaptation activities include climate-smart farming activities. Linked to the funding, VOIs have environmental obligations, such as forests monitoring by patrols when they are near the forest, but also contributing to reforestation. The resources are also used to finance these mitigation activities. In 2013 and 2014, CI had initiated ecotourism activities in COFAV, in particular by setting up reception facilities and ecotourism circuits, training of guides (in Ambohimahamasina and Namoly ), but due to lack of funding, the initiative was not pursued. CI in general has no longer focused on ecotourism, but the potential remains, and a partner is needed to relaunch ecotourism. Instead, CI focused on climate change, carbon, communities, reforestation, and the value chains. Conservation International has supported grassroots communities in the process of transferring the management of the distributed areas of *Mantella cowoni* habitat.
- **Programme de Soutien aux Pôles de micro-Entreprises Rurales et aux Economies Régionales (PROSPERER) :** The objective of PROSPERER is to promote revenue increased for vulnerable groups by consolidating rural micro enterprises at the local and regional level. The Programme with a total amount of \$65.1million is financed by IFAD, the national Government, and various donors. The programme witch started since 2008 will end in 2022. PROSPORER is a great opportunity for the GEF project as one of the project municipality (Haute Matsiatra) will benefit from the programme investment which will be supportive of ecovillages and investment of microenterprises in support of biodiversity conservation. The GEF Project will support partnerships with PROSPERER and, building on actual social, economic and institutional networks already created, to promote NCA, biodiversity conservation, and SLM within the implementation framework of the Land Use Plans, valorization of biodiversity (e.g. ecotourism) and Ecovillages.
- **EU and CIRAD AFIBERIA and ARINA projects.** The AFIBERIA and ARINA projects both have the common objective of strengthening the potential of wood energy production, through reforestation, improvement of the technique of carbonization and popularization of improved stoves, to the regions of Analamanga and Itasy. The two projects aim in particular at reducing anthropogenic pressure on natural forest resources by promoting the use of artificial planting and the

mobilization of gadgets allowing energy efficiency. The achievements of these two projects will be capitalized by this GEF project and complementarity will be ensured to address the dependence of the population on wood energy sources particularly from protected areas.

The cofinancing for this project will support the baseline activities and will create enabling conditions for either scaling up SLM practices and Biodiversity conservation but also to support GEF non eligible activities (energy) which will contribute to effective ecovillage approach implementation and implementation of the Land Use Plans. Therefore:

- The investment mobilized by the FFEM will be grants and will be used in the ecovillage project to finance the exploitation of hydroelectric energy in the region of Amoron'i mania. The enabling condition to generate the Hydropower is the guarantee of adequate water flow within the watershed. The GEF investment will support SLM activities as part of watershed management. The water collected downstream will be used for agriculture and generate electricity through the infrastructures to be established with the FFEM funds.
- EU investments in the RHYVIERE II project finance the exploitation of hydroelectric power and the protection of surrounding ecosystems in the SOFIA region. Its achievements will be capitalized in the ecovillage project with a view to scaling it up
- AFD's investments finance sustainable land management activities within the framework of a PADAP project in the northern and eastern parts of Madagascar. Its achievements will be capitalized in the ecovillage project with a view to scaling it up

GEF/WB/AFD's investments finance sustainable land management activities within the framework of a PADAP project in the northern and eastern parts of Madagascar. Its achievements will be capitalized in the ecovillage project with a view to scaling it up

Furthermore, the project on Protection and Soil Rehabilitation to Ameliorate Food Security (PROSOL) in Boeny Region; the Programme on Financing Agriculture and Inclusive Value Chains in South, South East and North of Madagascar (AFAFI – South and North); the Project on Amelioration of Agricultural Productivity in Vakinakarata of Madagascar and USAID support to SLM are ongoing projects addressing SLM with more than \$15 million. Even though these projects are operating in different geography there are informal discussions that the outputs of these projects will be rendered available for use by the current project. Furthermore, there is indication that possibility exist to extend activities of these projects in Central regions of Madagascar. The PPG will be used to pursue these discussions to agree on the level these projects intervention will concern project areas and that tools and methodologies developed will be rendered available to this GEF project. The cofinancing are estimated at \$ 6million. The exact figures and arrangement will be elaborated at CEO endorsement including cofinancing letter.

With regard to the development of small enterprises in Madagascar, the country has a national Madagascar Enterprise Development Project (MED) that provides training and extension services in the field, accompanying projects from concept to implementation, including assisting rural entrepreneurs with training on rural energy needs and options. This GEF7 project will benefit from the existing networks and structures developed and maintained by MED at the

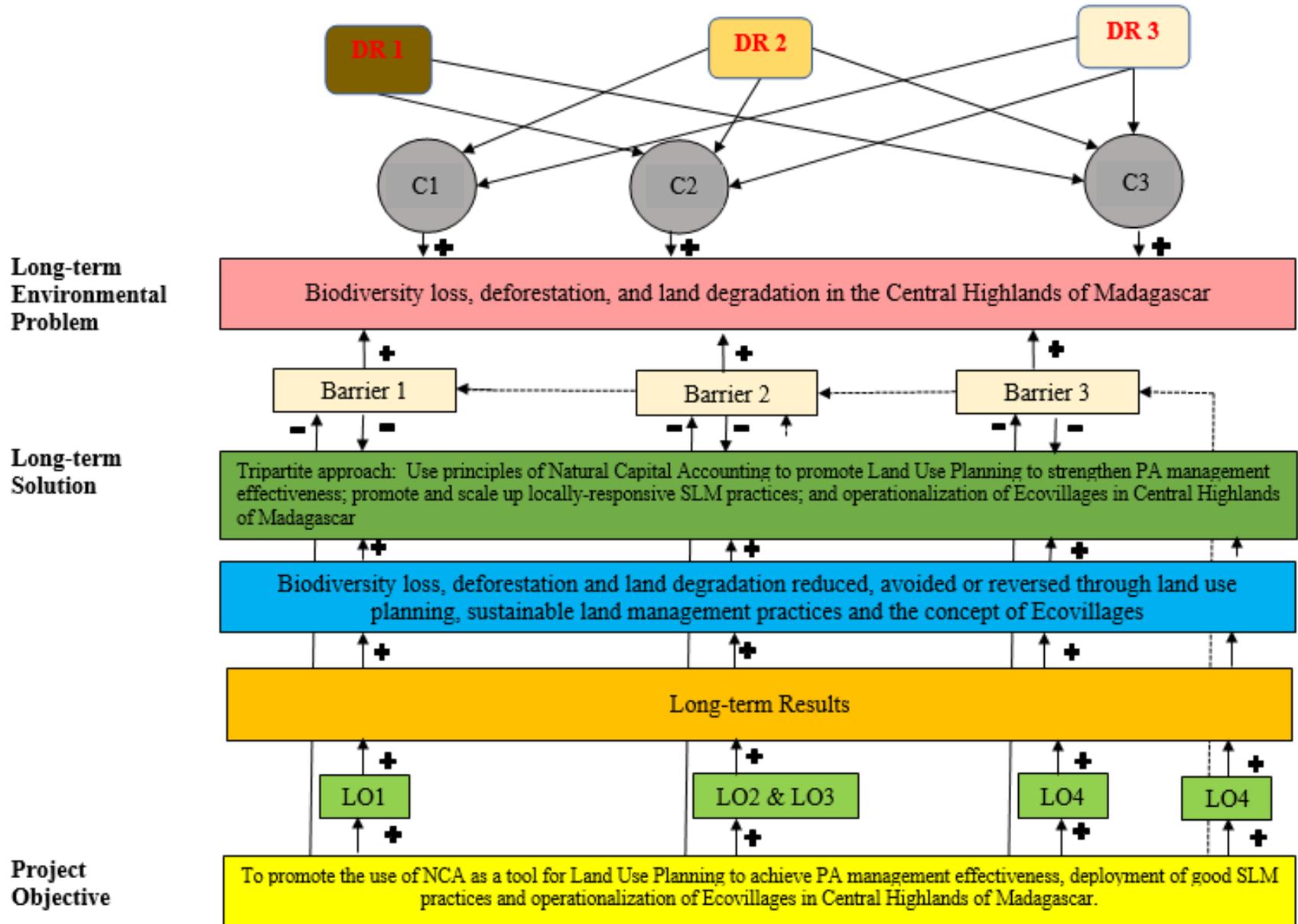
local level, especially in the two pilot districts of the this project. The established and recognized expertise of MED as a platform for supporting the development of small and medium sized enterprise development will be essential (ie, Component 3 on investments to operationalize the Eco-Villages).

The UNDAF 2015-2019 which is coming to an end and which aims to actively contribute to the promotion and fulfilment of human rights of all of the Malagasy population, particularly the most vulnerable, and the promotion of the culture of peace for better security, and to mobilize development partners to coordinate actions in favour of inclusive growth to a favourable social and economic progress. One priority of the UNDAF is to strengthen the strategic and operational management capacity of the environment sector and the incorporation of the main parameters of sustainable development into sectoral policies. The current project, while contributing to the current UNDAF objective will take the advantage of the process of new UNDAF development to ensure it contributes to the future Outcomes

### *3. Proposed alternative scenario*

The project is designed to address the challenges and barriers described above and will build on the baseline scenario to address biodiversity loss, deforestation, and land degradation in the Central Highlands of Madagascar. The project will be implemented at the national, regional, and site-level where conservation of biodiversity and sustainable land management are of concern. The outcome of Natural Capital Assessment and fundamental principles of EcoVillage development together with a model of capacity building toward community-centered conservation will inform this project in order to achieve sustainability in the targeted regions, including the ecological principles regarding appropriate technical know-how of physical systems, institutional and policy frameworks, and cultural value changes for sustainable development. The project pathway can be summarised as follow: Environmental challenges and some barriers will be addressed by participative land-use plans (LUP), which in turn will be based on natural capital assessment reports. The LUP, with its PA effective management dimension, will be implemented through the ecovillage model. This model will be developed based on the experiences from other similar initiatives implemented in different countries. The project Theory of Change diagram, which will be finetuned with all stakeholders at the PPG stage, is presented below:

**Figure 1: Diagram of the Theory of Change: Evaluation of Natural Capital to Support Land Use Planning, Improved management effectiveness of Terrestrial Protected Areas, deployment of SLM practices and Creation of Eco-Villages in Central Madagascar**



Key

DRIVERS

*Structural*

CAUSES

C1: Illegal artisanal mining

- angle: Ro unded Co ers: DR 1	DR 1.1 Climate change DR 1.2 Population growth	C2: Unsustainable agricultural practices (slash and burn)  C3: Pastoral practices (bush fires and overgrazing)
- angle: Ro unded Co ers: DR 2	<i>Direct</i>  DR 2.1 Land use change DR 2.2 Fuelwood consumption potential	
- - angle: Ro unded Co ers: DR 3	<i>Indirect</i>  DR 3.1 Poor policies DR 3.2 Rural unemployment DR 3.3 Weak institutional arrangements	

BARRIERS:

Barrier 1: Lack of national capacity to mainstream Natural Capital Assessment in sector policies

Barrier 2: Limited financial resources and capacity for Community-Based PA management and enforcement of regulations and develop land-use plans;

Barrier 3: Inadequate financing mechanism to support the creation of biodiversity-friendly income-generating activities

LONG-TERM OUTCOMES

LO 1: Madagascar development strategic framework integrate policies, regulatory, and institutional arrangement on NCA and creation of Eco-Villages

LO 2: Alternatives to enhance conservation, effectively managed PA, reduce deforestation and land degradation while enhancing the livelihoods of rural communities pilot tested

LO 3: Effective, credible, and efficient Ecovillage governance in sustainable governance and management of natural resources and environment

LO 4: [Pilot] Eco-Villages lead to reduced rates of deforestation, conserve habitat, improve landscape productivity and enhance livelihoods

LO 5: Generated knowledge and communication products are available for dissemination at different levels and adaptive management ensured

LONG-TERM RESULTS:

NCA serves as a tool for Land Use Planning to achieve PA management effectiveness, deployment of good SLM practices and operationalization of Ecovillages in Central Highlands of Madagascar

The Project Objective is to promote the use of natural capital accounting (NCA) as a tool for land-use planning to achieve protected area (PA) management effectiveness, deployment of good sustainable land management (SLM) practices and operationalization of ecovillages in the Central Highlands of Madagascar.

The objective will be delivered through the following three components:

#### **Component 1: Strengthening policy and institutional frameworks for Natural Capital Assessment (NCA).**

In this component, UNEP through Ecosystems Services Economics Unit, will support Madagascar in mainstreaming ecosystem services values into national economic and development planning and policy choices. This will be achieved through providing technical advice, building the capacity of stakeholders to generate scientifically credible information on how ecosystems and the services they provide related to human well-being, and the development of tools and methodologies for ecosystem services economic. The outcome of this component will be alternatives to enhance conservation, reduce deforestation and land degradation while enhancing livelihoods of rural communities pilot tested and 4 outputs are envisaged: (i) Training and necessary tools on NCA and Accounting are provided to national and regional experts, (ii) Capacity of line ministries (Ministry of Agriculture, Ministry of Energy, Ministry of Rural Development, Ministry of Finance) strengthened for integration of NCA, biodiversity conservation in sectoral development strategies and policies including LUP in the Central Highlands; (iii) Two (2) regional NCA valuations reports highlighting sectoral components are produced.

To reap the benefits of NCA for sustainable development and harness its socio-economic and environmental potential at micro-level, capacity development and adequate tools are key requirement. Activities will involve desktop review to identify key lessons learned from past NCA experiences around the world. Based on this review, activities will focus on developing national capacity to enable NCA to be carried out in the Central Highlands of Madagascar. Operating at the national level, efforts will be made to ensure that NCA is institutionalised into the policy and institutional frameworks and that NCA is ultimately reflected in the nation's accounting system. Training-of-trainers will be carried out in order that extension teams can be mobilized to the target Regions and NCA evaluations can be affected.

#### **Component 2: Enabling Policy (Land Use Plans) capacity building and tools in support of management of natural resources and biodiversity conservation in the Central Highlands.**

The Natural Capital Assessment reports generated from component 1, with key stakeholders capacitated to conduct and use Natural Capital Assets, the project will embark in the participative Land Use Plans development. From this process, the expected change will be "Alternatives to enhance conservation, effectively managed PA, reduce deforestation and land degradation while enhancing livelihoods of rural communities pilot tested (Outcome 2.1). To achieve this outcome the following outputs envisaged (i) Integrated Land Use Plans are developed using the NCA results from component 1 and their implementation are piloted through landscape approach and ecovillage model (developed in Component 3) focusing on SLM and biodiversity conservation activities on at least 250,000 ha in 2 regions of the Central Highlands; ii) Two PAs are effectively managed including through ecovillage model to conserve Habitat of *Mantella cowani* (see Annex G for more information on this species) in Central Highlands. The second outcome will be Effective, credible, and efficient Ecovillage governance in the

sustainable and management of natural resources and environment. The output related to this outcome is “Support provided to Ecovillages for community – centered conservation in CH through the identified 5 Principles of post 2020 Global Biodiversity Framework and taken into consideration the NCA and experiences from other past and ongoing initiatives including from Senegal”. The application of the 5 principles to support community-centred conservation (See Annex H), will help to build the capacity of the communities and the Ecovillage structures to fully engage in biodiversity conservation and develop of stewardship of environment protection in the context of sustainability which will be the backbone of the Ecovillage.

At the outset, analyses will be carried out to identify the current land and water use regimes at the target sites, as well as the state of biodiversity and the socio-economic, with a view to determining the key project stakeholders and the actual conservation and land-use requirements on-site. An assessment of climate change vulnerability will also be included in the assessments at the target sites. Developing land-use plans in component 2 will enable the strategic establishment of Eco-villages in places in component 3 that hold great potential to contribute to socio-economic development and the biodiversity conservation. In addition, land use plans will also ensure that social and environmental safeguards are not breached in the establishment of Eco-Villages. Activities will include multiple stakeholders and interest groups, including community representatives, traditional authorities, CSOs, and government representatives. Multi-stakeholder, ad-hoc governance structures will be incorporated in the design of the Eco-Villages. Selection criteria for the location of the Ecovillages will include their potential for land restoration to support livelihood, as well as the potential for biodiversity-friendly supply chains to reduce pressure on biodiversity. The consideration of land restoration potential as criteria for Ecovillage will also be guided by the consideration landscape approach (GEF 7 LD 1-4 objective). As the Central Highlands is a mountainous area, Integrated watershed management, including wetlands, there is great potential for SLM interventions which can improve hydrological functions and services for agroecosystem productivity, particularly for paddy rice production. This integrated watershed management will give due consideration to multi-stakeholder landscape planning involving both public and private sectors to inform decision-making through Ecovillages structures to manage ecosystem services. The landscape approach will also be an opportunity of improving agricultural land management near protected areas, including through empowerment of local communities particularly women as part of the 5 principles of community-centered conservation described below.

It is noted that there is a funding gap related to investment related to restoration and conservation of endangered frog *Mantella cowoni* habitat, distributed in the NPA area (northern part See Map Annex A – 3). The preliminary studies leading to the transfer process have been funded, but support is needed to implement actions for the sustainable management of the habitat. The FAPBM does not finance COFAV since Conservation International (CI) is a founding organization of FAPBM and the PAs managed by CI are not currently eligible for funding from FAPBM. The project will support the effective management of the PAs to conserve endemic and threatened species habitat.

New research identifies five ways governments and conservation partners can support community-centered conservation for the post-2020 Global Biodiversity Framework. These principles for action emerge from lessons learned during participation in a large community conservation research network, and the experience with conservation initiatives in Canada, South Africa, and a wide range of other countries. The 5 principles include: a) Build trust-based networks of people to collaborate for conservation; b) Promote equity and gender equality; c) Support reconciliation and redress; d) Adopt a ‘rights-based’ approach, and e) Respect and revitalize local rules for decision making. The support through outcome 2.2. will support the capacity building of the local communities through the ecovillages using the 5 above-mentioned principles.

### **Component 3: Pilot ecovillages to reduce rates of deforestation, protect habitat, improve landscape productivity (addressed by component 1) and enhanced livelihoods.**

The concept of ecological village involves generally rural agglomeration, with a perspective of self-sufficiency and based on an alternative economic model. The priority is to restore a more balanced place to people in harmony with their environment. In 1998, the United Nations officially named ecovillages as one of the 100 best practices for a sustainable lifestyle. Operationally, different practices are integrated into an ecovillage. For example permaculture, agroforestry, the construction of ecological houses, the use of renewable energy, the recovery of household waste, etc., collective decision-making. In short, in an ecovillage, the ecosystem balance is restored in order to couple the biodiversity conservation approach with the socio-economic development of the local population. By considering only the African continent, examples of countries have developed this concept of the ecovillage, and that the experiences have been evaluated and concluded successfully both on the environmental and economic dimensions. The experiences include:

- The GENSEN Ecovillage in Senegal created in 2001 and brings together 45 ecovillages.
- The ODI, the first Nigerian ecovillage, created within the framework of the GREEN CITY PROGRAM. The ECOVILLAGE of TSARATANANA, in Madagascar, located in the peripheral zone of the capital and which was established in 2007.

In addition from the experiences in the above-mentioned initiatives which will assess and evaluate in the context of Madagascar Central Highlands, key lessons learned from the Global Ecovillages Network (GEN) conference in 1998 namely: (i) understanding of sustainable communities - ecovillages; (ii) the realization that in order to be successful, ecovillages must not become insular, exclusive, or sheltered but must interact with and integrate wholeheartedly with the surrounding culture; (iii) the affirmation that ecovillages, and sustainable communities in general, must be the “necessary yes,” a positive solution to mounting global problems. The outcome of the NCA reports will help to tailor these lessons and put them in the context of the project

The choice of ecovillages location will be guided by two major criteria: (i) villages located near Protected Areas to reduce illegal exploitation of forest and protect biodiversity and (ii) existence of a watershed to be sustainably managed where SLM interventions can generate multiple benefits (sustainable food production, increase fertility, reduced run-off etc). Based on the above criteria, 16 Ecovillages will be created as follow:

- 10 Ecovillages (two in each) in 5 municipalities (Sahatona, Camp Robin, Vohiposa, Fiadanana, Ambatosoa) in the Sahatona watershed, Haute Matsiatra region where GRET has been working since 2014. The watershed is at the border of the high biodiversity COFFAV corridor
- 4 Ecovillages (two in each) in the 2 municipalities of Ivato and Ivony; Amoron’l Mania region, where deforestation (reduction of biodiversity) is a serious challenge.
- Two (2) Ecovillages in the municipality of Ambatofinandrahana , Amoron’l Mania) is located near the protected area of the Itremo mountain with the Tapia forest.

The map of the location is provided in Fig 1 below.

The establishment of ecovillages in these areas will allow environmental and socio-economic benefits for the local population.

The component outcome will be Ecovillages lead to reduced rates of deforestation, conserve habitat, improve landscape productivity and enhance livelihoods and there will be 3 outputs: (i) Criteria, technical guidelines, approach and local process for the creation of Ecovillages are defined with due consideration of experiences elsewhere (e.g.Senegal) and internalized by key stakeholders in the 2 Central Highlands regions; (ii) At least 16 Ecovillages are created and their governance structures developed in Central Highlands, taken into consideration the global experience on Ecovillages including from Senegal; the NCA reports, Land Use Plans, SLM and biodiversity conservation priorities actions; and (iii) A network of 16 Ecovillages in Central Highlands is used and monitored as local investment model for reducing deforestation, endemic species habitat conservation, improving landscape productivity and sustaining livelihoods.

Activities under this Component will focus on supporting the creation and implementation of Ecovillages that will largely be self-sustaining and involve community-based natural resource management for conservation. Supply chains will be identified and established to improve economic returns on crop production systems that currently threatened sustainable land management. Through a suite of interventions, the project will assist the Government of Madagascar with the operationalization of Ecovillages as a means of improving livelihoods, sustainable production, and consumption without compromising environmental integrity. These interventions will include: (i) community-based conservation actions supported through (a) contribution to the conservation of the integrity of Corridor Ambositra Vondrozo (COFAV) New Protected Area (290,000 Ha with 1/10 [more than 23,000 ha] being in the project area) to support community-based Sustainable Land and Forest Management activities covering; and (b) Contribution to the conservation of the integrity of Itremo New Protected Area (24,788 ha) through investment to conserve the *Mantella cowani* endemic species habitat to support community-based Sustainable Land and Forest Management activities covering; (ii) creating sustainable supply chains (i.e. creating nurseries for medicinal plant or essential oil production); and (iii) scaling-up of best practices on sustainable land management (agroforestry, natural regeneration, etc). The project will assist the Government of Madagascar to identify and design innovative financing mechanisms and these mechanisms will be mobilized to support community endeavors in biodiversity-friendly income-generating activities. Activities will focus on information dissemination and training on ecosystem conservation and restoration and advice on better agro-ecological techniques. Following the implementation of the Ecovillage Model, the project will look for a certification scheme that suits best the objective of the project. The implementation of the Ecovillage will also take into consideration of private sector in various aspects of enterprise and wealth creation through green business as an important aspect of the private sector engagement. Some activities identified in the Private sector engagement section (4. Private sector engagement ) will be implemented through the ecovillage models learning from the experiences from other countries and initiatives.

#### **Component 4: Communication, Knowledge Management and project monitoring and Evaluation.**

Knowledge transfer to farmers and other stakeholders will come as a result of proven experiences from other projects and initiatives and from project's outputs, which build upon a multi-layered train-the-trainer structure that benefits local CSOs, landscape stakeholders, producer organizations and individual producers. While technical assistance enables change towards mainstreaming biodiversity and SLM, more sustainable agricultural and forestry practices, the project will dedicate time and resources to strengthen CSOs on services delivered to local communities. CSO strengthening will provide continuity well beyond the lifetime of the project and allow CSOs to grow their impact within their field of expertise. Modules developed by the project will be handed over to CSOs to widen the reach of these activities, as well as shared within fora and among policymakers for potential replication. The same approach to CSO will be used for the private sector but tailored to their needs, objectives, and support to local community livelihood. A project website will be created and linked to the Ministry of Environment and Sustainable Development communications tools, which will serve as a repository of project documents in which evidence, reports, and communication materials will be stored. The Outcome expected will be the generated knowledge and communication products are available for dissemination at different levels and adaptive management ensured. Three (3) outputs will be delivered. These include: (i) Communication and knowledge products are generated by the project and disseminated at local, national and regional levels to create awareness for NCA, Biodiversity conservation, and SLM; (ii)

Madagascar key actors including those involved in environmental accountability and natural resources management are actively engaged ; (iii) As a result of experience gained, regulatory framework including governance structures, sensitization, and awareness-raising tools on ecovillages are developed and training modules developed and administered on Ecovillages concept, approaches, and potential for generating multiple environmental benefits

and (iv) Project implementation is adequately monitored, and relevant evaluations are conducted.

#### 1 a.4) Alignment with GEF focal area and/or Impact Program strategies

This project will address the management effectiveness of Protected Areas in the regions, sectoral drivers of biodiversity loss, land degradation, and land-use change that threatens habitats as well as species. With a focus on supporting effective management of 2 PAs hosting endemic species and capacity will be built to support community-based conservation. The project address also natural capital assessment to establish Eco-Villages, interventions will embrace a landscape approach to integrate elements that will promote the socio-economic wellbeing of the population while promoting biodiversity conservation and protection of productive landscapes, as well as promoting eco-friendly production systems. As the project is bringing a new approach of community natural resources management engagement through the ecovillages, the project will promote the participation and capacity building of local communities, especially women, in the design, implementation, and management of protected area projects through the established framework of Ecovillage as a model of Community Conserved Areas. Through Ecovillages, the project will also promote as appropriate the protected area co-management between government and local communities. This integrated approach at the landscape level aligns the project with i) the GEF Biodiversity Focal Area BD – 2-7: Address direct drivers to protect habitats and species and Improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate; ii) BD-1-3: Mainstream biodiversity across sectors as well as landscapes and seascapes through Natural Capital Assessment and Accounting. The Project is also aligned with the GEF 7 Landscape Degradation Focal Areas LD-1-4: Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape. The project will assist the GoM to manage Natural Capital Assessment and Accounting to deliver on improving policies for biodiversity management in productive landscapes and for sustainable agriculture, as well as integrating biodiversity into land-use planning.

#### 1a.5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

Without project interventions, the landscape in the Central Highlands would continue to be degraded due to the inefficient and destructive land management practices and biodiversity integrity would be compromised both in the PAs as no funding is available for conservation of the habitat of the endemic species but also the adjoining PA landscape and the corridors and areas of conservation value that are not currently afforded national protection. It is highly likely that degradation and fragmentation of the landscape would not only continue but would worsen as the human population grows. There will be insufficient investment in addressing the downstream impact of human activities in the Central Highlands and coordination between sectoral Ministries and agencies would remain limited and unaligned.

With the GEF investment: GEF increment will help to support the effective management of PA and community centred capacity building for conservation by complementing current FAPBM investment in Itremo PA and will focus on activities not supported by the foundation. These will include:

- The conservation of the habitat of *Mantella cowani*, since the NPA of ITREMO is also an area of distribution of this endangered species
- Support for income-generating activities - IGAs (Sericulture, Fish farming, Agroforestry, Rice growing and Poultry farming) for neighboring communities as an incentive to support conservation efforts of the PA and within the conservation of the natural resources of ecovillage context.

In COFAV corridor, NPA, the GEF increment will allow to:

- Bridging the funding gap related to investment on restoration and conservation of endangered frog *Mantella cowani* habitat, distributed in the NPA area (northern part) and in the neighbouring municipality (Antoetra municipality). The preliminary studies leading to the transfer process have been funded, but support is needed to implement actions for the sustainable management of the habitat. The FAPBM does not finance COFAV since Conservation International (CI) is a founding organization of FAPBM and the PAs managed by CI are not currently eligible for funding from FAPBM.

The table below provide GEF alternative against the baseline. A comprehensive and complete GEF increment table will be provided at CEO Endorsement stage.

Baseline practices	Alternatives to be put in place by the project	Expected Project impacts on the landscape
<p>Persistent degradation of land resources and associated ecosystem services, resulting in negative impacts on (i) the country's potential for economic growth; (ii) poverty and vulnerability of rural people; (iii) social costs; (iv) ecosystem functions and services; (v) biodiversity.</p> <p>The demand for wood and charcoal will continue to grow as the human population grows in Madagascar, leading to increasing deforestation to meet energy needs.</p> <p>Poor regulatory and enabling envi</p>	<ul style="list-style-type: none"> <li>- Capacity development at: a) <u>local level</u> for sustainable, transformative action, and b) at <u>government level</u> to support the mainstreaming of natural capital in national accounting systems, leading to participatory management of resources</li> <li>- Development of sustainable value chains that support the strategic goals of sustainable natural resources management and improved national economy.</li> <li>- Alternative livelihoods of target communities are developed that are biodiversity-friendly and reduce the negative impacts on the landscape.</li> <li>- Capacity of local authorities and enforcement agencies is strengthened for improved landscape management (including</li> </ul>	<ul style="list-style-type: none"> <li>- The value of the ecosystem in 2 regions of the Central Highland is well captured in the local integrated land use planning and in the development planning</li> <li>- The two regions landscape is sustainably used and the difference land uses are conducted in integrated manner</li> <li>- The integrity of the Protected Areas in the two regions is ensured through i</li> </ul>

poor regulatory and enabling environment for Sustainable Land Management and adoption of renewable energy options to meet the goals of sustainable natural resources management will lead to continued biodiversity loss and degraded productive landscapes.

Continued lack of coordination and capacity among agencies to manage and mainstream biodiversity conservation into sustainable land management and plans in the Central Highlands leading to duplication of effort, inefficiency, and limited positive outcomes.

The negative health consequences of the use of inefficient cook stoves will continue to impact on the health of a majority of the Malaga sy households.

Due to a lack of available alternatives, communities continue to use fuel-inefficient and unhealthy cooking facilities, with continued negative impact on human health and forest resources.

Inadequate funding for community/farmer organisations to lead transformational land use changes.

control of bushfires and wood harvesting).

- Productive activities such as agriculture and forestry are better regulated and monitored, thereby reducing threats to the surrounding forests, biodiversity and protected areas.

- Dialogue and negotiations are created between the private sector and communities to develop and produce biodiversity friendly products - The project will support the establishment of cross-sectoral, multi-stakeholder coordination mechanisms for strengthening SLM, BD management, which will lead to greater economies of scale and improve cost-effectiveness of interventions.

- The project will assist the GoM to explore innovative financial mechanisms to assist communities to establish EcoVillages as a means to improve natural resource management in the Central Highlands.

Implementation of PA management, SLM, SFM and alternative livelihood options

Key stakeholders in the 2 regions are aware of their environment potential, challenges and are equipped to address these in a more sustainable manner

- At least 16 villages of the 2 regions become a more balanced place to people in harmony with their environment as a result of the implementation of EcoVillage models

## 6) Global environmental benefits (GEFTF)

The Central Highlands of Madagascar are experiencing habitat loss and fragmentation with the result that all species of wild fauna and flora are in need of improved management. As a recognized global Biodiversity Hotspot (Conservation International website)[1] and highlighted as a critical region by the World Wildlife Fund ("Madagascar and the West of the Indian Ocean"), with elevated levels of endemism, Madagascar's unique flora and fauna are a high priority for conservation of biodiversity deemed to be of global importance. The Global Environmental Benefits that will be generated from project implementation include the sustainable management of natural resources and critical habitats in an integrated manner providing development and environmental benefits. The project will contribute to improved management of 500,000 hectares of land (precise figures will be determined during PPG) and the generation of ecosystem services such as watershed protection and restoration of degraded soils.

The GEF investment will help to enhance the conservation of around 50,000 ha of valuable Protected Areas (PA) and supporting Community centred conservation thereby contributing to generate BD GEB . These include:

- Itremo Massif NPA New Protected Area (24,788 ha). The PA is one of the particular sites in landscape (quartzite reef) and in biodiversity (80% of endemism in Madagascar). The site host Tapia vegetation, which is unique in the world, ensuring the survival of wild silkworms which are also endemic to Madagascar. The site also hosts some individuals of Propithecus lemurs which are located inside the remaining wet forests mainly located in the valleys. There are also several terrestrial orchid species in the environment, two palm species including *Dypsis ambositrae* which is a local endemic palm and only found in the NPA of the Itremo Reef. Itremo contains several species of succulent plants endemic to Madagascar including the *Euphorbia* and *Aloes*.
- Contribution to the conservation of the integrity of Corridor Ambositra Vondrozo (COFAV) New Protected Area (290,000 Ha with 1/10 [more than 23,000 ha] in the project area. The Corridor has been identified in many conservation priorities setting analyses as being of exceptional importance for the protection of global biodiversity. Over 800 species of plants and 300 species of animals have been identified in these forests, including 17 species of lemur and two highly endangered species of bamboo lemur (*Haplemur aureus* and *Prolemur simus*). Four species in the corridor are considered critically endangered based on the 2008 IUCN red list (*Prolemur simus*, *Neodrepanis hypoxantha*, *Paratilapia vondrozo*, *Bedotia sp.* and *Vevembe*), 4 species are listed as endangered (*Eulemur cinereiceps*, *Haplemur aureus*, *Mantella bernhardi*, and *Ptychochromoides vondrozo*) and many more are considered vulnerable to extinction..
- Protection *Mantella cowani* (Red frog) one of the protected species habitat in collaboration with local community through Ecovillage and community - based capacity building model with special consideration to women.
- Investment in developing Natural Capital Assessment Reports in two regions of Madagascar (Matsiatra and Amoron'i Mania), contributing to: i) the Strategic Objective A of the National Biodiversity Strategy and Action Plan; ii) mainstreaming biodiversity in main sectors by supporting sectoral natural capital assessment and accounting; and iii) GEF 7 Biodiversity Focal Area Objective 1 on Biodiversity mainstreaming in Priority Sector and Natural Capital Assessment and Accounting
- Investment in promotion utilisation of energy efficient cooking stoves in 16 Ecovillages reducing utilisation of wood and pressure on biodiversity and Protected Areas, this will contribute to Strategic Objective B of the National Biodiversity Strategy and Action Plan
- Training and awareness raising on biodiversity conservation and sustainable use contributing to Strategic Objective C of the National Biodiversity Strategy and Action Plan.

The GEB for the Land Degradation Focal Area will include:

- 250,000 ha of different landscape (agricultural landscape; forest landscape, watershed; degraded areas to be restored) in the 2 regions
- 5,000 ha (included in the above 250,000 ha in different landscape) community based Sustainable Land and Forest Management activities in COFAV landscape
- 2,000 ha (included in the above 250,000 ha in different landscape) community based Sustainable Land and Forest Management activities in Itremo landscape
- Establishment of Local Forest Fire Control Committee to fight against forest fire originating from savanna grasslands
- Support to agroecological practices to reduce use of fire for farmlands clearing in the vicinity of Protected Areas to avoid fire escape
- Investment in promoting integrated landscape approach using agroecology as entry point to implement Ecovillage model in 16 villages. The agroecology approach will focus on promoting agricultural practices which will boost productivity including cover crops, mulching etc thereby reducing: (a) deforestation through extension of agricultural lands and (b) encroachment of Protected Areas. These will contribute to objective C of the National Biodiversity Strategy and Action Plan
- Investment in promoting Alternative Revenue Generation for local communities in 16 Ecovillages which will include promotion of Non Timber Forest Resources production including bee keeping but mainly to support women agricultural production and livestock production in 16 Ecovillages through: i) facilitating access to land through lending of private and public lands which will end up with renting or buying of the lands; (ii) training on agricultural and livestock production; (iii) implementation of the agricultural and livestock production skills through provision of initial capital; (iv) training on small scale agricultural business management to empower women to understand the market and manage their assets.

The pilot EcoVillages to be established (precise sites and size will be determined during PPG based on criteria to be agreed upon after the review of Ecovillages experiences at global level) will be selected based on their proximity to areas of high conservation value and where the threats to biodiversity are elevated due to increasing human population pressures on the natural resources (for example in buffer zones surrounding key Protected Areas in the targeted Regions). Species of global importance include the Manambe Palm *Dyopsis decipiens*, found only in the Central Highlands of Madagascar and threatened by habitat loss and the increasing frequency of fires. It is classified as Vulnerable VU by the IUCN Red List and occurs in the Ambohitantely Reserve in Analamanga Region, which comprises the last remaining fragment of forest that formerly covered the Central Highlands. Endemic nocturnal lemur species (*Avahi laniger*, *Cheirogaleus major*, *Lepilemur mustelinus*, *Microcebus rufus*) and diurnal species (*Eulemur rubriventer*, *E. fulvus rufus*, *E. f. fulvus*, *Propithecus diadema edwardsi*, *Haplemus griseus griseus*, *Varecia variegata variegata*) all occur in the Fandriana-Marolambo forest corridor, a vast 250,000 hectare tract of unprotected forest north of Ranomafana National Park. This is just a small number of the many species of global environmental concern that would benefit from the project, which could number in the several hundreds.

#### 7) Innovation, sustainability and potential for scaling up

*Innovation:* The project will make inputs to the creation and operationalization of pilot EcoVillages, which is a new concept in Madagascar that requires capacity building to understand and implement, improved land-use planning to design and manage, and investments to ensure sustainable and functional EcoVillages. The promotion of EcoVillages to generate global environmental benefits and improve community livelihoods presents an innovative mechanism in Madagascar to reduce habitat loss, improve biodiversity conservation, enhance sustainable forest management and ensure sustainable land management.

The co-stewardship of environmental goods by affected stakeholders, which is a core concept of EcoVillages, is an innovative approach in the Central Highlands, and will provide an innovative, co-management decision-making platform for community members. Developing alternative, biodiversity-friendly, income-generating activities, whilst not innovative *sensu stricto*, is an innovative approach in this project as communities will identify non-traditional means of income-generation and explore new markets and products.

*Sustainability:* The sustainability of this project relies on the long-term political and financial commitment of the Government of Madagascar to address land degradation and biodiversity loss in the Central Highlands. The project will assist the GoM to explore sustainable financing mechanisms, including identification of innovative partnerships with the private sector, which will result in interventions that will sustain themselves and the operationalization of EcoVillages. The project has been designed to ensure that communities are included as direct partners, beneficiaries and primary stakeholders in the pilot EcoVillages, which will provide the necessary motivation for effective community engagement and conservation, thus ensuring sustainability. As the pilot EcoVillages will be established and operationalized in tandem with the GOM's development policy priorities, and through training and capacity enhancement activities to build national skills on natural capital accounting, the project will contribute to national development goals and ensure that the project outcomes are sustainable beyond the life of the project. Furthermore the project sustainability will be ensure through:

- Integration: This will refer to the consideration of NCA in sectors policies particular in national financial accountry to addres the real contribution of forestry and valorisation of biodiversity in the national development estimate and prediction
- institutional and governmental arrangements, including multi-stakeholders processes, norms and values: the integration of natural assesst will require revision and amendment certain fiscal legialation and the devolution of the governance of natural resources to local authorities.
- Monitoring, evaluation and learning processes: the monitoring, evaluation and learning process of national pocies will increase the sustainability of the project results if those are included as indicators to measures wealth and progress toward achieveing nationaly set goals.

During the PPG comprehensive analysis will be conducted and the outcomes factored in the project sustainability measures.

*Scaling up:* The creation of EcoVillages in the Central Highlands of Madagascar is a new approach to addressing the devastating land degradation taking place to support the daily lives of an ever-increasing human population. Many other Regions in Madagascar face the same environmental and socio-economic challenges that have led to loss of biodiversity, reduction in soil fertility, and compromised quality of ecosystem services. Addressing the daily needs and improving livelihoods of communities living on degraded lands will lessen the likelihood of migration and incursion onto protected landscapes. Through the project's activities in the Central Highlands, and by developing national capacity to carry out NCAs, create EcoVillages, and to mobilise investments, the potential for scaling up at other localities and across a variety of landscapes is highly probable. The PPG phase will thourouthly assess the sustainability and associated risk to ecovillave development.

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<https://www.conservation.org/priorities/biodiversity-hotspots>. The definition of a biodiversity hotspot is that the region must meet two criteria: (i) It must have **at least 1,500 vascular plants as endemics** (ie a **high** percentage of plant life found nowhere else on the planet, ie the region is **irreplaceable**) and (ii) it must have **30% or less of ts original natural vegetation**, ie it must be threatened.

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[1] Government of Madagascar. 2006. National Adaptation Plan of Action (NAPA), 2006, 75 p.

[2] UNEP (2008), "Africa: Atlas of Our Changing Environment." Division of Early Warning and Assessment (DEWA), United Nations Environment Programme (UNEP).

[3] Climate System Analysis Group of the University of Cape Town (CSAG)

[4] Tadross, M., L. Randriamarolaza, Z. Rabefitia and Zheng Ki Yip. 2008. Climate change in Madagascar ; recent, past and future. South Africa : Climate Systems Analysis Group (CSAG) of University of Cape Town and Madagascar : National Meteorological Office, 18 p.

[5] Tadross, M., L. Randriamarolaza, Z. Rabefitia and Zheng Ki Yip. 2008. Climate change in Madagascar ; recent, past and future. South Africa : Climate Systems Analysis Group (CSAG) of University of Cape Town and Madagascar : National Meteorological Office, 18 p.

[6] Charles J.R. Williams, Dominic R. Kniveton, and R. Layberry 2011. Extreme Rainfall Events over Southern Africa. C.J.R. Williams, D.R. Kniveton (eds.), African Climate and Climate Change, Advances in Global Change Research 43, DOI 10.1007/978-90-481-3842-5\_4

[7] *Catalogue of the Vascular Plants of Madagascar*. <http://www.efloras.org/madagascar>

| Yeasmin et al. 2015. Bamboo: an overview on its genetic diversity and characterization. **3 Biotech**. 5:1: 1–11.

[9] <https://www.iucnredlist.org/species/9016/12950950#habitat-ecology>

[11] World Bank. GDP per capita (current US\$). [Online](#).

[12] [World Bank Indicators](#)

[13] Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. Source: [World Bank](#).

[14] UNDP, Human Development Report 2013, <http://hdr.undp.org/en/composite/HDI>

[15] [World Bank Country Statistics – Madagascar](#). Almost 80% of the population lives on less than *\$1.90 per day*, with one child in two under 5 years suffering from stunting, and Madagascar is the fifth largest country in the world with the highest number of unschooled.

[16] [World Population Review](#)

[17] [World Population Review](#)

[18] [CIA World Factbook](#)

[19] New Agriculturist: Country profile – Madagascar. [Here](#).

[20] Madagascar Energy Situation, [here](#).

[21] Fuelwood is provided from agricultural plantations, agroforestry, trees outside forest areas, tree plantations, secondary forest management, and primary forest management.

[22] “Forest Transition in Madagascar’s Highlands: Initial Evidence and Implications” by William J. McConnell, Michigan State University in Land · November 2015

[23] Tadross, M., L. Randriamarolaza, Z. Rabefitia and Zheng Ki Yip. 2008. Climate change in Madagascar ; recent, past and future. South Africa : Climate Systems Analysis Group (CSAG) of University of Cape Town and Madagascar : National Meteorological Office, 18 p.

[24] Charles J.R. Williams, Dominic R. Kniveton, and R. Layberry 20112. Extreme Rainfall Events over Southern Africa. C.J.R. Williams, D.R. Kniveton (eds.), African Climate and Climate Change, Advances in Global Change Research 43, DOI 10.1007/978-90-481-3842-5\_4

[25] [United Nations Energy Statistics Database](#).

[26] Praene J.P., et al. (2017). "Electricity generation from renewables in Madagascar: Opportunities and projections". Renewable and Sustainable Energy Reviews 76 (2017) 1066–1079.

[27] In 2011, 92.64% of energy production of Madagascar rely on wood energy, against 7.36% petroleum products and less than 1% of renewable energies. In areas where there are logging and wood processing plants, residents nearby use residues for cooking and heating.

[28] Rapid population growth resulted in an increase in the construction of houses bricks-made mainly based in the Analamanga region. Wood residues are among the three main fuels used with the peat and the rice ball.

[29] In large wood-processing industries, a part of the residues is used for drying of wood through a boiler.

[30] Wood residues (leaves, roots, sawdust) especially those left on the site are mixed with the manure as organic fertilizer.

[31] See: [Forest Governance and Timber Trade Flows Within, to and from Eastern and Southern African Countries](#). Madagascar Study

[32] National Environmental Policy for Sustainable Development, 2015

[33] For example, the IFAS [Vocational Training and Agricultural Productivity Improvement Programme](#) (2012-2022) - US\$ 97.38 million: to increase income for smallholder farmers through professional and vocational training, target 2.7 million rural households in 13 regions; support vulnerable groups..

[34] Improve Agricultural Productivity in Madagascar - <https://afd.dgmarket.com/tender/20443ou721>

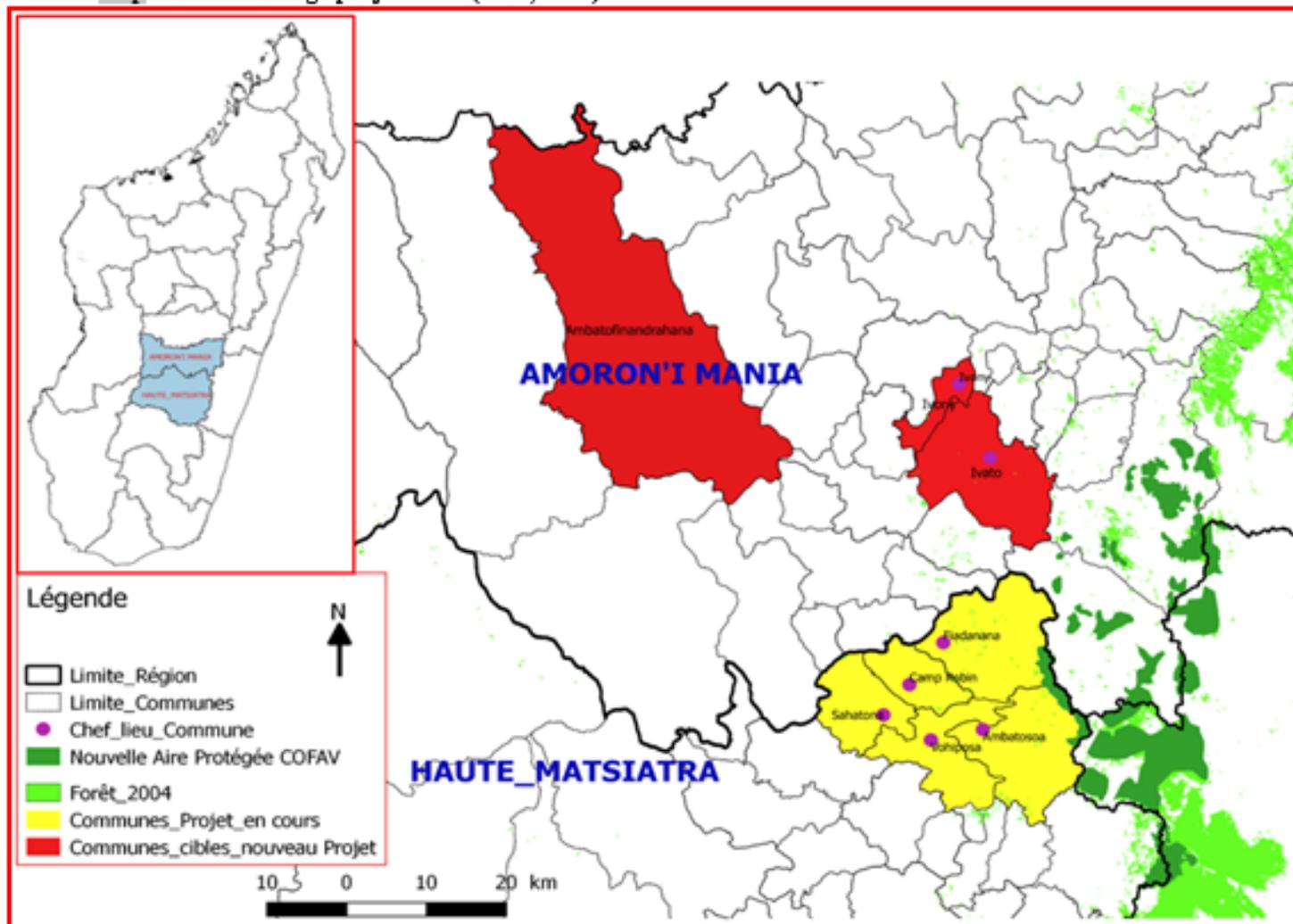
[35] [Project to Support Development in the Menabe and Melaky Regions – Phase II \(AD2M-II\) \(2015-2022\)](#): This US\$ 56.7 million IFAD-funded project is cofinanced by OPEC Fund for International Development. More on AD2M-II can be found [here](#).

[36] [Sustainable Agriculture Landscape Project, SALP \(2017-2022\)](#). – Activities anticipated under Component 2 of the project are aligned with those of SALP and its nationwide reach provides potential for collaboration and country-wide sharing of lessons learned.

**1b. Project Map and Coordinates**

Please provide geo-referenced information and map where the project interventions will take place.

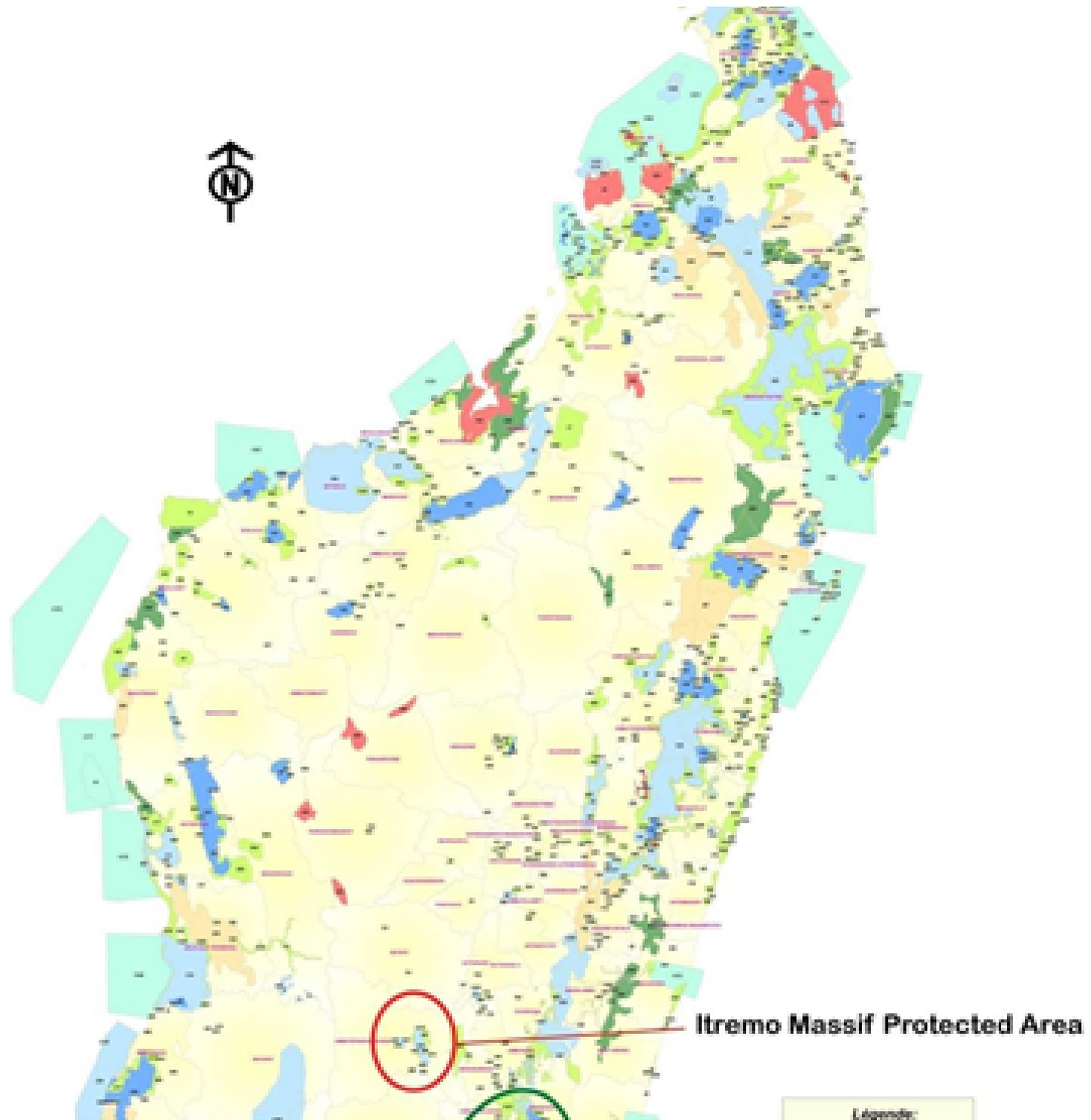
Figure 1 : Location map of the Ecovillage project sites (Gret, 2019)

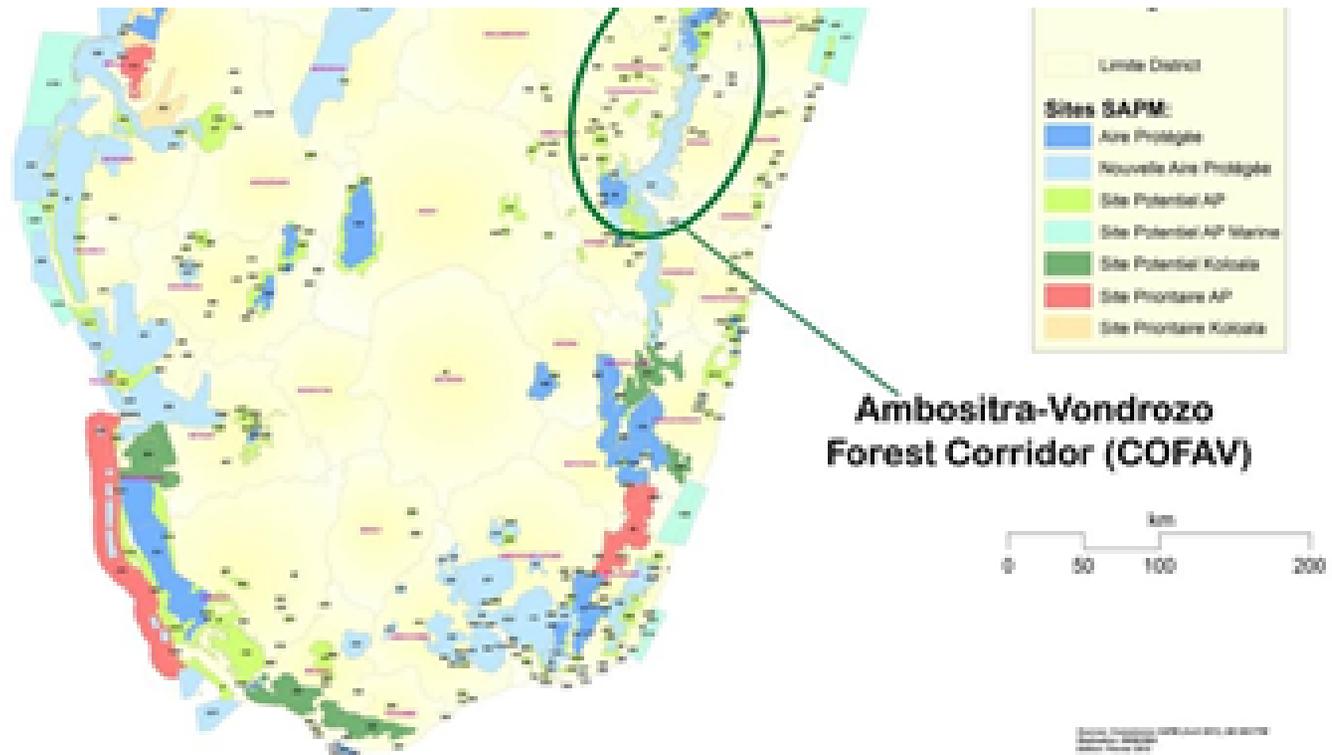


**Carte de localisation des sites potentiels du projet écovillage**

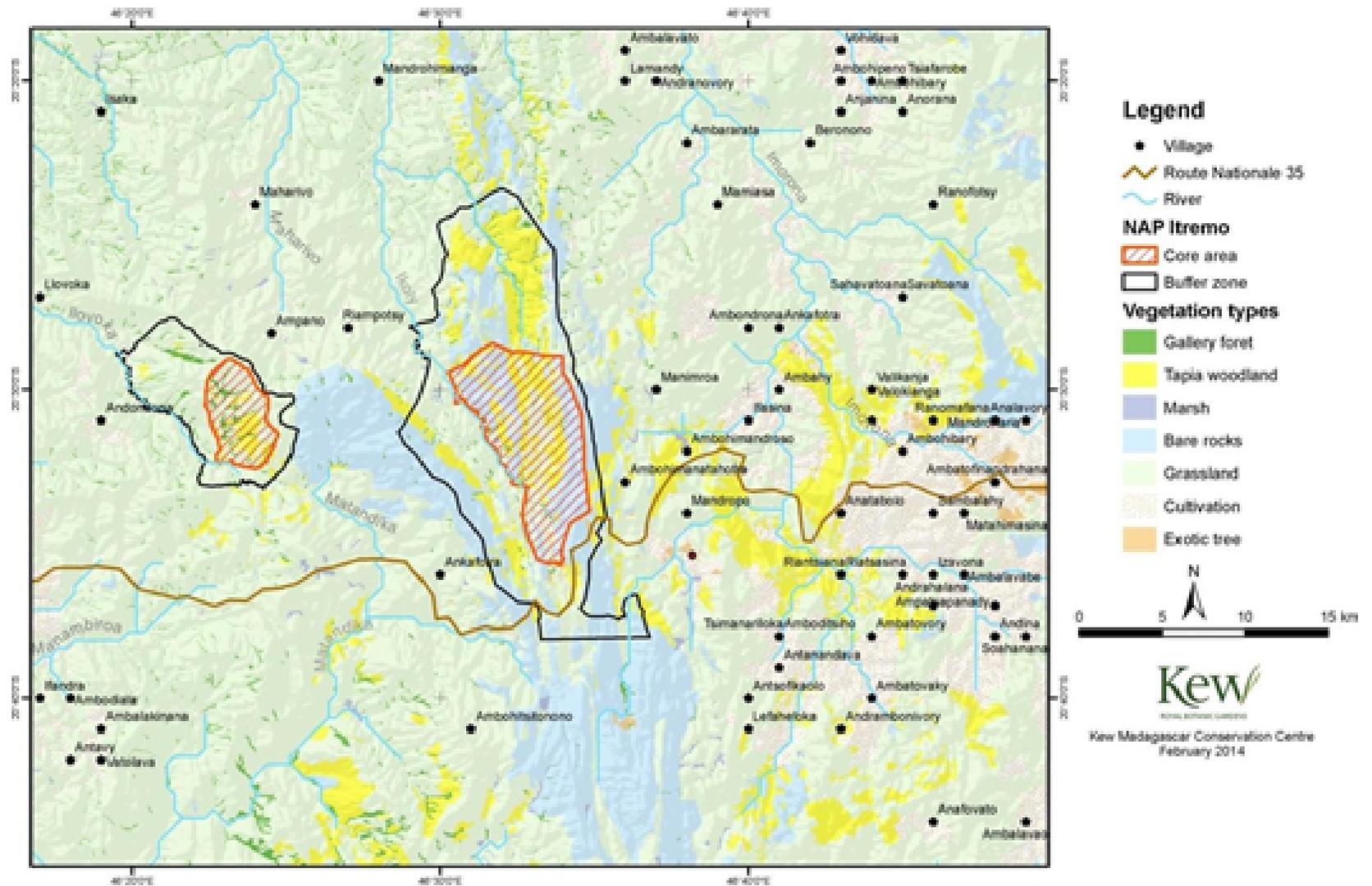
*Les sites du Système des Aires Protégées de Madagascar  
Mise à jour du 27 Avril 2011*







## Annex A-3 - Itremo Massif Protected Area



## 2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

N/A

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

A broad and large number of stakeholders have been consulted during project development, ranging from Government to site-based communities living in the Central Highlands of Madagascar. Civil society organisations are present in the communities where the project will take place.

A primary awareness-raising mission was carried out with the decentralized administrative authorities in the two intervention regions. The Regional Chiefs, the Mayors of the intervention municipalities and some representatives of the local population have been contacted. Approaches have also been carried out with NGOs which have good experience in the areas of popularization of agro-ecological techniques, community mobilization. All stakeholders expressed their willingness to collaborate in the realization of the project

The respective roles of the key stakeholders are outlined in Table 2.

**Table 2. Preliminary list of project stakeholders and their Roles in the Project**

Stakeholders	Role in the Project
Ministry of Environment and Sustainable Development (MEDD)	Coordination and implementation of GEF projects in Madagascar and will be the lead agency for development and execution of the project.
National Government Ministries and Agencies [MEH; MINAGRI; DREED; ONE; Madagascar National Parks, ADER]	Key stakeholders and partners in development, implementation and management of land use plans at Regional level. Will be: members of the Project Management Unit and involved in Thematic Technical Working Groups; members of the Project Steering Committee; key participants at the Project Inception workshop; key players at strategic landscape-level planning meetings; participants in high-level advocacy meetings; contributors to project planning, training and management in their respective sectors.
Local communities, village leaders, traditional	Key beneficiaries and will participate in decision-making, participatory as

<p>nal leaders, community committees/groups (ie, women's groups, farmer associations), private landowners</p>	<p>assessments and monitoring (eg, of land use plans), identification and development of alternative income-generating activities, capacity building and awareness-raising initiatives. Will be: consulted and involved in all project validation activities; engaged in project activities through community meetings, individual interviews, workshops, etc. Community representatives will be included in the Project Steering Committee and any thematic Technical Working Groups, including making inputs to: participatory appraisals of community and gender-specific needs; capacity building and awareness raising; feasibility studies for Community Conservation Agreements; data collection for research purposes; strategic landscape level planning meetings and localized land use planning, thematic working groups and steering committee meetings. Community leaders will be key resource in addressing conflicts that may arise and developing conflict mitigation mechanisms.</p>
<p><u>Civil Society Organisations</u>: PROSPERER, AIDES, FORMAPROD, CRAM, ANAE,<sup>[1]</sup> GRE T<sup>[2]</sup></p>	<p>Will be key participants in: public awareness-raising efforts regarding project activities, goals and objectives; community mobilisation for development activities linked to water and soil resource protection, reforestation; participatory evaluations; community support and assistance with implementation of any Community Conservation Agreements; landscape restoration workshops; landscape level planning meetings; sub-contracts for restoration activities. Will also be beneficiaries of project capacity building efforts</p>
<p>Private Sector</p>	<p>Will be key stakeholders in the development of biodiversity-friendly income-generating activities (green commodity value chain identification). Will benefit from capacity building activities, landscape restoration workshops and be key partners in design and implementation of a financial mechanism for pilot EcoVillages.</p>
<p>Local Governments, Mayors in targeted Municipalities, Village Councillors at targeted pilot EcoVillage sites</p>	<p>Will benefit from capacity building and training activities, particularly with regard to implementation of Community Conservation Agreements and co-management arrangements for improved land use planning. Will have key responsibility for public awareness and enforcement of any new regulations relating to sustainable land management and biodiversity conservation.</p>
<p>Ecosystem Services Economics Unit</p>	<p>Will support Madagascar in mainstreaming ecosystem services values into national economic and development planning and policy choices. This will be achieved through providing technical advice, building capacity of stakeholders to generate scientifically credible information on how ecosystem</p>

landholders to generate scientifically credible information on how ecosystems and the services they provide relate to human well-being, and development of tools and methodologies for ecosystem services economic

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[1] Association National d'Actions Environnementales, NGO specialized in Agroecology and fight against Land Degradation and mandated by MEDD as the executing entity for Sustainable Land Management projects in Madagascar

[2] GRET is mandated by MEDD as the executing entity for rural energy development and mobilization of water resources

### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

In rural Madagascar, women play a critical role in the use and management of land resources, shouldering a large part of the rural labour burden, meeting household demand for energy sources and water, as well as ensuring the welfare of children. Improved agricultural practices must be gender-responsive and women need to be actively engaged as agents of change within resource decision-making environments. Currently, the level of inclusion of women in important decision-making processes in Madagascar remains less than optimal and substantial barriers exist regarding women's ownership of key natural resource assets, including land. During the PPG phase, a gender and vulnerable groups analysis will be conducted and a strategy for closing the gender gaps, strengthening of women and vulnerable groups participation and capacity will be developed and will guide all project activities and ensure that women, men and vulnerable groups are active participants and actively involved in decision making regarding land use planning and the creation of EcoVillages. The project will design activities to strengthen the capacity of women's groups and will address gender gaps affecting resource use and control over natural resources, particularly addressing potential skewed gender-biased income-generating potential and ensuring a more effective targeting of initiatives that do not impact negatively on women in the community. The gender strategy will ensure an inclusive approach throughout the project, with detailed indicators and targets in the results framework to reflect balanced social and economic benefits from the project. Finally, an M&E plan will be developed that will also address gender-sensitive indicators and provide gender disaggregation of results.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes**

**closing gender gaps in access to and control over natural resources; Yes**

**improving women's participation and decision-making; and/or Yes**

**generating socio-economic benefits or services for women. Yes**

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### 4. Private sector engagement

**Will there be private sector engagement in the project?**

Yes

**Please briefly explain the rationale behind your answer.**

Based on the activities proposed under each Component, particularly Component 3 on investments, the private sector will be engaged in the project as critical partners to ensure operationalization of the Eco-Villages particularly with regard to the delivery of sustainable solutions. The project will seek partnerships with the private sector interested in investing in sustainable agriculture, largescale food production, agroforestry products, orchards and other fruit crops, as well as in the management of landscapes for tertiary economic activities, such as ecotourism and other green-commodity value chains. Further opportunities for private sector engagement will be developed in more detail during the PPG phase, when individual co-financing commitments will also be secured. However, The private sector will be mobilized in different ways :

- The formal and structured business: co-investing in rural sustainable infrastructures, creating long term balanced partnership with agriculture (sourcing of natural products, valorization of waste for compost, etc.). The grant from the GEF will create enabling environment for private investment where private sector are generally reluctant to invest due to the high risk and low profitability without subsidize.
- The informal private sector : dissemination of innovative solution at the small scale level
  
- the Small and Medium Enterprise: development of their activities through business development services (financial education, access to finance, technical support, etc.)

## 5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

*COVID 19 and Climate Resilience:* The current socioeconomic context due to the influence by the COVID 19 outbreak is an important risk to be considered for this project due to the remoteness of the project area and the poverty situation in the country affected also by a long term political crisis. According to the Secretary-General António Guterres, 31 March 2020: “Everything we do during and after this crisis must be with a strong focus on building more equal, inclusive and sustainable economies and societies that are more resilient in the face of pandemics, climate change, and the many other global challenges we face”. Like the vast majority of countries in the world, Madagascar is still experiencing the COVID-19 pandemic. The possible consequences on fragile economy and the precarious livelihoods of populations require anticipation in the choice of resilience strategies and measures to face this new global threat. Even if it disappears, the consequences of this pandemic will have a lasting impact on communities and the various production systems. The potential for future outbreaks cannot also be ruled out. In this context the project will identify relevant support to enable the country to cope with the consequences of this pandemic, in particular its implications on food security transhumant livestock farming, pressure on natural resources and different value chains. The project will therefore promote the adoption of an approach where communities in general, and women and youth (who are the majority in rural areas and who are essential in the production and processing of agricultural, forestry and pastoral products) in particular, will be central to the process of creating goods and services and generating wealth. This will ensure the improvement of the productivity of the land and its water resources, the possibility of creating jobs and wealth around specific sectors without forgetting the plants used by rural populations to fight against diseases (e.g malaria, ), through the promotion of the local pharmacopoeia, particularly the cultivation of appropriate medicinal plants which is common in Madagascar. UNEP, as the Implementing Agency of this project, will consider the project in the current dynamic of “Rebuilding the post-pandemic world, better”. This will be through the Re-examining, retool, accelerating UNEP work on: i) Green Jobs: Towards decent work in a sustainable, low-carbon world (UNEP, ILO, IOE, ITUC, 2008); ii) Global Green New Deal (2009); iii) Green Economy and iv) Sustainable Consumption and Production.

Risks	Risk Rating	Risk Mitigation Measures
<b>Technical risk:</b> Private sector not interested in investing	Moderate	Broad level consultations will continue and be undertaken involving all relevant government bodies and agencies, but also that at the tender processes for technical development of component 3 investments are done correctly. Due diligence will be exercised to ensure viable business entities and private sector are correctly identified so that the technical aspects are not compromised.
<b>Environmental risks:</b> Climate change adversely affects the production systems within the Eco-Villages forcing the disruption of the concept of EcoVillages.	Moderate	Training in biodiversity conservation and SLM will incorporate assessment of climate change risk and application of practices to mitigate and adapt to climate change, in particular promoting production system that do not entirely rain-fed. Promotion of agroforestry practices will improve land use techniques, leading to diversification of incomes thereby rendering communities and their livelihood sources more resilient and adapt to the climate change impacts. The ecovillage establishment will be

		done taken into consideration of communities and ecosystems vulnerability and resilience building particularly in face of adverse climate impacts and pandemic diseases outbreak.
<b>Political risks:</b> Changes in political circumstances and government priorities resulting in a lack of political support for the project.	Low	Broad stakeholder engagement throughout the project preparation and the continuation of this engagement during the implementation, through adherence to a stakeholder engagement plan, will ensure continued political support for the project.
<b>Social risks:</b> Communities reject the project, refuse to be engaged, and continue to use destructive agroforestry practices.	Moderate	Community members have been consulted during project development and this will continue during PPG and throughout the project implementation phase. Awareness-raising efforts and active community engagement and participatory decision-making during project design and execution will ensure that the project is community-owned and endorsed. Community leaders will be active participants in the project.
Technical and institutional capacities remain weak for implementation at all selected Regions	Moderate	Project activities have been designed to address this risk and provide capacity building and training. Component 1 is dedicated to building required capacities to ensure the operationalization of EcoVillages.
Local government commitment to national policy to streamline local decision-making fails over time	Low	Project activities are designed to build capacity at regional and district administrator level, and to develop procedures that will assist with streamlining decisions affecting implementation of biodiversity conservation and SLM strategies within local government structures. Maintaining policy dialogue with all stakeholders will help to ensure local-level commitment.
Land use and tenure conflicts, and conflicts among different interest groups (hunters, ranchers, fuel wood collectors, etc.) may exacerbate current pressures on natural assets (e.g. demand for farm land, brush fires, grazing and fuel wood collection, etc.).	High	The project will introduce conflict resolution measures as part of the community consultation mechanisms to be established for participatory management of natural and social assets. Representatives of local communities will serve in parallel as advisers on local land matters and guide the project in order to avoid land use and land tenure conflicts as a result of project implementation.
COVID 19 related risks:		

Availability of Technical Expertise and Capacity and Changes in Timelines	M	Madagascar has a long history of pandemic disease management. The country is regularly affected by plague. The country was able to establish a strong disease control mechanism and with COVID 19 that mechanism has been strengthened with the support of partners. As the project will be establishing ecovillages and conduct Natural Capital Assessment the capacity to handle disease in the project context will be assessed and considered in the design of the ecovillages models.
Stakeholder Engagement Process	Low	The stakeholders engagement is at the heart of ecovillage model development. The project will ensure that this engagement gives due consideration to women and marginalised groups in the context of COVID 19
Enabling Environment	Low	The role of decentralised administration and non-state partners (NGO, etc.) is very strong in Madagascar. The project will ensure that the natural capital assessment, the land use plans and the ecovillages establish support a more enabling environment for the project development and implementation in the context of COVID 19.
Financing	M	The ecovillages to be established will serve as a mechanism for resources mobilisation for sustainable and resilient investment
Future Risks of Similar Crises	Low	Ecovillages establishment in the context of COVID 19 will provide opportunities for establishment of long term mechanism for pandemic management as part of ecovillage health component.

For an analysis of safeguards risks, please see the 'Environmental, Social and Economic Review Note (ESERN)' uploaded into the documents section.

## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

UNEP, as the Implementation Agency, will provide overall project oversight, to ensure that GEF policies and criteria are followed, and that the project fully meets its objectives and achieves expected outcomes. UNEP will also monitor the implementation of the activities undertaken during the execution of the project and will provide the overall coordination to ensure that the project is in line with UN Environment's Medium-Term Strategy and its Program of Work (PoW). Project supervision is entrusted to the UNEP/GEF Task Manager and Fund Management Officer. UNEP will bring to bear its vast scientific and empirical experience of critical relevance to the objectives of the project. As the GEF Agency for this project, UNEP will provide a platform for a collaborative partnership between national and international organizations which will bring the best available expertise in science and knowledge from the scientific community to partners who are working at the development interface at the national level. As the Project's Executing Agency, the Ministry of Environment and Sustainable Development has delegated the DGEF with responsibility for carrying out activities on the ground, and will collaborate also with two NGOs, the Association for Environmental Actions (ANAE), which will deal with actions related to sustainable land management and the Research and Technology Exchange Group (GRET), which will carry out project activities to develop renewable energies and mobilize water resources for the EcoVillages.

The proposed project also will seek to draw lessons learned and share information with several other relevant GEF-funded projects in Madagascar, including the UNEP/GEF Project *on Conservation and improvement of ecosystem services for the Atsinanana region through agroecology*<sup>[1]</sup> and the promotion of sustainable energy production; the UNEP/GEF Project *Participatory Sustainable Land Management in the Grassland Plateaus of Western Madagascar*; the UNEP/GEF Project *on Conservation of Key Threatened, Endemic and Economically Valuable Species in Madagascar*; the UNEP/GEF project on Protected Areas and Mangrove; the UNDP-GEF project *"Enhancing the Adaptation Capacities and Resilience to Climate Change in Rural Communities in Analamanga, Atsinanana, Androy, Anosy, and Atsimo Andrefana"*, whose objective is to strengthen the capacities of vulnerable communities to cope with the additional risks posed by climate change and variability on livelihood opportunities; the AfDB-GEF project *"Enabling Climate Resilience in the Agriculture Sector in the Southwest Region of Madagascar"*, whose the objective is to secure and improve rural farmers' livelihoods through water management and health interventions in Southwest Madagascar; and the WB-GEF project *"Sustainable Agriculture Landscape Project"*, whose objective is to improve agricultural productivity and management of associated natural resources in selected landscapes.

As part of UN Country Team, UNEP, through the Project Task Manager has started engaging the UN Coordination Team in Madagascar to ensure this project and other interventions are well-captured un UNDAF reporting and participate in the global review the process to better capture the project contribution.

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[1] *"Agroecology is based on the application of ecological concepts and principles to agricultural production for the optimization of agroecosystems, adding value to local resources with minimal reliance on external inputs. It aims at maintaining or mimicking natural balances while replacing the farmer at the core of the production process. Agroecosystem management relies on traditional knowledge through participatory approaches. According to Pretty (Pretty 1995 cited in Altieri 2002), the basic principles are: (i) enhancing biomass renewal and optimizing nutrient availability and balance of nutrient flows; (ii) ensuring favorable soil conditions for plant growth (organic matter management, soil cover, improvement of biological activity in the soil); (iii) minimizing losses in solar energy, air and water; (iv) promoting genetic diversification of species in time and space; (v) adding value to favorable biological interactions. Agroecology also*

*includes social and economic principles: (i) social organization and local knowledge transmission; (ii) guarantee of decent revenue for farmers, their families. The agroecological approach is thus multidimensional and can be applied at several scales – the plot, the farm, and the territory, always keeping in mind a holistic view”. As cited in Coordination SUD, 2015. Agroecological innovations in the context of climate change in Africa.*

## 7. Consistency with National Priorities

### Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

**If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc**

The project is consistent with and contributes to the implementation of a number of national development strategies and plans focused on conservation and sustainable development in Madagascar, including:

- the NBSAP that aims to mainstream PAs into the overall environmental landscape in the country. All the planned investments within the framework of this project stem from the guiding principles of the national strategy and action plans for biodiversity 2015 - 2025, p 66, in particular in points: (i) 5. Integrating the value of biodiversity and its ecosystem services into all national planning sectors and processes is an essential element to guarantee ecologically and economically sustainable development; (ii) 7- Ensure sustainable financing mechanisms to meet national commitments in biodiversity conservation and natural resource management; and (iii) 8- See all opportunities to improve the living conditions of the inhabitants through the sustainable use of biodiversity and ecosystem services
- The National Policy and Commitment for the Neutrality of Land Degradation, which outlines the process and provides guidelines for voluntary commitments on neutral land degradation, including activities on landscape restoration, biodiversity conservation and sustainable land management;
- the National Strategy for the Fight Against Climate Change, which addresses building community resilience to the impacts of climate change, supporting adaptation interventions, dissemination of technical and agro-ecological information, as well as REDD+ climate change mitigation efforts;
- the National Environmental Policy, which identifies as national priorities, and guides Madagascar's efforts to combat, land degradation, desertification, drought, soil erosion, and loss of vegetative cover;
- the National Environmental Policy for Sustainable Development (2015), that seeks to: i) ensure that Madagascar remains a biodiversity hotspot; ii) ensure sustainable management of terrestrial, aquatic, marine and coastal natural resources, habitats and ecosystems; iii) promote a healthy living environment for the population; iv) increase the contribution of environmental goods and services to the national economy; and v) establish a framework supporting the involvement of all sectors in sustainable management of the environment.
- the National Forest Policy and Strategy for the Sustainable Management of Biodiversity, which identifies sustainable land management and forest degradation as national priorities, and the Agricultural Sector Policy, which promotes the sustainable use of resources, improving productivity through the development of applied research, and the advancement of sustainable systems and competitive production.„

The project will contribute to the following Aichi Targets: **Target 1: Target 2: Target 4: Target 5: Target 7: Target 11: and Target 14.**

## 8. Knowledge Management

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

The GEF Knowledge Management (KM) strategy will guide the project's KM approach, which will be mainstreamed into the project's design, its M&E system and adaptive management, ensuring that risks are identified and addressed, and successes and failures are documented and shared. Activities to share learning among agricultural producers, local communities, political decision-makers and civil society organizations will include development and dissemination of communications materials, organization of exchange visits, and participation in national, regional and international conferences on biodiversity conservation, sustainable forest and land management. Cross-learning and experience-sharing will follow following approach: (i) Project Management Unit will ensure that project learnings are captured, compiled and systematized, as per related project Outputs, experience from other projects and initiatives including current GEF portfolio in Madagascar (ii) Project PMU will ensure that project knowledge is shared with, and used by relevant stakeholders, thus promoting its scaling out to future projects, improved practices and policies.

Project thematic studies and assessments (e.g. NCA Valuation Report; Ecovillage Experiences Assessment; etc.) will be shared publicly on a dedicated website. A capitalization document will be produced at the end of the project and distributed to NGOs, United Nations agencies, local authorities, institutions in French and Malagasy. Participatory mapping will be carried out in the ecovillage area and the open data will be downloadable from the website as Open Street Map. Furthermore, documentary films capitalizing on ecovillage approaches will be designed and broadcast on national and local channels. To strengthen local stakeholders uptake of knowledge, exchange visits for sharing experiences will be organized for village leaders.

The promotion of EcoVillages based on natural capital accounting underscores the novelty of this project. Given the socio-economic and environmental elements that are relevant to the project, the project also offers a possibility for collaboration among different stakeholders, including government institutions, development partners, academia, civil society organisations, private sector and community members. Therefore, during the life of the project, materials and workshops will be developed to share and disseminate among stakeholders concerned but also beyond. There will be lessons from this pilot group of EcoVillages in the Central Highland of Madagascar that will necessitate knowledge dissemination. Therefore, the project envisages a robust knowledge management system.

In learning from other relevant projects, initiatives and evaluations, the project management unit will seek to engage with other project management units who implemented and executed other relevant projects. Workshops will be held with different partners implementing relevant projects to get their inputs, and results will also be reported in different forms, including radio/TV programs, flyers and national seminars. This will help to specifically avoid duplication of efforts from other projects and to integrate lessons from other past and on-going development interventions.

The success of the knowledge management approach will hinge on having a strong M&E system. This project will ensure that that is in place. The project will also intend to use web-based knowledge management system to easily share lessons with the broader audience, including beyond the national boundaries. Specifically, products and services will be an integrated part of the strategic communications plan of the project, and will use web platforms such as social media. Furthermore the project knowledge mmanagement will include an important aspect of sustainability. These will include : a) Integration; b) institutional and governmental arrangements, including multi-stakeholders processes, norms and values; c) Monitoring, evaluation and learning processes. During the PPG comprehensive analysis will be conducted and the outcomes factored in the project sustainability measures and the project knowledge Managent strategy.

**9. Environmental and Social Safeguard (ESS) Risks**

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

**Overall Project/Program Risk Classification\***

PIF	CEO Endorsement/Approval	MTR	TE
Low			

**Measures to address identified risks and impacts**

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

**Supporting Documents**

Upload available ESS supporting documents.

Title

Submitted

**Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).**

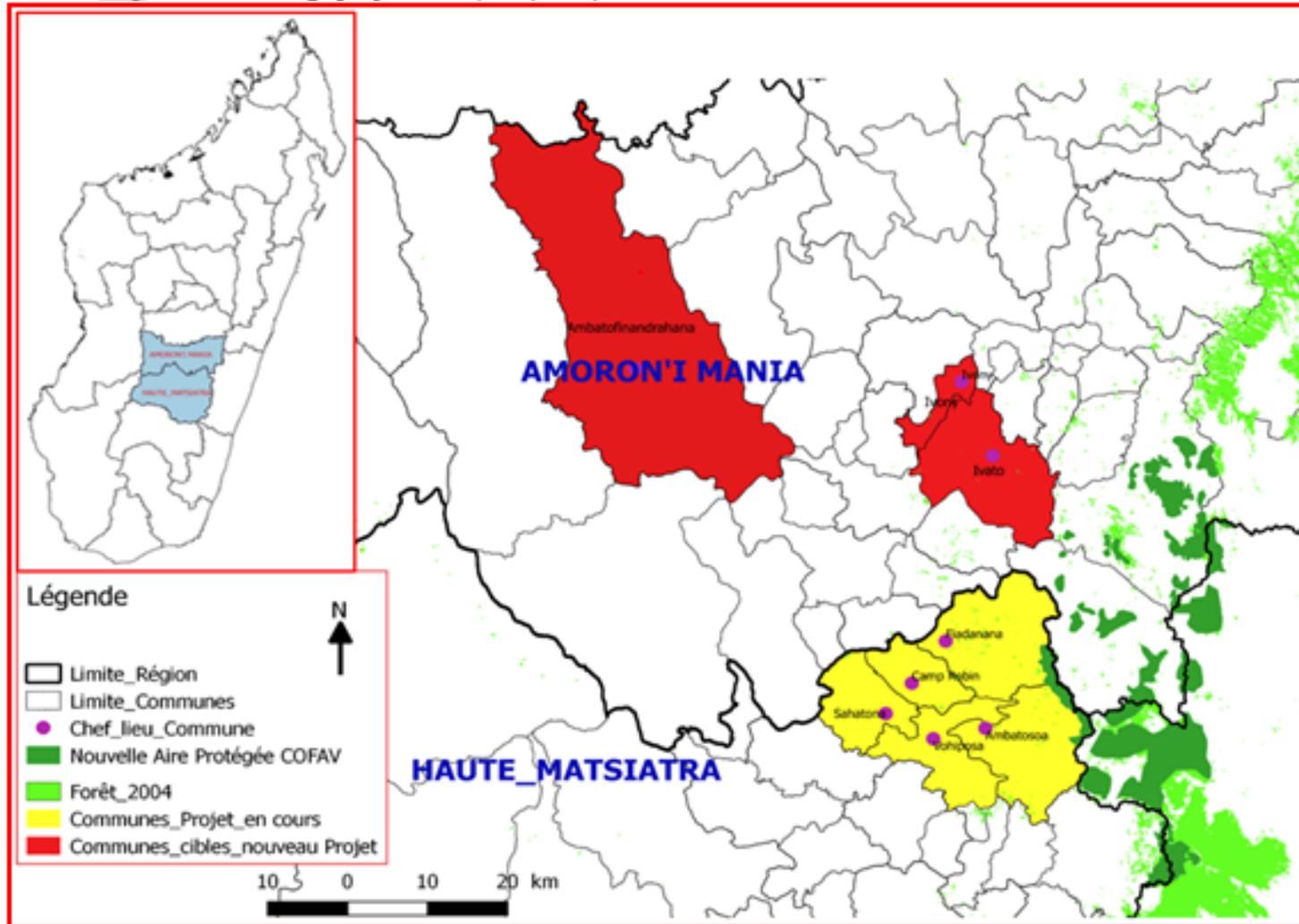
<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Dr Hery A. Rakotondravony	GEF Operational Focal Point	MINISTRY OF ENVIRONMENT AND SUSTAIANBEL DEVELOPMENT	3/23/2020

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

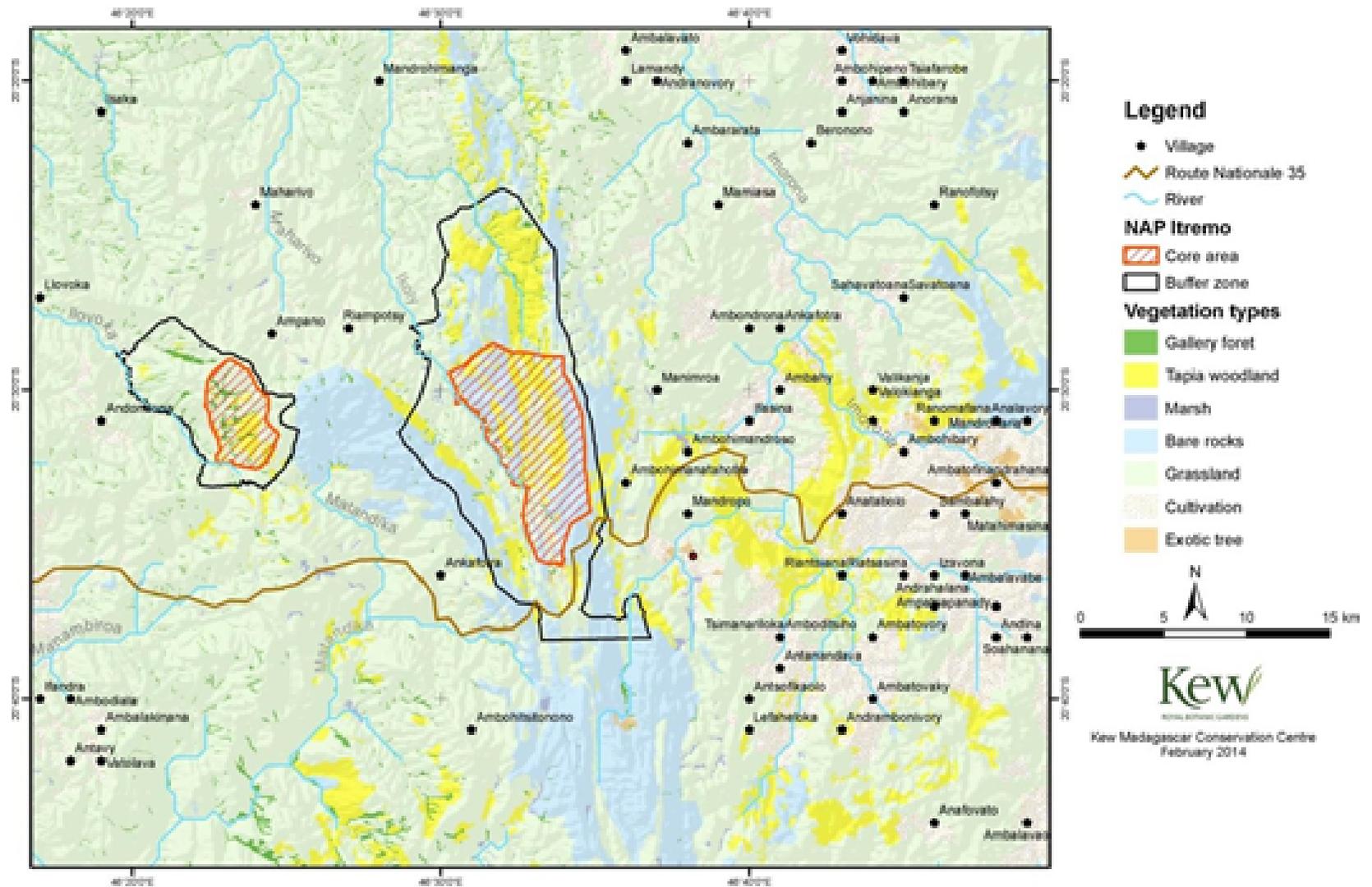
Annex A

Figure 1 : Location map of the Ecovillage project sites (Gret, 2019)



Carte de localisation des sites potentiels du projet écovillage

## Annex A-3 - Itremo Massif Protected Area



Mise à jour du 27 Avril 2011



