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Towards Land Degradation Neutrality for Improved Equity, Sustainability, and Resilience

Part I: Project Information

GEF ID
10863

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Towards Land Degradation Neutrality for Improved Equity, Sustainability, and Resilience

Countries
Cabo Verde

Agency(ies)
FAO

Other Executing Partner(s)
Ministry of Agriculture and Environment (MAA)

Executing Partner Type
Government

GEF Focal Area

Land Degradation

Taxonomy

Land Degradation, Focal Areas, Land Degradation Neutrality, Carbon stocks above or below ground, Land Cover and Land cover change, Land Productivity, Sustainable Land Management, Restoration and Rehabilitation of Degraded Lands, Sustainable Agriculture, Sustainable Pasture Management, Sustainable Livelihoods, Community-Based Natural Resource Management, Ecosystem Approach, Integrated and Cross-sectoral approach, Income Generating Activities, Improved Soil and Water Management Techniques, Sustainable Forest, Food Security, Influencing models, Transform policy and regulatory environments, Convene multi-stakeholder alliances, Deploy innovative financial instruments, Strengthen institutional capacity and decision-making, Demonstrate innovative approache, Stakeholders, Communications, Behavior change, Education, Awareness Raising, Civil Society, Community Based Organization, Academia, Non-Governmental Organization, Private Sector, Individuals/Entrepreneurs, Beneficiaries, Local Communities, Type of Engagement, Participation, Partnership, Information Dissemination, Consultation, Gender Equality, Gender results areas, Capacity Development, Participation and leadership, Knowledge Generation and Exchange, Access to benefits and services, Access and control over natural resources, Gender Mainstreaming, Sex-disaggregated indicators, Gender-sensitive indicators, Women groups, Capacity, Knowledge and Research, Innovation, Learning, Adaptive management, Theory of change, Indicators to measure change, Knowledge Exchange, Field Visit, Peer-to-Peer, Knowledge Generation, Training

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 1

Duration

48 In Months

Agency Fee($)

207,395.00

Submission Date

9/14/2021

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount($)	Co-Fin Amount($)
LD-1-1	GET	1,883,105.00	6,328,482.00
LD-2-5	GET	300,000.00	1,200,000.00
	Total Project Cost ($)	**2,183,105.00**	**7,528,482.00**

B. Indicative Project description summary

Project Objective

To enhance climate-resilient food production and nutrition in productive landscapes through nature-based solutions in support of Cabo Verde's voluntary LDN targets.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Enabling Environment for LDN monitoring	Technical Assistance	1.1. LDN mainstreamed into national policies and planning processes at multiple levels to support SLM in production landscapes Targets: LDN integrated into at least 3 strategic planning processes LDN DSS integrated, tested and used Climate variability with the special focus on drought is integrated into the LDN DSS and tested in the target watersheds of Santiago Island (Ribeira Seca) and Santo Antao Island (Vale de Garça and Ribeira das Patas)	1.1.1. Review of strategic regulatory frameworks and territorial planning instruments to enhance local stakeholder participation and mainstreaming of LDN (update and regularize draft forestry law, territorial planning/land use management policy and law, participatory approach methodology in rural and peri-urban areas by the rural extension sector, land tenure, definition of grazing areas) 1.1.2. LDN Decision Support System (LDN DSS) for planning and implementation in place 1.1.3. LDN Action Plan with voluntary targets defined for each target landscape 1.1.4. LDN coordination mechanism reviving the LDN Working Group at national level is strengthened by vertical coordination with municipalities (through participatory approach methodology done under 1.1.1) 1.2.1. Capacity development program in place for LDN implementation and monitoring targeting national and local government staff, including extension	GET	300,000.00	1,000,000.00

Action Plan for achieving LDN targets in watersheds of Santiago Island (Ribeira Seca) and Santo Antao Island (Vale de Garça and Ribeira das Patas) (1 in each watershed, 3 in total) National LDN targets updated with national data/verified/agreed by the LDN coordination mechanism	1.2.2. Capacity building program on SLM to achieve LDN (using LADA, WOCAT, etc.) at local level for farmers in the target landscapes (applying the farmer field schools approach)
1.2. Enhanced capacity at national and sub-national levels to achieve LDN in target landscapes Targets: At least two central and one local level training programmes integrate LDN At least 100 local government staff, including extension (at least 50 women) trained	

		At least 15,000 local producers trained of which 50% are women				
Demonstrating the LDN approach and scaling out of SLM practices in target landscapes	Investment	2.1. SLM technologies and approaches in the target landscapes upscaled to achieve LDN Targets: Land-use plans supporting achievement of the LDN target on 9,500 ha: - 3,500 ha of land degradation AVOIDED through improved land planning (e.g. forestry plans, irrigated croplands plans. etc.) - 2,000 ha of land degradation AVOIDED through improved policy framework supportive of the LDN (e.g. land tenure improvement, etc.) - 4,000 ha of land with REDUCED and REVERSED degradation thanks	2.1.1. Participatory integrated plans developed in the target landscapes within the watersheds of Santiago Island (Ribeira Seca) and Santo Antao Island (Vale de Garça and Ribeira das Patas) (land use plans, forestry /agroforestry management plans in accordance with National Forest Inventory) 2.1.2. Innovative SLM practices implemented to enhance productivity, restore degraded land and increase climate resilience (assisted natural regeneration, re-naturalization of forested areas, live barriers on fallow lands/cliffs, manure application on drylands, installation of green barrier on rain-fed lands, mineral fertilizer management in the irrigated lands, grazing crop residues to allow vegetation recovery, pasture rotation, agro-forestry, conservation agriculture, restoration of salinized lands, rainwater harvesting, , pest management in agro-forestry systems, etc.) 2.2.1. Priority gender-sensitive and nutrition-sensitive value chains selected and a functional framework for their sustainable development proposed (involving suppliers, producers, support-advice, financiers, traders)	GET	1,529,148.00	5,300,000.00

to gender-sensitive SLM and restorative measures based on nature-based solutions that serve as demonstrations to stakeholders (i.e. 3,000 ha rainfed croplands, 500 ha grasslands, and 500 ha forestland) 249,456 metric tons of CO2eq of avoided emissions of carbon sequestration At least 3,000 family farmers applying SLM technologies 2.2. Increased investments in SLM and NBS to achieve LDN Targets: At least 3,000 family farmers with better access to credit and innovative financing mechanisms along target value chains (TBD under PPG) Increase in number of agricultural-based investments that have access to markets that incorporate SLM and	2.2.2. Innovative and sustainable financial mechanisms (e.g. subsidies, tradable permits, Public-Private Partnerships, certification programs, penalties, local resource mobilization plans, etc.) for producers and their organizations along the priority value chains identified and developed

		NBS [TBD at PPG stage]				
Land degradation data and information, project monitoring, evaluation and lessons learned	Technical Assistance	3.1. Data and information on land degradation improved Targets: New data products in national level reporting, research efforts and decision-making made available National LDN linked to the SDG indicators to complement the 3 Global indicators are developed A national LDN guideline published LDN monitoring system operational, including a soil information system	3.1.1. Data and information on land degradation status and trends (such as LADA, Sustainable Soil Management Protocol, soil map, grazing map, soil organic carbon map, soil fertility map, land cover map, etc.) made available 3.1.2. A national soil information system and remote sensing-based land degradation monitoring and knowledge sharing system are set up and operational (linked to the LDN DSS (1.1.2)) 3.1.3. M&E system in place to capture and develop knowledge. Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed 3.1.4. Knowledge sharing/dissemination plan implemented	GET	250,000.00	700,000.00
				Sub Total ($)	**2,079,148.00**	**7,000,000.00**
Project Management Cost (PMC)						
				GET	103,957.00	528,482.00
				Sub Total($)	**103,957.00**	**528,482.00**
				Total Project Cost($)	**2,183,105.00**	**7,528,482.00**

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($)
Recipient Country Government	Cabo Verde Treasury	Public Investment	Investment mobilized	2,491,732.00
Recipient Country Government	Cabo Verde Environmental Fund	Public Investment	Recurrent expenditures	1,206,750.00
Recipient Country Government	Ministry of Agriculture and Environment	In-kind	Recurrent expenditures	230,000.00
Donor Agency	USAID	Grant	Investment mobilized	500,000.00
Donor Agency	Adaptation Fund	Grant	Investment mobilized	2,000,000.00
Donor Agency	SIDA	Grant	Investment mobilized	500,000.00
GEF Agency	FAO	Grant	Investment mobilized	400,000.00
GEF Agency	FAO	In-kind	Recurrent expenditures	200,000.00
			Total Project Cost($)	**7,528,482.00**

Describe how any "Investment Mobilized" was identified

Investment mobilized comprises all thematically linked investments by development partners in the project geography that are not recurrent investments. In particular, the following investments have been considered: Cabo Verde Treasury Water Mobilization, Stormwater Correction and Agroforestry Development: US$1,014,054 Reforestation and Maintenance of Forest Perimeters US$1,477,678 USAID West Africa Biodiversity and Low Emissions Development Activity (WABiLED): US$500,000 ADAPTATION FUND Increasing the resilience of local communities to climate change through improved watershed management and land restoration - funded by the Adaptation Fund and the Government of Cabo Verde with FAO being the implemented agency: US$2,000,000 SIDA Global Transformation of Forests for People and Climate: a focus on West Africa: US$500,000 FAO Support of agricultural production systems to enhance food security and nutrition in the Republic of Cabo Verde: US$400,000 Because of the definition of mobilized investment, the following co-financing is to be considered recurrent investment: Cabo Verde Environmental Fund Elaboration and Implementation of management plans for forest areas: US$554,890 Recovery of the forest perimeter of the Eastern Plateau - Santo Antão: US$341,471 Recovery of degraded forest areas and institutional capacity building: US$266,744 Conservation and sustainable use of forest resources: US$43,645 The Ministry of Agriculture and Environment’s in-kind contribution of an estimated US$230,000 FAO’s in-kind contribution (staff time, car park in Praia) to the tune of US$200,000

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($)
FAO	GET	Cabo Verde	Land Degradation	LD STAR Allocation	2,183,105	207,395	2,390,500.00
				Total GEF Resources($)	**2,183,105.00**	**207,395.00**	**2,390,500.00**

E. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)	PPG Agency Fee ($)
100,000	9,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Cabo Verde	Land Degradation	LD STAR Allocation	100,000	9,500	**109,500.00**
				Total Project Costs($)	**100,000.00**	**9,500.00**	**109,500.00**

Core Indicators

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
4000.00	0.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
3,000.00			

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
500.00			

Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
500.00			

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

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

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)
5500.00	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)

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)
5,500.00			

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

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

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	249456	0	0	0
Expected metric tons of CO_2e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	249,456			

Expected metric tons of CO_2e (indirect)	
Anticipated start year of accounting	2023
Duration of accounting	20

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)				
Expected metric tons of CO_2e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	10,550			
Male	10,550			
Total	21100	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Please, see the Word version of PIF for explanation.

Part II. Project Justification

1a. Project Description

1) The global environmental problems, root causes and barriers that need to be addressed (systems description)

BIOPHYSICAL CONTEXT

The Republic of Cabo Verde is an archipelago of ten scattered volcanic islands with challenging economies of scale. It is situated approximately 570 km off the western coast of the African continent, near Senegal, The Gambia, and Mauritania. A combined land area is around 403,300 ha, and the estimated population of 563,198 (INE[1]) is spread across nine inhabited islands within a large water area. Such connectivity issues pose significant challenges for service delivery including waste management, energy, water, education, and health, which constitutes a major constraint to equitable, sustainable and resilient growth and development.

Cabo Verde's soils are limited in both quantity and quality. Despite the natural fertility of the soils due to their volcanic nature, the mountainous terrain produces soils, generally shallow and low in organic matter, which are prone to soil erosion. Of the available arable land (41,000 ha), over 90% is used for rain-fed agriculture while about 5% is used for irrigated agriculture. Since farmers do not apply any fertilizers on intensively cultivated rain-fed dryland soils, the only source of nutrients for the maize crop comes from the intercropped beans.

Cabo Verde has no permanent surface freshwater stock, creating an almost total dependence on ground water for domestic and agricultural use. Ground and superficial water resources are scarce as they depend on the erratic rainfall, susceptible to be lost to the sea. Due to the rugged terrain of the nine inhabited islands, in an average rainfall year, about 20% (180 million m3) is lost through runoff; more than 50% is lost as evaporation; and only about 13%–17% recharges the aquifers[2]. About 60,000 m3/day of groundwater is pumped for irrigation, representing a serious overexploitation of available groundwater resources that contributes to soil and water salinization. The utilization of water resources is rather poor due to the lack of storage facilities. The recognition of the importance of increasing storage facilities has received a large support from the Government and attracted the development agencies. Since 2006, an increasing number of dams have been constructed. However, the country-level potential is yet to be exploited. Furthermore, more sophisticated technologies than concrete dams are required to overcome the dry season, when rainfall is completely absent. Decreased evaporation of dams, betterment of water allocation rules, accessibility of stored water, effective sediment management, minimized conveyance loss are required criteria to improve the functionality of the dams. In this adverse scenario, for the many intended water uses is not only a matter of improving water availability, but also system-wide water use-efficiency coupled with resilient production methods (due to the recurring drought).

Agriculture accounts for almost 90% of total groundwater abstraction, thus being responsible for the sharply declining groundwater tables. The groundwater quickly moves downstream to areas at lower altitude and discharges wells, springs, tunnels and streams, thus remaining inaccessible in upstream parts. It, eventually, reaches the ocean as submarine discharge[3]. Groundwater is economically available only in flat areas at coastal sides, where 80% of the population lives, where it becomes vulnerable to saltwater intrusion if upper lenses of freshwater are over-pumped. The lack of adequate aquifer recharge combined with low capacity of storage facilities is important to groundwater resources, as the human-induced pressure on groundwater is already a challenge.

Rainfall - the dominant climate factor influencing land degradation - is strongly influenced by elevation and topography and is extremely variable, both in space and time. It results from the seasonal migration of the Inter-Tropical Convergence Zone around the equator, which originates a single short wet season from July to October, and a long dry season from November to June[4]. Most of Cabo Verde's islands are dry. Instead, on islands with high mountains and farther away from the coast, by orography, the humidity is much higher than in coastal flat landscapes, providing a rainforest habitat, although much affected by the human presence. Areas of higher elevations, coinciding with steep slopes and shallow soils, are most susceptible to erosion. Annual rainfall ranges from less than 100 mm in the arid areas of the coast as in the Deserto de Viana (67 mm) to more than 1,000 mm in the humid mountain. Because of the infrequent occurrence of rainfall, where it is not mountainous, the landscape is so arid that less than two per cent of it is arable. Sal, Boa Vista, and Maio islands have a flat landscape and arid climate, whilst the other islands are generally rockier and have more vegetation. Average temperatures range from 22°C in February to 27°C in September. Cabo Verde is part of the Sahelian arid belt, with nothing like the rainfall levels of nearby West Africa. Cabo Verde lies in the dry forests ecoregion.

SOCIO-ECONOMIC CONTEXT

abo Verde witnessed spectacular socio-economic progress between 1990-2008[5], driven mainly by the rapid development of tourist resorts, with tourism being the main economic sector to date. Despite its fragmented and isolated territory, scarce natural resources, dry climate, and small population, the remarkable progress in socio-economic performance lifted the country out of the LDC status in 2007. It is now a lower middle-income country[6], remaining a model for good governance and development in Africa. Tourism and travel-related industries drive around 40% of overall economic performance. Despite its significant role in the national economy, the relative employment capacity of tourism is well below that of the agriculture sector.

Although agriculture's share is less than 10% of the GDP, it is a strategic sector for poverty alleviation, employment, green growth, economic shock absorption, and eventually for long-term resilience. Agriculture contributes about 8% to the country's GDP with 18% of the population engaged in primary production agriculture (25% women). Average earnings in the agriculture sector is around 120 USD/month.

Agriculture is predominantly based on rain-fed subsistence family production. The agriculture is predominantly subsistence farming, including mainly rain-fed (81%) and irrigated systems (19%). Farmers are typically smallholders cultivating less than 1-1.5 ha per farm. Maize is the dominant crop, taking 44% of total crop harvested. Other major crops include pulses (e.g. beans, groundnut), vegetables (e.g. carrot, cabbage, lettuce, tomatoes etc.), coconut, sugar cane, coffee

and fruits (e.g. banana, citrus, apple etc.). Sugar cane, pineapple, coffee and banana are the main cash crops. The main livestock are ruminants (cattle, goat, and sheep), pig and poultry (chicken, turkey, and ducks). Fisheries represent a significant source of foreign exchange. Fishery products (fish and crustaceans) are also the population's main source of animal protein. Some 50,000–60,000 tonnes of fish are exported every year.

Conventional rain-fed maize cultivation – the dominant system and cultural basis of local people's diets - has low productivity, low land cover, and leads to high soil erosion rates. Maize was introduced in Cabo Verde from Brazil in the XVI century and evolved as the predominant dryland crop and the preferred staple food for the population[7]. Despite the low yields (300–700 kg maize grain per ha) and frequent crop failure, farmers routinely plant maize every year, regardless of the economic loss and environmental degradation arising from this agricultural activity. Land degradation has been widely associated with dryland farming practices[8] [9], as the maize cultivation is practiced on steep lands excessive hoe-weeding. Maize and beans production in drylands does not contribute more than 5% to rural household revenues, and some families incur net costs for their cultivation[10]. Moreover, the market price of imported maize and beans is often lower than local production cost. Thus, the importance of dryland crops like maize and beans is more due to their cultural than economic value, and the lack of alternatives of the impoverished subsistence agricultural system, making them an important consideration when promoting SLM and LDN.

The scarcity of natural resources and the weakness of the productive system make poverty a structural occurrence in the country, which is mainly a female and rural phenomenon. 36% of the population live in rural areas, where poverty remains a structural problem: 26.5 % live below the poverty line, the majority of which are in rural areas (16 %)[11]. Nearly 33% of female-headed households are poor, compared to 21% of male-headed households[12]. This data exposes the particularly fragile situation of women in this context of rural poverty, labor migration and environmental constraints.

Cabo Verde - a country with a rapidly growing population and limited natural resources – relies on substantial and increasing imports to meet its food security and nutritional needs. Population in Cabo Verde is projected to increase by 129 % by 2050. Only 76,627 ha of the country is agricultural land (19% of the total land), of which 12.9% is covered by arable land, 0.99% by permanent crop, 6.2% by meadows and pastures, 22% by forest and 58% by other land uses[13]. Increasing population on a poor natural resource based land will have serious implications on food security and nutrition of the population. Food insecurity affected 35% of households between 2018-2020[14]. The enhancement of food security in the country is set against the context of rising food imports and increasing incidences of chronic non-communicable diseases. Currently, Cabo Verde imports agricultural products worth about US$212 million to meet food needs. As a country devoid of large arable land and natural resources, Cabo Verde rising food demands will influence rising imports of cereals such as rice, maize and wheat which constitute the bulk of Cabo Verdean diets. The high dependence on food imports, in turn, negatively impacts agricultural production, perpetuates underemployment in rural communities leading to increasing rural-urban migration. For example, to offset the decline in domestic maize production, the cereal import requirements for 2018 were 92,600 tonnes, which was 24% higher than 2017 and about 15% above the average of the previous five years[15]. The prevalence of people undernourished between 2018-2020 stood at 15.4% of the population[16].

High incidence of rural poverty results in environmental degradation and migration. Population is an important indicator that relates to human pressure on site or human requirements that need to be satisfied with resources coming from other administrative units. Population trends show future pressures and needs, thus directly relating to the LDN hierarchy of responses, and at the same time may be relevant for understanding youth dynamics in search of better

opportunities. Emigration is widespread in Cabo Verde[17]. Any decline in national socio-economic performance induces further risk of outmigration, in particular in the younger age cohort. Around 25 %of youth is unemployed, and the exposure of young women is even higher. A map on Fig. 1 shows the population migration estimation dynamics by INE for 2010-2030. The islands with the most developed tourism sector show an increase in population, while others are affected by outmigration. The islands of Santiago and Santo Antao - the proposed project's target landscapes – are among most affected by outmigration trends. To add to this trend, tourist areas are the driest and net consumers (importers) with no AFOLU sector developed, while outmigration affects the areas that have agricultural capabilities and can produce food.

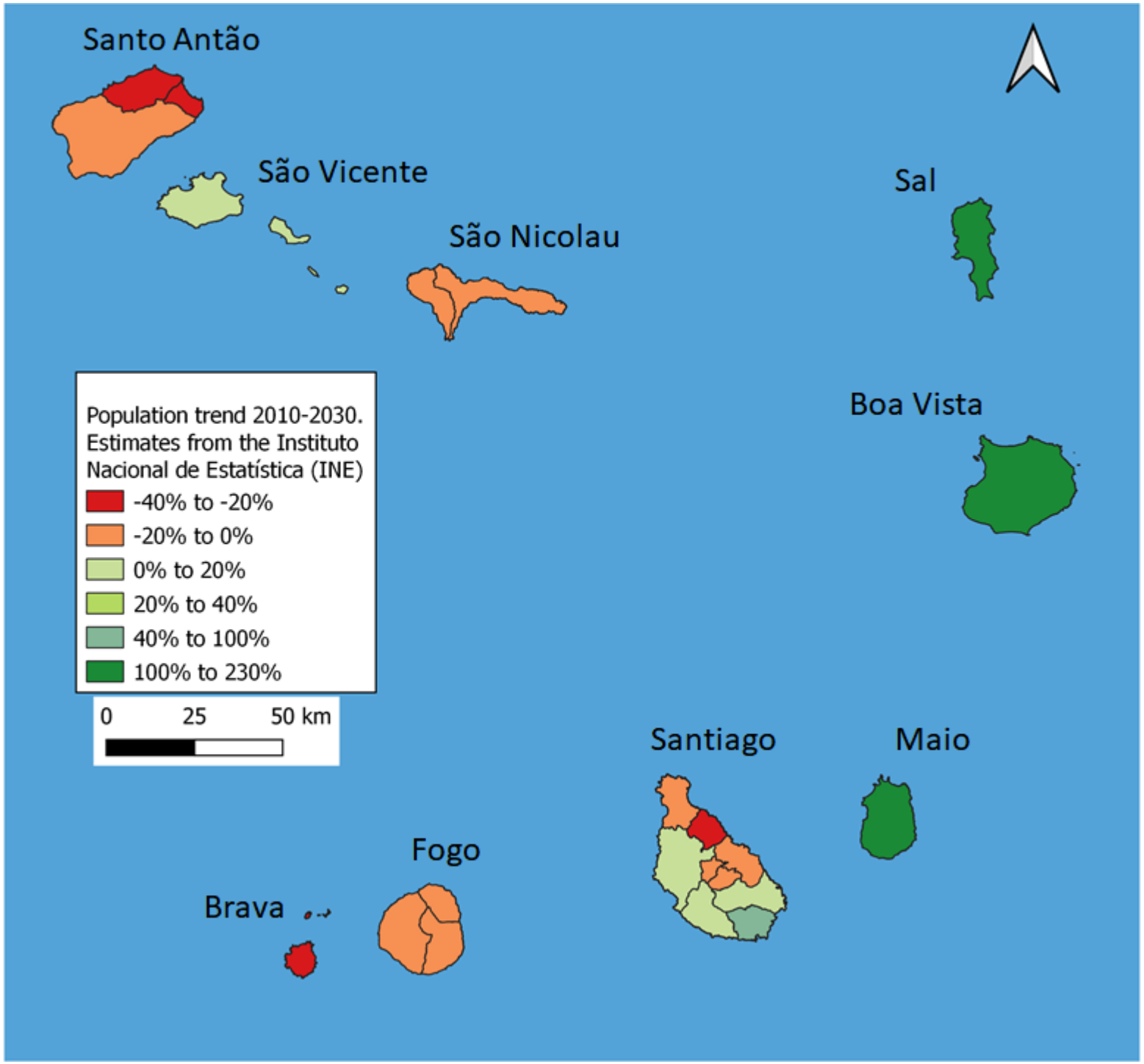

Santo Antão
São Vicente
São Nicolau
Sal
Boa Vista
Santiago
Maio
Fogo
Brava
Population trend 2010-2030.
Estimates from the Instituto
Nacional de Estatística (INE)
-40% to -20%
-20% to 0%
0% to 20%
20% to 40%
40% to 100%
100% to 230%
0
25
50 km

Figure 1. Population migration estimation dynamics by INE for 2010-2030.

COVID-19 impacts in Cabo Verde - a country importing 80% of the essential food - are significantly affecting trade, vital transport, price fluctuation, food security, and overall economy, slowing poverty reduction efforts. The number of COVID-19 cases continues to rise with concentration in the largest island of Santiago, though the recovery rate is high. The GDP contracted by 14% in 2021; exports and imports of goods declined by 50% and 13%, respectively; and the service sector contracted by 72%. Tourism sector, a primary income source for many, has collapsed. Although the country is not explicitly food insecure, COVID-19 exposed the vulnerability of the food market. According to the IMF[18], the economic outlook remains highly uncertain and dependent upon the duration of the pandemic, the global economic recovery, and the Government's ability to support the expected economic recovery through the appropriate policies and reforms. Although the remittance grew by 0.5 %, a sign of solidarity and an initiative to offset the crisis, the scale of remittance is still insignificant compared to the required amount to compensate the economy. There are no dedicated fiscal recovery measures available for the AFOLU sectors.

LAND DEGRADATION STATUS AND TRENDS

Climatic factors, such as extended droughts have reduced vegetation cover, exposing bare land to erosion, while heavy rainfall events during the wet season generate high rates of runoff transporting enormous quantities of soil[19]. Strong climate variability – three months of rain following nine months of drought – causes severe water erosion. The LDN report indicates the loss of more than 4,000 t/km^2/year of soil by water erosion in agricultural basins in Cabo Verde. During the passage of hurricane Fred in 2015, observations and surveys indicate soil erosion at 20 times higher on the island of Santiago.

Climate change effects will result in more intense land degradation and desertification trends, increasing the uncertainty of water availability, reducing the area available for agriculture, and shrinking native vegetation to micro-refugia sites. Climate change is expected to entail the following impacts: 1) US$2 million of income is expected to be lost due to crop failure from drought, 2) around 150,000 inhabitants (27 % of the population) is exposed to flash floods, and 3) landslides can cause damages averaging US$200,000 loss per year[20]. Due to its geographical characteristics, Cabo Verde is particularly sensitive to severe and multiple hazards, with a limited capacity to adapt, the problems are exacerbated. Since 1990, the temperature has increased by 0.04 % per annum and is expected to reach a 3 °C increase by the end of the century. The mean precipitation is around 225 mm/year and has been decreasing since the 1960s. The reduction in annual precipitation is about 2%, inducing **extension of dry season**, increased likelihood and duration of **drought**, concentrated and localized rainfall, and **run-off** even higher than the recent level[21]. Climate change modelling suggests that **rainfall could further decrease by up to 20 %** by the end of this century. Even in the more immediate planning horizon, climatic changes over the next 10-20 years are expected to bring **seasonal water shortages** at a number of economically important sites and year-round shortages elsewhere. Events ranging from acute water scarcity to extreme weather conditions such as storms, floods and droughts, also have immediate impacts on **recharge of aquifers**, crop productivity, environmental quality, and livelihoods. Overall, these changes are expected to have **a significant negative impact on water resource availability and agricultural productivity on the islands, especially for the vulnerable farmers.**

Desertification, associated with the occurrence of extreme drought and anthropic factors that led to crop failure and food insecurity, has been present throughout the country's history[22]. Some authors suggest that the main desertification events shaping current conditions occurred in the earlier colonial times[23]. In the first half of the 20th century, six famines occurred, causing the starvation of more than 75,000 people[24]. The last famine in 1947–1948 [25]

caused an almost 50% reduction of the population, and one study[25] points out that in Santiago Island alone the population decreased by 65%. Since then, significant investments have been made on technology-based water erosion measures, such as terraces, dams, afforestation and irrigation schemes, thus reducing the acute risk of erosion and food insecurity. However, under current biophysical and socio-economic scenarios the risks are significant to this day.

In addition to the climatic, geomorphologic, and pedologic factors, human factors add to widespread land degradation, with negative consequences for the livelihoods and its fragile environment[26]. There are numerous studies linking unsustainable dryland farming practices, such as weeding, and burning with land degradation and desertification. The irrigated lands are mainly found in the beds of streams on the main agricultural island of Santiago. These lands are regularly eroded and washed away by floods during exceptional rains, such as Hurricane Fred's rains in 2015 - 2016 on the island of Santo Antão. Associating population with energy consumption is also important for understanding land degradation status, especially when the energy source is forest. Pressure on natural resources to use raw wood or produce coal to satisfy a basic need could be detrimental to the environment and trap communities in a negative feedback loop where both people and environment get less productive and poorer. A map of Fig. 2 shows the number and percentage of people that use wood as an energy source, with Santiago Island – one of the proposed project sites – being the most affected.

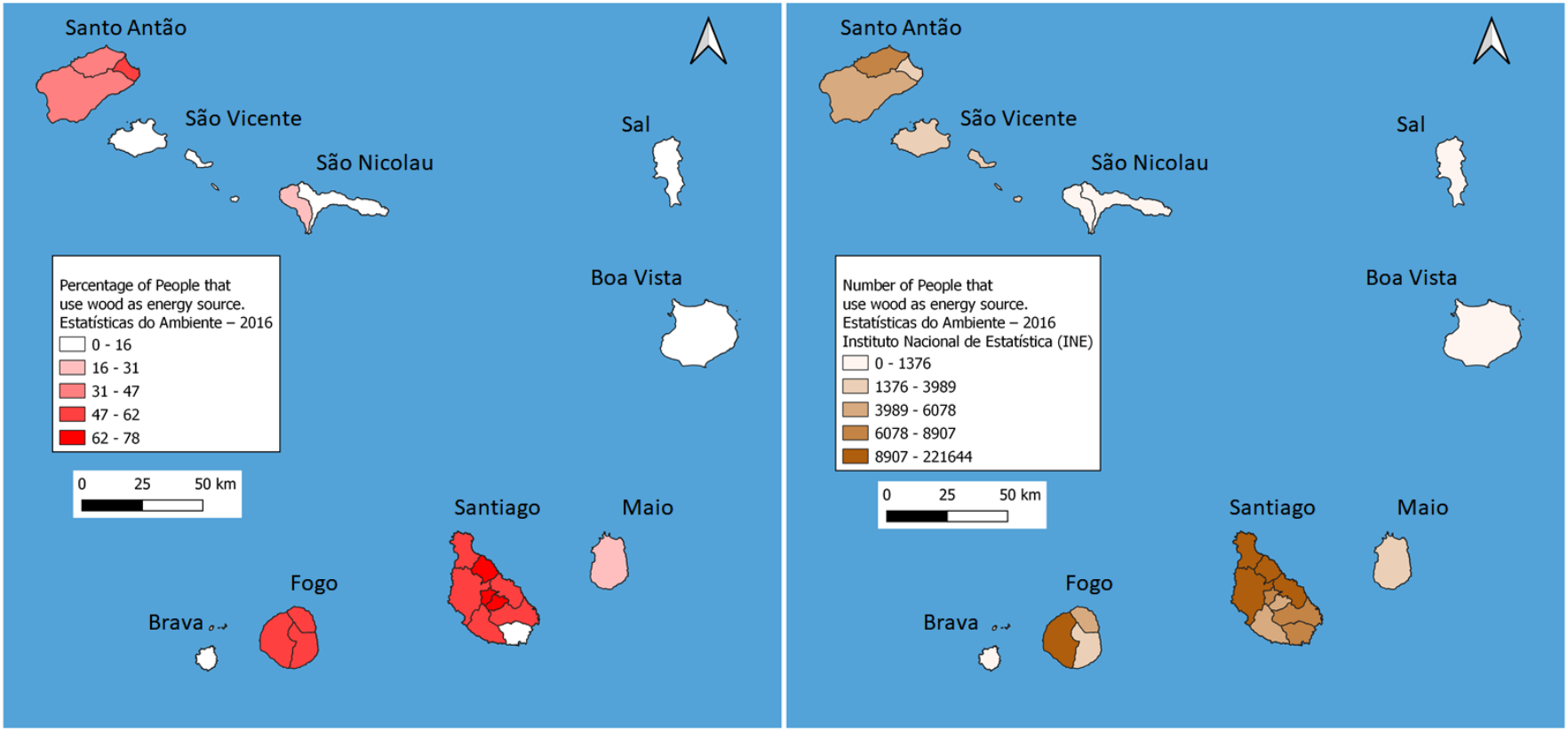


Figure 2. Percentage (left) and number (right) of people that use wood as an energy source in each municipality.

Cabo Verde's LDN baseline consists of four indicators – land cover change, land productivity, soil organic carbon, and the erosion rate – all of which show that land degradation is a serious concern. With the support of FAO in 2016, the country has conducted baseline data collection to develop the LDN targets[27]. Further to this work, where feasible, the numbers were updated up to the year 2020 during the PIF preparation process. The results indicated that 17.8% of the land is degraded (SDG 15.3.1). The details are described below:

- between 2000-2015, 2,156 ha of land, changed land use that generated an ecological loss: 1,724 ha of forest were converted into agricultural areas, urban areas, pasture and other uses, while 436 ha of pasture land were converted into urban areas and other uses
- between 2001-2020, 10.5% of land have a reduced land productivity trend
- between 2000-2015, 3,609 ha of land have a very low soil organic carbon content (18-27 t/ha)
- between 2000-2015, 161,320 ha of land, i.e. 40% of the national territory is seriously affected by erosion (mainly water erosion) and in need of sustainable recovery to prevent desertification.

TARGET LANDSCAPES

The project proposes to work at the watershed level. Due to Cabo Verde's geomorphological, pedological and climatic characteristics (see description above), the watershed is the unit used for water-resource, land and environment conservation and management planning and investment, in particular by the Ministry of Agriculture and Environment. Indeed, in Cabo Verde, the watershed is the scale used for investments that aim to, e.g. extend irrigated land, improve water availability, restore and preserve the ecological balances currently considered precarious and improve the income of rural populations.

Three watersheds on the islands of Santo Antão and Santiago have been selected for project demonstration work, identified as land degradation hotspot resulting from the 2016 baseline data analysis, contributing significantly to national strategic plans and international commitments assumed. Furthermore, analysis of the GIS data, and relevant national statistics have been used for watershed selection, including: Normalize difference vegetation index (NDVI) 2001-2020; Population trend 2010-2030; Population and energy consumption - # of people that use wood as energy source; Screening of main types of LD processes, extent, and its drivers; Poverty (%); Food insecurity (%); Area of agriculture land as % of total; Importance of agriculture sectors to the local economy and livelihoods.have been used as island and watershed selection criteria.

The target watershed are shown in Figure 3: Ribeira Seca (Santiago Island), Ribeira Vale de Garças and Ribeira das Patas (Santo Antão Island). Both the selected islands and watersheds are further developed below.

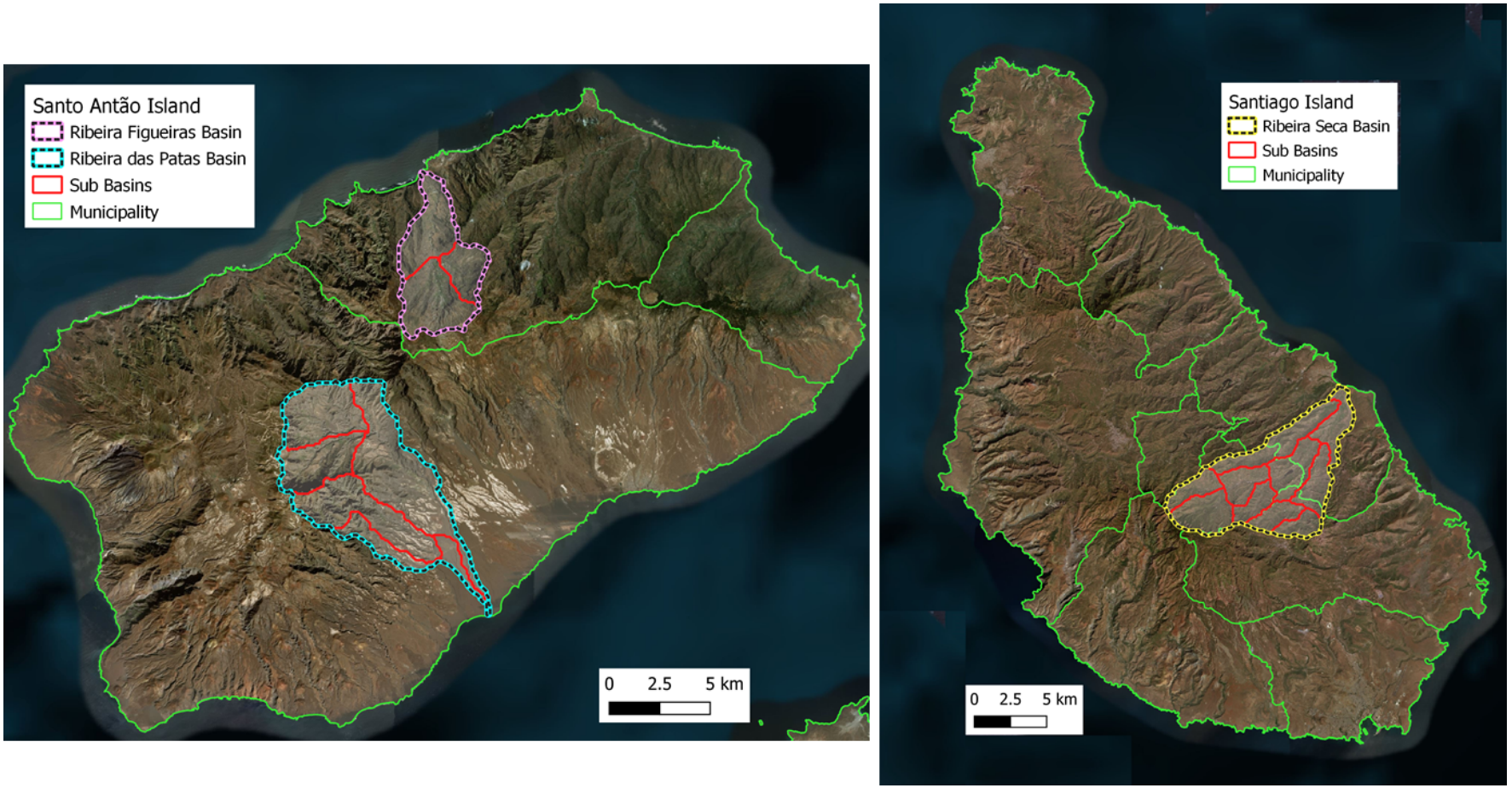


Figure 3. Location of the three target basins in the Santo Antão and Santiago Islands.

Santiago Island. Santiago is the largest island, both in size and population. It is the main agricultural island of the country. Due to the relief of the island with its steep mountains, the islands can have orographically induced precipitation, allowing rich woods and luxuriant vegetation to grow where the humid air condenses soaking the plants, rocks, soil, logs, and moss. The wetter climate of the interior and the eastern coast contrasts with the drier one in the south/southwest coast. This island is one of the most impacted by the last decade's drought and by the flood in 2020. The island hosts the nation's capital, Praia, the principal urban agglomeration in the archipelago. It has nine municipalities and hosts 150 Farmers Associations (2011). Over 90% of the farmers are smallholders, 54% of whom are women.The island has the largest youth population in the country.

The proposed project's target landscape on Santiago Island is represented by one watershed.

Target landscape #1: Ribeira Seca watershed

Ribeira Seca, is the largest watershed of Santiago Island and has a maximum altitude of 1,394 m. It has a drainage area of about 7,169 ha, and comprises seven sub-watersheds, characterized by steep slopes and annual precipitation that varies from >650 mm (upstream) to <200 mm (downstream). It covers three Municipalities - São Domingos (South), Santa Cruz (East), and São Lourenço dos Órgãos (West).

Climate. The climate is characterized by a dry season that lasts 8–9 months (November to June) and a short, humid season of 3–4 months (July to October), with the humid period coinciding with high temperatures. Rainfall is extremely heterogeneous and its spatial-temporal distribution irregular.

Land use[28]. Ribeira Seca watershed is essentially an agricultural region, in which the main economic activity of the largest part of the population is agriculture. Livestock keeping is an important activity in the watershed as most family farmers own animals, such as cows, goats, pigs, and chickens that often graze freely. The dominant land use is rain-fed agriculture, particularly the staple crops (maize and beans) and groundnut, occupying 67% of the area. The remaining 12% (831 ha) is used for irrigated crops (sugarcane, fruits, vegetables, cassava, and sweet potato), tree-covered land 13% (935 ha) and grasslands 3% (208 ha). Figure 4 shows the land cover classes. The top of the watershed has Key Biodiversity Areas (see Figure 8 below).

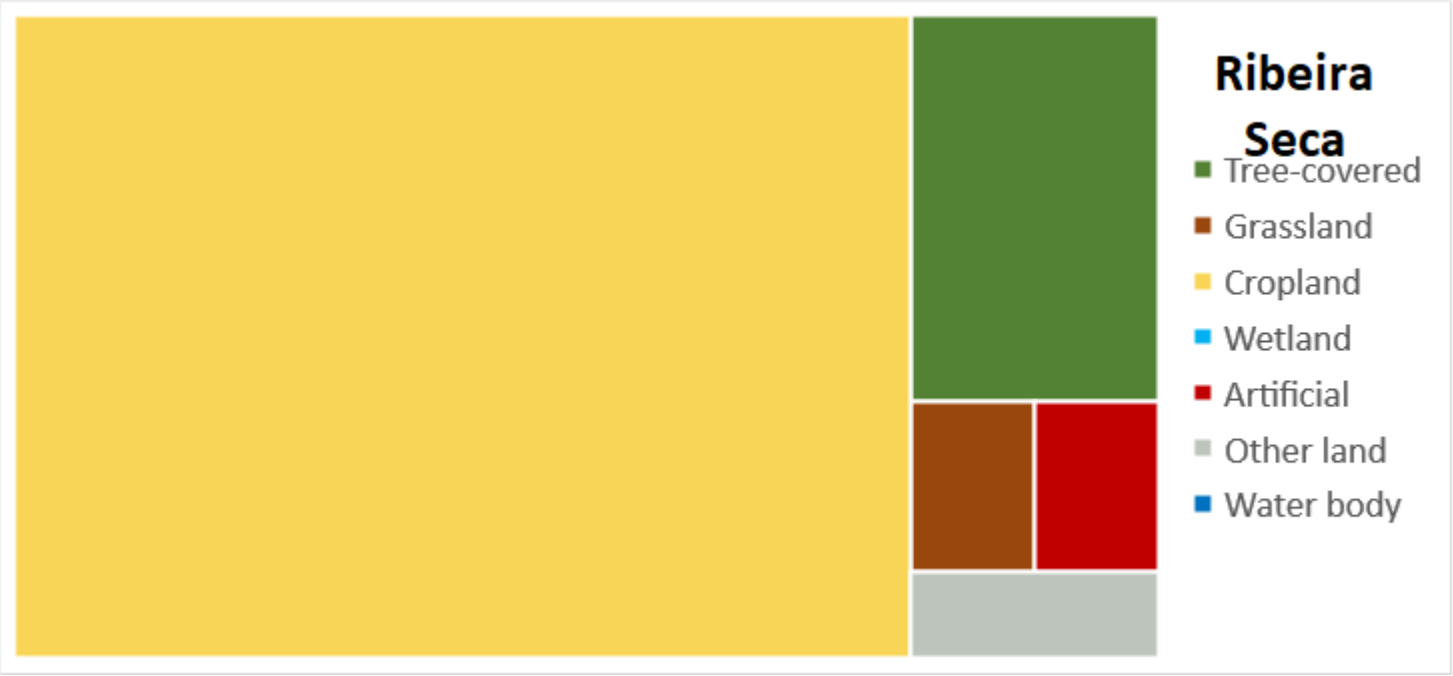


Figure 4. Land cover classes in the Ribeira Seca watershed[29].

Soil and water resources. The soils, mainly Regosols and Cambisols developed on basaltic substrate, are shallow and low in organic matter (OM), generally with low to medium fertility[30] and medium to coarse texture, and exhibit marked symptoms of degradation (i.e., rills and gullies). Deeper soils, i.e., Kastanozems with higher OM content and Vertisols, can be found on the plateaus (achadas) of less steep slopes. In the valley bottoms or ribeiras, Fluvisols are predominant and used for irrigated agriculture. Groundwater resources are extracted by 220 functioning wells (180 stone water wells and 40 units of bore holes). The gross potential of technically exploitable groundwater resources is estimated at 7.0 hm3/year. The average annual exploitable volume is about 6.0 hm3/yr , being 2.0 hm3/yr from the holes and 3.0 hm3/yr from springs.

Status of land degradation. The area has a relatively good infrastructure, having in the past benefitted from several technology-based soil and water conservation measures - contour stone walls, contour furrows, terraces, half-moons, green barriers, check dams, dam and afforestation.

Nevertheless, human activity exerts strong pressure on the limited land and water resources, contributing to land degradation in several ways[31]: 1)**Unsustainable land management practices**, such as intensive cultivation of steep slopes without adequate conservation measures and excessive weeding by hoe; 2)Due to the irregularity of the rains, there has been a somewhat intensive exploitation of groundwater, which has caused **overexploitation of the aquifers**, through over-pumping of wells, which has resulted in **sea water intrusion in coastal zones**, leading to the salinization of soil and water in the valley bottom. Salinity has affected soil and water quality up to about 2.5 km from the coast into the valley; 3)**Construction of the Poilão dam** (2/3 of the way to the sea) has blocked the aquifer movement downstream and also contributed to **salinization of the lands close to the sea**; 4)**Rural poverty**, leading to **deforestation** due to tree cuttings for domestic use as energy for cooking; and excessive grazing by animals. 5)Low soil cover results in **flash floods and water erosion** symptom formation (rills, gullies, sedimentation).

Within the watershed, 45% of the area (3,210 ha) shows high and very high **desertification** risk. Areas of moderate risk to desertification correspond to the high altitude areas and represent 29% (2,100 ha) of the area. Eastern and western parts of the area are characterized by moderate risk to desertification corresponding to the high altitude areas and represent 29% (2,100 ha). The region with high sensitivity to desertification risk is where the vegetation quality is poor. The present desertification risk map identifies and prioritizes the high-erosion risk areas and creates awareness amongst stakeholders.

Socio-economic profile. The Ribeira Seca Watershed has an estimated total population of about 15,000 people, with an even gender distribution. Of the women, 43% are head of household. The population is young, with 77% below 35 years old (of which 48% are below the age 15) and features an 83% literacy rate[32]. Poverty affects >60% of the population.

Institutions. Several stakeholders operate within the watershed - land users, municipality decision makers, agricultural NGOs and researchers - each with different interests and approaches. Important agriculture entities function within the watershed, such as the National Agrarian Research and Development (INIDA), the School of Environmental Sciences and Agriculture (ECAA) of the University of Cabo Verde (Uni-CV), the Center of Livestock Development, a Unity of Agriculture Transformation and the Delegation of the Ministry of Agriculture and Environment.

Santo Antão Island. Santo Antão is the Northernmost Island. It is higher and wetter, allowing the climate to be suitable for the development of dry monsoon forests and laurel forests. Santo Antão Island has undergone the most impactful irrigation development of the country. It is the most endowed with forestlands. However, the previous development efforts of afforestation could be drastically compromised by the climate change impacts. The integrated development of forest and water resources has the potential to considerably improve agriculture and contribute to the country's food security and self-sufficiency. The island had been affected by the centipede; an embargo on fresh agricultural products that followed limited the inter-island exports only to the islands of São Vicente, Sal, and Boa Vista. The island has three municipalities and hosts 19 Farmers Associations (2011). Over 90% of the farmers are small-holders, 33% of whom are women.

The proposed project target landscape on Santo Antao Island is represented by two watersheds.

Target landscape #2: Ribeira das Patas watershed

The watershed is located in the Municipality of Porto Novo and is one of the biggest watersheds in Santo Antão Island. It has a drainage area of 5,878 ha.

Climate. The climate in Ribeira das Patas is identical to the one in the Vale de Garça watershed (see below). Likewise, the intense rainfall during the rainy period causes severe erosion.

Land use[33]. The dominant land cover use is "other land" (mostly rocky lands) occupying 3,363 ha, or 59% of the watershed. AFOLU occupies 2,309 ha (39%), dominated by grasslands (1,784 ha or 30%), followed by rainfed croplands and tree-covered areas - 315 ha (5%) and 210 ha (4%), respectively. Figure 5 shows the land cover classes. The watershed contains Key Biodiversity Areas (see Figure 6 in Annex).

Figure 5. Land cover classes in the Ribeira das Patas watershed[34].

Soil and water resources. Eight soil classes are found in the watershed: Fluvisols, Regosols, Leptosols, Andosols, Vertisols, Cambisols, Phaeozems, and Antrosols[35]. The high rainfall gradient and the steep slopes are producing higher runoff in the upland areas of the watershed that can be stored in reservoirs in the lowland areas. The potential of the surface water resources that can be exploited in the watershed is 4,152 000 m^3/year. The underground renewable water resources are 876,000 m^3/year taking into account an infiltration rate of 13%.

Status of land degradation. The watershed exhibits similar anthropic pressure that leads to land degradation (see above). Likewise, despite the existing few technology-based solutions (terraces and stone walls), almost **23% of the surface area of the watershed present a soil loss higher than 20 tons/ha/year**, exerting additional pressure on the remaining agricultural land.

Socio-economic profile. The Ribeira das Patas watershed has an estimated total population of 2,564 people, 80 % of whom are smallholder farmers. More than 90% of the population are rural. Similarly to the Vale de Garça watershed, reduced financial capacity, lack of innovative technologies, and market limitation lead to outmigration. Likewise, outmigration affects mostly the age group of 20 to 50 years old, the majority of whom are women. Similarly to the Vale de Garça watershed, goat breeding is the most developed within the livestock sector with the biggest number of animals (478) and the livestock meat

production is 2,151 kg/year and 945 kg/year for pork meat production. The milk production for goats is 12,619 l/year and 494 l/year for cattle. The total forage production in the Ribeira das Patas watershed is 118 tons of dry matter (DM), which is clearly below the estimated needs of 236 tons. The forage production by sector is 54 tons of DM/year, 38 tons for Acacia and shrubs, 15 tons for forest area, 7 tons for rain-fed crops and 4.4 tons for fallows.

Institutions. The City Hall of Porto Novo, the Ministry of Agriculture and the Regional Delegation of Porto Novo, The Ministry of Education, the Ministry of Infrastructure, The Church, CARITAS NGO and Local Association of Farmers all operate within the watershed.

Target landscape #3: Vale de Garça watershed

The watershed is located in the Municipality of Municipality of Ribeira Grande. It has a drainage area of 2,340 ha.

Climate. The climate is characterized by erratic rainfall during the rainy season with low amounts and few rainy days, a recurrent drought, high rainstorm, with high intensity leading to crop and infrastructure damage. The mean annual rainfall in the watershed is low (less than 300 mm/year). The rainfall is especially irregular during rainy season months (August to October). The intense rainfall during this period causes severe erosion.

Land use[36]. The dominant land cover use is “other land” (mostly rocky lands) occupying 1,170 ha. The remaining 1,170 ha (50%) area is used for AFOLU, with grasslands being the most dominant cover (780 ha ha, or 33%), followed by mostly rainfed cropland and tree-covered areas, 293 ha (13%) and 98 ha (4%), respectively. Figure 6 shows the land cover classes. The watershed has the largest percent of Key Biodiversity Areas among the three target watersheds (see Figure 6 in Annex).

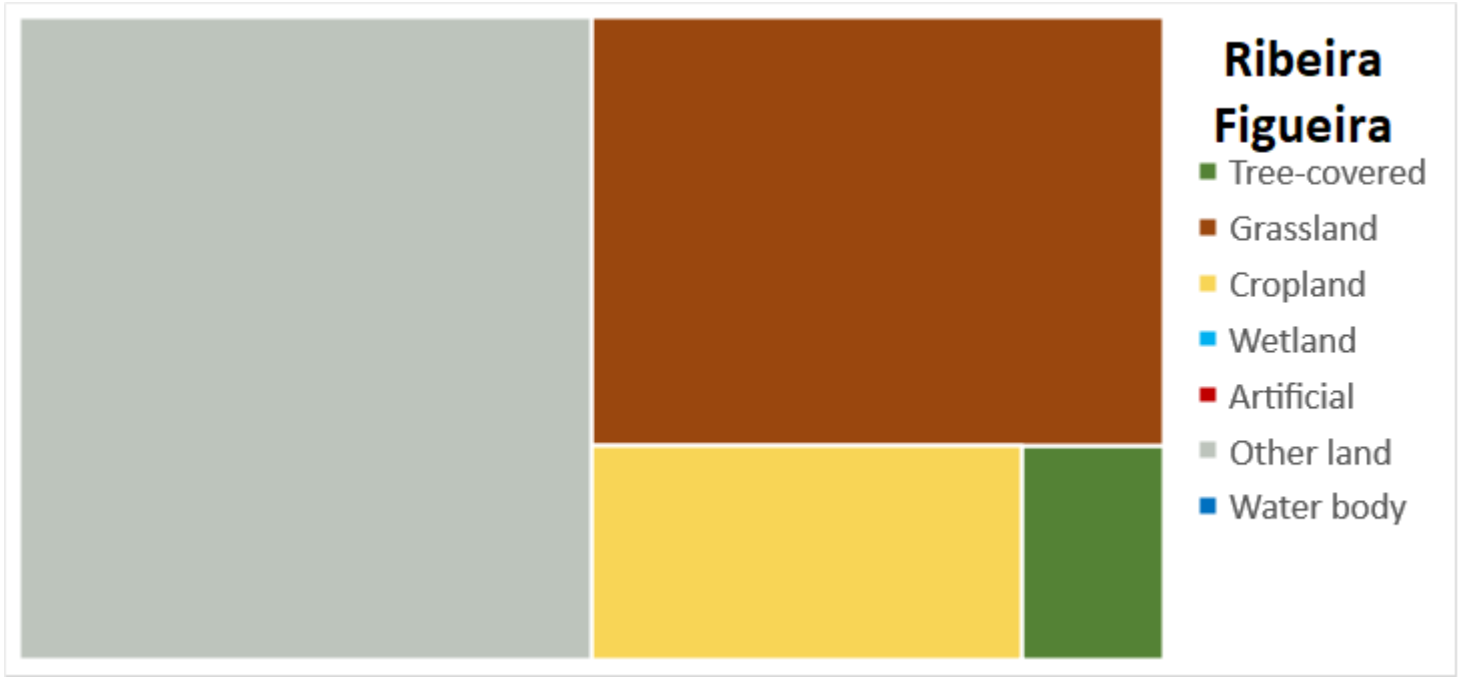


Figure 6. Land cover classes in the Ribeira Vale de Garça watershed[37].

Soils and water resources. The soils are similar to the ones found in the Ribeira da Patas watershed (see above). Underground water resources are estimated to be 1,642,500 m3/yr and the surface water resources is about 1,684,000 m3/yr.

Status of land degradation. The main anthropic activities that contribute to land degradation are 1) **overgrazing** of already limited grasslands, especially in the semi-arid areas 2) **deforestation** for wood energy, 3) **intensive cultivation of steep slopes** without adequate conservation measures regardless of land suitability or vegetation productive potential. **Low soil cover results in flash floods** and water erosion symptoms formation (rills, gullies, sedimentation). Despite the existing few technology-based solutions (terraces, stone walls), almost **19% of the surface area of the watershed present a soil loss higher than 20 tons/ha/year**, exerting additional pressure on the remaining agricultural land.

Socio-economic profile. The watershed has an estimated total population of 1,810 people, and more than 85% are smallholder farmers. Entire population of the watershed is rural. Outmigration is widespread, affecting mostly the age group of 20 to 50 years old. The majority of migrants are women. Under the business-as-usual scenario, the population will reduce by 13.75% by 2,035 (from 2017 level baseline, INE estimation). Within the livestock sector, goat breeding is the most developed sector with the biggest number of animals (580) and the goat's meat production is 2,610 kg/year and 4,725 kg/year for pork meat production. The milk production for goats is 15,312 l/year and 5,993 l/year for cattle. The total forage production in the watershed is 356 tons of dry

matter (DM), which is way below the annual estimated needs of 515 tons. The forage production by sector is 114 tons of DM/year for Acacia and shrubs, 67 tons for forest area, 58 tons for rain-fed crops, 62 tons for irrigated lands and 54 tons for fallows area. The wood production is 43 tons/year with 24.6 tons from acacia and shrub lands and 18.4 tons from forestlands.

Institutions. The City Hall of Ribeira Grande, the Ministry of Agriculture and the Regional Delegation of Ribeira Grande, The Ministry of Education, the Ministry of Infrastructure, the Church, and Local Association of Farmers operate within the watershed.

PROJECT BARRIERS

The project will target three barriers that prevent the achievement of LDN in Cabo Verde:

Barrier 1: Limited enabling environment

One of the key barriers to addressing land degradation effectively is the inadequate enabling environment, both from a policy/planning perspective and a capacity perspective. Each of these issues are described below.

a) Policy/planning processes

At the legal level, Cabo Verde had several laws and legislations that in the last 40 years have confirmed the commitment to the environmental sector[38]. The Constitution of the Republic of Cabo Verde (article 73) stipulates that all citizens have the right to a healthy and ecologically balanced environment and the duty to value and defend it, which is also highlighted in the Basic Law for Environmental Policy (Law nº 86/IV/93).

A set of strategic instruments guides the entire development process of the country, aiming to mainstream environmental issues into the planning process to eradicate poverty and to promote sustainable development. These include: The National Development Plans (PND); the Growth and Poverty Reduction Strategy (DECRP I: 2004–2007, II: 2008–2011, III: 2012–2016); the National Environment Action Plan (PANA II: 2004–2014); the National Program to Combat Poverty (PNLP 1996–2008); Strategy, Growth and Poverty Reduction Document I, II and III (DECRP); National Agricultural Investment Plan (PNIA); the National Adaptation Program of Action (NAPA 2008–2012); First National Communication; National Poverty Alleviation Plan (PNLP); the Agricultural Development Strategic Plan (PEDA: 2004–2015); Forest Action Plan (PAF); Strategic Plan for Agricultural Development (PEDA); Action Plan for the Integrated Management of Water Resources (PAGIRH); Cabo Verde 50% Renewable - A Pathway to 2020; Strategic Plan for Protected Areas; Integrated Financial Strategy (EFI); National Domestic Energy Plan (PNED); National Strategic Plan for Water and Sanitation (PLENAS); National Strategy for Food Security (ENSA); National Education Plan; National Biodiversity Strategy and Action Plan (EPANB); and the National Action Plan to Combat Desertification (NAP, 1998, being updated to

align with the UNCCD 10-year strategic plan). PANA II in particular promotes natural resources management, the use of efficient techniques, local participation in the sustainable use of natural resources, and sustainable management of biodiversity. It further defines policies for food security and incorporates the objectives of the UNCCD NAP.

The administrative land planning is done by the Ministry of Infrastructure, Territorial Development Planning, and Housing in collaboration with the Ministry of Agriculture and Environment that is in charge of the development of land use plans. For example, issues relating to land tenure are often included in forestry and combating desertification policy, in the management of conflicts between agriculture over ownership of state-owned land, in land conservation policies, and so on. Actions to combat desertification, drought, and soil degradation are implemented at the watershed level by the Ministry of Agriculture and Environment through Watershed Management Plans. Drought management is based on an Emergency Plan for Drought Mitigation coordinated by the Ministry of Agriculture and Environment (PEMSMAA). This Plan allowed the identification of areas and regions with greater socioeconomic and environmental fragility and several relevant data and information were collected for a better intervention in the rural sector where the problem of land degradation is more pronounced. While the country has a National Forestry Management Plan (PAFN), it is outdated and not in line with the National Forest Inventory. Participatory approach methodology needs to be evaluated and updated to align with the LDN.

There are thus different levels of planning with some of them focusing on specific sectors or landscapes which are led by different institutions. This array of planning processes in Cabo Verde needs to be better coordinated in order to support the LDN approach in which land degradation management is coupled with land use planning. The institutions at national levels that are leading in designing and implementation of these plans should be better informed to ensure successful acceptance and integration of the LDN concept and approach for implementation at site level. As land degradation is a multi-sectoral issue, the priorities and needs arising from following a LDN approach have to be reflected in all of the above-mentioned planning and management processes and tools. In addition, the LDN report states that there has been a lack of a true land policy and management of land use in Cabo Verde, which is a recognized factor of limited impact at scale and LDN by 2030. Likewise, forestry and land use laws need updating and regularization. Furthermore, grazing areas are not defined by any instrument, and thus are not managed under the business-as-usual scenario.

b) Capacity to mainstream and implement LDN

Capacity is limited at both the institutional (central and local government) and grassroots level (local communities and land users, NGOs, and Farmer Associations) to mainstream and implement LDN. Although the recent developments in related sectors have increased the knowledge of combating land degradation in relevant institutions, the SLM concept is mostly understood as technology-based solutions for erosion control in production landscapes. Therefore, in order to achieve LDN mainstreaming at the national and sub-national levels, the capacity and awareness of these institutions need to be enhanced. A capacity needs assessment and a corresponding training program will be designed during project preparation. The project will focus on building capacity of government institutions within the three target watersheds, but keeping in mind the underlying goal of the project to upscale its experience both at the island (other watersheds) and national levels (under similar biophysical and socio-economic contexts).

<u>Barrier 2: Lack of demonstration models to encourage adoption of sustainable land management best practices and resilience-enhancing approaches</u>

Since most of the rain-fed cropland is on steep slopes, the main concern has been to protect citizens from crop failure due to erosion. Following six famines in the 20th century that took more than 75,000 lives and outmigration, the authorities took famine eradication measures by stabilizing the agricultural landscape. The landscape has been transformed and now such techniques can be found throughout the nine inhabited islands. The success of the Government measures is also attributed to the strategy involving the communities[39]. While the hillsides were protected from runoff and erosion caused by heavy rain events, in-field agronomic measures, or nature-based solutions that led to sustainable productivity increase, such as soil cover and nutrient management were neglected. One of the foremost challenges in Cabo Verde is limited knowledge of local land users on SLM benefits in rain-fed and irrigated systems. The low input farming system, dominated by continuous maize and beans intercropping still faces severe climate conditions, inadequate crop and land management practices, and land degradation.

While there is some level of familiarity among technical specialists who are working with farmers and stakeholders in the field, their technical capacity is not adequate. Closely related is the general lack of technical knowledge on how to transition current agricultural systems to incorporate non-technology-based SLM and be more resilient to climate change. It is well known that climate change will likely mean degradation in quality of soils through salinization and erosion but there are no protocols, technical resources, methodologies that are designed to implement remediation and restorative measures for conditions, and optimally those incorporating nature-based solutions. Furthermore, tools in the form of guidelines and other forms of technical assistance packages are limited.

Limited marketing opportunities of agricultural commodities has long been a challenge in Cabo Verde. The agriculture sector is mainly subsistence-based except for sugar cane, pineapple, coffee and banana with a larger majority of smallholder farmers lacking knowledge and skills on aligning agricultural value chains to marketing and commercialization. Thinking of a value chain as a business and understanding how to minimize costs, improve efficiencies, differentiate products, and overcome challenges to achieve profitability is critical to achieving sustainable livelihoods and reaching LDN by 2030. Lessons learned from previous interventions indicate that to improve farmers' access to markets, it is essential to provide capacity building to strengthen their ability to plan production. It is also necessary to promote the skills of farmer organizations in order to meet quality and quantity requirements in a sustainable manner[40].

Barrier 3: Limited data, knowledge and experience to support decision-making processes on LDN

Despite the enormous investment in technology-based solutions, a clear overview of their extent and combined benefits in terms of agriculture productivity, conservation effectiveness, sustainability, and rural people's well-being, is still poorly assessed and scientifically documented. The country lacks an integrated information management framework/monitoring system that is focused on assessment of land degradation status and trends and tracking of investments in sustainable land management across agricultural and rural landscapes in particular. Vital national maps, such as land cover map, soil map, grazing map, soil organic carbon map are missing. This compromises the ability to invest in the process of establishing LDN that may inform spatial development tradeoffs and decisions on land development. Planning for the agricultural sector is hampered by poor and/or inadequate agricultural statistics collection and data available to policy makers is limited and outdated, which compromises the government's ability to make informed policy decisions.

Monitoring and assessment of SLM measures in Cabo Verde are at an initial stage. Information on past interventions is scattered and of little influence for new SLM activities. There have been other initiatives in the country that have included environmental data management components that are of relevance, however most of these systems have been developed around project-based directives and as a result, long-term application is generally not sustained beyond the project periods as they tend not to be mainstreamed into national accounts.

There is limited capability on the ground to systematically collect data, particularly for monitoring how climate change is affecting hydrological relations and changes in soil condition that has important implications in the context of degradation of ecosystems and agricultural land productivity potential. Technical professionals do not have capacity in state-of-art research tools and methodologies that prevents them from employing them adequately in their work or maintaining them beyond initial investment when introduced under short-term initiatives. At a national scale, this also hampers the delivery of the SDG commitments, as the linkages between them are not sought/accounted for. Farmers, communities and other beneficiaries are often not engaged in the process of data collection, where there is recognized good potential to mobilize additional data collection support through citizen science approaches. There is only one soil laboratory available for 10 islands based out of Praia. Consequently, there is low buy-in and limited recognition of the importance of data application by stakeholders. The other important element under this barrier is the general lack of translation of knowledge gained from field data collection into public awareness products to drive behavior.

2) The baseline scenario and any associated baseline projects

In the baseline scenario, since the country's independence in 1975, the stabilization of the agricultural landscape with erosion control measures and the maintenance of sustainable yields became absolute priorities, not just for environmental protection, but also for survival. Since most of the rain-fed cropland is on steep slopes, the main concern has been to protect the hillsides from Horton runoff and erosion caused by heavy rain events, while neglecting in-field agronomic measures, or nature-based solutions that eventually lead to sustainable productivity increase, such as soil cover and nutrient management. Following the last big famines in the late 1940s, the GoCV focused its rural development policies on technology-based solutions to address desertification, water scarcity, and soil erosion, aiming to reconstruct the ecological potential and reduce poverty in rural areas[41]. This has completely changed the landscape to an extent where soil erosion control measures can be found everywhere, with the exception of rock outcrops.

Combatting land degradation through technology-based measures constitutes the main pillar of the sustainable rural development strategy in Cabo Verde. Cabo Verde was the first African country and the second in the world to ratify UNCCD, demonstrating the commitment to tackling land degradation and desertification issues. An institutional framework has been set up, adapted and strengthened through the years, to support both the current activities of rural development and UNCCD implementation. The GoCV has a number of national strategies and legislative/regulatory frameworks addressing land-related issues (see *Barriers* section).

Through the LDN Target Setting Programme, the Global Mechanism (GM) and the secretariat of the UNCCD, in collaboration with multiple international partners, are supporting interested countries with their national LDN target setting process, including setting national baselines, targets and associated measures to achieve LDN. Sustainable Development Goal (SDG) 15.3 states: *"By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world".* The country established the LDN Working Group (LDN

WG) to develop national voluntary targets based on the global data shared by the UNCCD and specific national circumstances and development priorities. see *Consistency with National Priorities* section for further details. The country's vision is that the LDN will accelerate the achievement of SDGs linked to poverty reduction, food security and nutrition, environmental protection and sustainable use of natural resources (see section 6 on envisaged linkages to the SDGs and co-benefits). The main objectives for the creation of the LDN WG were to a) define LDN indicators, b) Elaborate the action plan for the implementation of the LDN targets, c) Select LDN hotspots, d) Elaborate the vision for a transformative project in accordance with the UNCCD guidelines.

The LDN target setting process was an integral part of the existing national coordination mechanisms. All relevant stakeholder groups were involved in the LDN target-setting process. The LDN WG is made up of the representatives from the following institutions:

- Representatives of the Ministry of Agriculture and Environment (MAA), preside the committee;
- The National Representative of the UNCCD Science and Technology Committee;
- The National Focal Point of the United Nations for Combating Desertification (UNCCD);
- Representative of MAA's DGPOG;
- National NDT Consultor;
- Advisor of the Minister of MAA;
- Representative of the Ministry of Foreign Affairs and Communities (MNEC);
- Representative of the Ministry of Infrastructure, Territory Management and Housing (MIOTH);
- Representative of the Ministry of Finance.

Following the submission of the LDN target-setting report, the objectives for the creation of the LDN WG had been achieved. Given the success of the LDN WG, the proposed project will serve as a key accelerator to revive the WG for the objective of the objective of the LDN targets implementation.

The GoCV acknowledges the above-mentioned barriers to achieving LDN and is committed to providing an effective response across sectors and at various government levels. The LDN target setting process was an integral part of the existing national coordination mechanisms. All stakeholder groups including the private sector and financial institutions were involved in the process under the guidance of senior Government officials.

National baseline initiatives

Cabo Verde Treasury:

1) Water Mobilization, Storm water Correction and Agroforestry Development (USD 1,014,054 co-financing, recurrent investment, national level): Consists in the promotion and implementation of water and soil conservation actions, having as a planning unit the watershed, focusing on water mobilization for irrigation, flood prevention and mass landslides aiming at mitigating the effects of climate change, desertification and land degradation.

2) Reforestation and Maintenance of Forest Perimeters (USD 1,477,678 co-financing, recurrent investment, national level): Fits into the policy of modernization of the agrarian sector and rural development, through the implementation and development of agro-sylvo-pastoral systems. Specific outputs of this investment include for instance: (i) Ensure the maintenance and restoration of forest stands and CSA infrastructures; (ii) Ensure systematic surveillance/surveillance in forest perimeters; (iii) Contribute to soil and water conservation, restore ecosystems and recharge aquifers; (iv) Increase the availability/supply of woody and forage products; (v) Increase the production of firewood, fodder, and other agro-forestry and pasture products; and (vi) Contribute to the improvement of the living conditions of the beneficiary communities, by increasing family income and improving local environmental conditions.

Cabo Verde Environmental Fund:

1) Elaboration and Implementation of management plans for forest areas (USD 554,890 co-financing, through 2023, national level). It fits in the modernization policy of the agrarian and pastoral sectors and rural development and the durable management of the forests in order to assure a perennial forest cover in the country and a constant availability of forest products to the populations, through the elaboration and approval of the technical and legislative instruments foreseen in the Forestry Law.

2) Recovery of the forest perimeter of the Eastern Plateau - Santo Antão (USD 341,471 co-financing, through 2023, East Plateau Forest Perimeter - Santo Antão). The investment aims to restore the entire forest area, about 200 ha, burned during the 27 July 2018 fire (fogo Posto), in the areas of Morro de Conceição, Morro de Vento and Cruz João Herodes of the East Santo Antão Plateau. The investment aims to restore the forest to its previous state within a period of five years. The continuity of this forest reserve will ensure that local populations and future generations have more balanced ecosystems.

3) Recovery of degraded forest areas and institutional capacity building (USD 266,744 co-financing, through 2025, São Nicolau, Sal, Maio e Santiago). The project is framed within the policy of modernization of the agricultural sector and rural development, contributing to the materialization of some objectives of the National Forestry Action Plan. Due to the climatic and geomorphologic characteristics of Cabo Verde, as well as anthropic pressure, ecosystem degradation and consequently desertification processes are accelerated. To counteract this situation, it is necessary to continue the major effort to combat drought, through actions of forestation and ecosystem restoration.

4) Conservation and sustainable use of forest resources (USD 43,645 co-financing, through 2023, Santiago, São Nicolau, Brava, Sal e Boa Vista). The project is framed within the policy of modernization of the agricultural sector and rural development, contributing to the materialization of some objectives of the National Forestry Action Plan.

International baseline initiatives

The Adaptation Fund:

The *Increasing the resilience of local communities to climate change through improved watershed management and land restoration* (USD2,000,000 co-financing, 2023-2026, Santiago and Sao Antão islands) project is financed by the Adaptation Fund and executed by Ministry of Agriculture and Environment. The project involves an integrated, two-fold intervention to build resilience. On one hand, it targets the expansion of the national water storage capacity through a suite of non-conventional water management structures; and on the other, it incorporates the development of the forestry sector through the exploitation of the forest ecosystem products and services. Such a two-fold intervention is anchored in the holistic approach of climate adapted watershed management. The overall objective of the project is to build adaptation resilience through improved water management and land restoration that would further facilitate climate-adaptive agricultural activities. In order to reach the overall objective, the project proposes three interlinked components in a 4-year implementation period, i.e.: COMPONENT 1: Building an enabling environment for informed and integrated watershed management to support the planning of adaptive development. The expected outcome of this component is climate-informed decision-making and planning in integrated watershed management through increased capacities on water storage potential; COMPONENT 2: Improving water storage capacities and promoting land restoration to build resilience of farming communities. The component aims at (i) increasing increased water storage capacities through the sustainable development of non-conventional water resources and enhanced access of farmers to surface water resources. It combines structural and non-structural measures to improve climate resilience of communities. (ii) It will also improve land restoration through re-naturalization and afforestation of degraded lands; COMPONENT 3: Supporting agricultural supply chain to improve climate-smart production, food security and livelihood of vulnerable communities. Its outcomes are (i) Improved climate-smart production through the resilient agricultural practices; (ii) Enhanced livelihood of vulnerable communities through enhanced and digital access to food markets. The AF project's intervention areas include the islands of Santo Antão and Santiago. Technical solutions and financial instruments disseminated by the AF project will be capitalised upon under Components 1-3 of the proposed project in order to expand practices contributing to Land Degradation Neutrality.

SIDA:

Global Transformation of Forests for People and Climate: a focus on West Africa project is implemented by FAO with support from Sweden (USD 500,000 co-financing, 2019-2023, all Economic Community of West African States (ECOWAS) including Cabo Verde). Focusing on ECOWAS countries, the project aims to strengthen decision-making on forests and land management. In particular, the project targets (i) knowledge of the state of forest ecosystem dynamics; (ii) forest and land-related laws, policies and strategies at the sub-regional level; and (iii) demonstration and dissemination of sustainable forest and land use practices. The project investments will support outputs under component 1 and 2, and in particular respond to capacity needs in terms of landscape management and support the set-up of a conducive institutional environment for sustainable and resilient ecosystem management. In particular, the project will focus on 3 areas of work, including: knowledge of the state of forest ecosystem dynamics; forest and land related laws, policies and strategies at the subregional level; and demonstration and dissemination of sustainable forest and land use practices.

USAID:

West Africa Biodiversity and Low Emissions Development Activity (WABiLED) (USD 500,000 co-financing, 2021-2025, all Economic Community of West African States (ECOWAS) including Cabo Verde) is financed by USAID. The goal of the project is to promote biodiversity conservation and climate resilient, low emission development in West Africa. The objective is to strengthen the capacity of national and regional networks and institutions to enforce and prosecute wildlife trafficking laws; enhance regional and transboundary forest cooperation and conservation strategies using best practices; and improve capacity for economically viable low emissions development strategies. From the very large USD49M investment, USD500,000 are mobilized as project co-financing,

complementing the GEF LDN activities as it will support Low Emissions Development Strategies (LEDS). Work with local communities and the private sector to identify opportunities that secure land tenure and provide economic benefits while reducing GHG emissions, sequestering carbon through forest restoration and mitigating the adverse impacts of climate change. Restoration opportunities will focus on approaches such as agroforestry, soil management, and conservation. In close collaboration with stakeholders, WABiLED will leverage investment support and work through grants and the private sector to promote LEDs activities and prioritize the engagement of vulnerable populations.

FAO:

Support of agricultural production systems to enhance food security and nutrition in the Republic of Cabo Verde (US$400,000) (USD 400,000 co-financing, 2021-2024, Santo Antão and Santiago). The South-South Cooperation project is aimed at strengthening capacity development with the objective of supporting production systems to enhance food and nutrition security in the country, thanks to poverty alleviation, livelihood improvement, economic growth and increased employment especially of women and youth. Priority areas to be supported within this three-year project include agricultural production, pest control, livestock and seaweed aquaculture. More specifically, this project would focuses on : (i) Promotion of horticulture, through the technical assistance on soil, water and fertilizer management for horticulture; (ii) Promotion of plant protection by introducing methods and organizing field trainings for the Integrated Pest Management of corn worms and the biological control methods on the soil pests in Cabo Verde; (iii) Realization of a study on the seaweed eco-physiology and the potential of seaweed cultivation and value chain in Cabo Verde and development/implementation of pilot sites to introduce and promote the culture of seaweed in the country; and (iv) Promotion of livestock smallholders, by improving the animal production and enhancement of animal genetics, strengthening epidemiologic surveillance and enhancing livestock products.

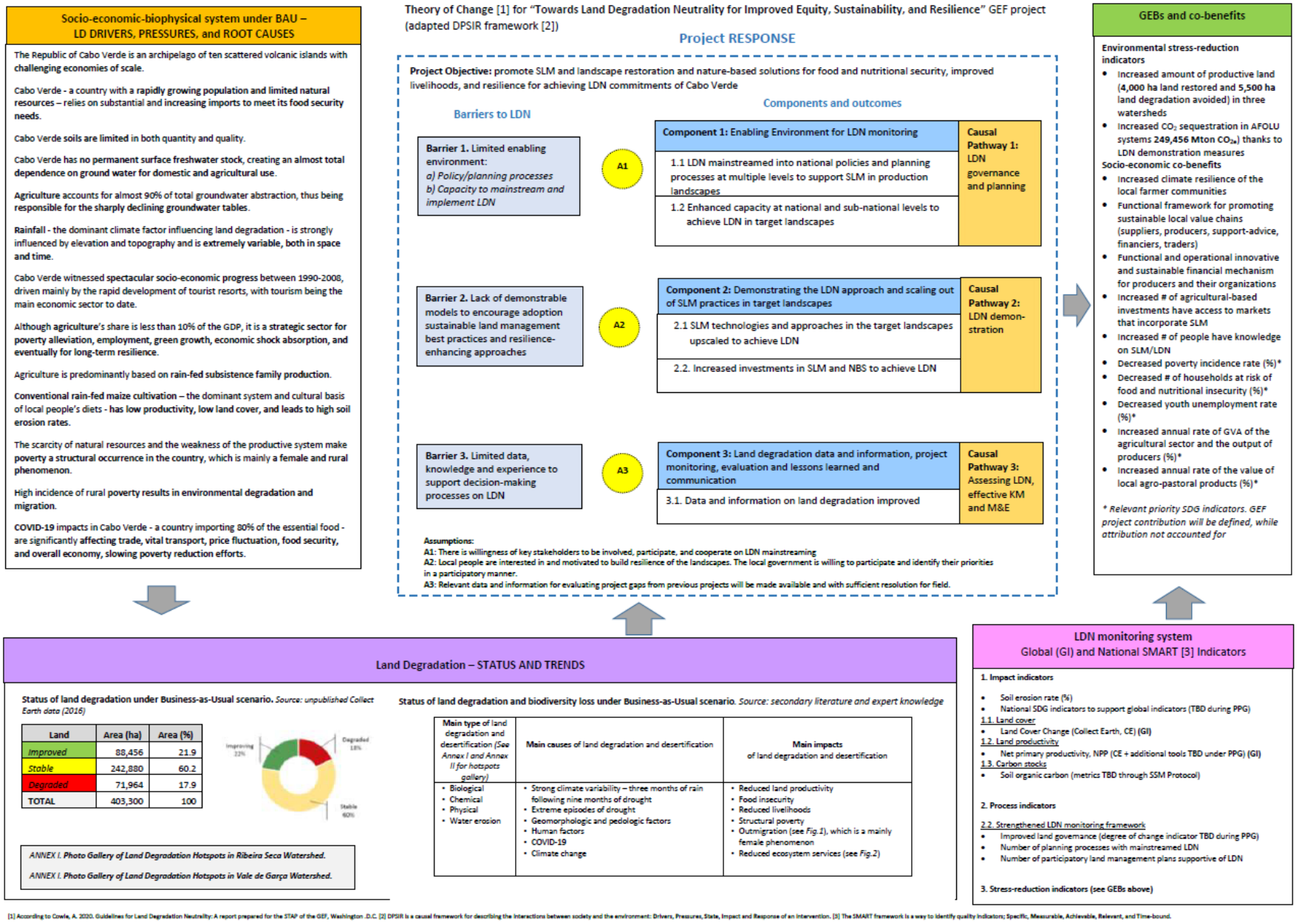
All of the above-mentioned projects are closely related to the proposed GEF project, in terms of policy, institutional and technical baseline, beneficiaries and landscapes. The current situation indicates that a tremendous effort is required to achieve SDG 15 as well as the set national LDN target, expected to be achieved by 2030. However, it is also clear that ongoing initiatives and the existing policy, institutional and legal framework will not allow GoCV to accomplish its international commitments to the 2030 Agenda. Cabo Verde therefore still needs support to all the steps involved in achieving LDN described under the Causal Pathways.

3) The proposed alternative scenario with a brief description of expected outcomes and components of the project;

The project strategy is to position LDN as an accelerator to achieve several relevant SDG targets in Cabo Verde. Using a holistic, contextual framework on which decisions can be tested and actions prioritized, the LDN approach hierarchy of *"avoid, reduce, reverse"* allows for perspective and attention of key stakeholders from various sectors on land degradation issues and beyond. It is also scalable, allowing for data and information to be captured and relevant to scales from individual farmers to larger administrative units under the supported watersheds. It provides a suit of cost-effective, immediate, and long-term benefits to communities, taking into account available resources and potential options and returns on investments. It the case of Cabo Verde, LDN is also clearly linked to several SDGs, especially SDG-2 (zero hunger) and SDG-13 (climate action). The project assumes a number of leverage points – areas to intervene in the system where an incremental change leads to a significant shift in behavior – along the three proposed project causal pathways (see below). The project will use a landscape approach[42] - with the landscape being a *watershed* - to integrate across sectors, scales, and stakeholders to increase the chance of maximizing co-benefits and minimizing trade-offs in a cost-effective way.

The challenges and barriers to LDN and the upscaling and mainstreaming of SLM practices within an integrated mosaic landscape context are complex. For this reason, a well-defined strategic approach that recognizes and outlines a country's capacities and resources and then allows for participatory identification of key priorities is needed within a context where funding and resources are limited. Thus, using incremental GEF resources, the project will improve the enabling environment, data and information for LDN decision-making and demonstrate the LDN approach in the three target watersheds *Ribeira Seca, Ribeira das Patas*, and *Vale de Garça* using nature-based solutions aiming for food and nutrition security, improved livelihoods, and resilience. As the country does not have a dedicated fiscal recovery package for agriculture, the project will demonstrate an opportunity for green recovery and "building back better" in the wake of the COVID-19 pandemic, particularly addressing the needs in islands of Santiago and Santo Antao where the already vulnerable family farmers have been severely affected.

The project's Theory of Change (ToC) is reflective of the project's strategy. The ToC provides a reference point that ensures stakeholder engagement throughout the lifecycle of the project; helps define and analyse monitoring data that contribute to continuous learning through the intervention; constraints the flexibility boundaries in the project to genuine adaptability justified by thoughtful amendments to the ToC and consistent with agreed goals, rather than being a result of arbitrary deviations; frames ex-post evaluation; and aids learning that informs subsequent projects[43]. The ToC follows the STAP guidelines on the scientific conceptual framework for LDN[44] and takes a phased approach adapting the DPSIR framework[45] to the project's causal pathways. These steps will be guided by taking into consideration the Land Degradation Neutrality Transformative Projects and Programmes (LDN TPP) Checklist and national priorities.



The ToC diagram has been annexed as a separate document. It outlines a set of key causal pathways arising from the project interventions and the assumptions underlying these causal connections. The causal pathways are prescribed to effectively address the key barriers to LDN that were described in section 1. Similarly, the project is framed against the backdrop of assumptions that have bearing on the anticipated outcomes to be realized through the

proposed causal pathways. These causal pathways are described below along with the associated assumptions. With the ongoing COVID-19 pandemic, a crucial assumption is that the GoCV through its health care sector is able to mitigate and manage the impacts and that business continuity is maintained within mandated protocols.

Causal Pathway 1: LDN governance and planning

Oftentimes, the most difficult causal pathway to influence and change, is where the most significant barriers to SLM are found. An improved enabling environment is vital to scaling SLM practices, especially under the requirements and ambition of the LDN framework. The policy reform for LDN coherence plays a key role in creating incentives for increased SLM and improved co-benefits for broader impacts. LDN Principles 13 and 14 on Participatory Integrated Land Planning and Good Governance are essential to this process. The Causal Pathway 1 directly addresses Barrier 1: Limited enabling environment.

Project Assumption 1 (A1):

There is willingness of key stakeholders to be involved, participate, and cooperate on LDN mainstreaming. A fundamental assumption is that the policy directive to enhance food security and nutrition, conserve ecosystems, and build resilience in its productive sectors, will remain at the top of the policy agenda, thereby maintaining strong political buy-in. Revival and strengthening of the LDN Working Group with its multi-stakeholder nature are vital to the success of the outcomes 1.1 and 1.2. Policies and instruments listed in the earlier sections have synergetic effects on the established project objective. During the PPG, the team will assess the feasibility of establishing a system dynamics model to capture the synergetic effect of relevant policies for cross-policy pollination and cost-effective SDG implementation.

Causal Pathway 2: LDN demonstration

This causal pathway will target implementation of the LDN hierarchy of responses *"avoid, reduce, reverse"* based on the land degradation status in target land use systems within the accepted land use planning processes. What LDN brings to the conversation is how these SLM approaches could work in unison to increase ecosystem services and achieve Cabo Verde's LDN targets by 2030 with co-benefits to other SDGs. While the social acceptance and cost considerations are required for applying individual SLM technologies, there is also a need for continued R&D on their role within a wider biophysical and social context, thus linking the work to Component 3. LDN Principles 6-9 on mechanisms for neutrality and 10-12 on achieving neutrality are essential to this process. The Causal Pathway 2 directly addresses Barrier 2: Lack of demonstrable models to encourage adoption sustainable land management best practices and resilience-enhancing approaches.

Project Assumption 2 (A2):

Local people are interested in and motivated to build the resilience of the landscapes. The local government is willing to participate and identify their priorities in a participatory manner. Market-based instruments define the system's scope and boundaries and thus are key leverage points towards achieving LDN. Related, is the assumption that the private sector realizes value (or a business opportunity) in building the value-chain linkages that that integrate SLM and

nature-positive and nutrition- and gender-sensitive approaches that mitigate degradation of terrestrial ecosystem services and increase overall resilience and equity in productive landscapes.

Causal Pathway 3: Assessing LDN, effective KM and M&E

This causal pathway is likely one of the most effective and efficient pathways to implement systemic behavioral change towards LDN through knowledge sharing and networking. The final phase will include setting up the LDN monitoring system based on the three global LDN indicators, one national indicator (soil erosion rate), and additional national impact, process, and stress-reduction indicators. Special attention is given to the national priority SDG indicators for higher leverage. Local knowledge and continuous learning will be applied to validate/interpret the data, and anticipate/adjust/create new steps – closing the LDN loop. LDN Principles 15-19 on monitoring are essential to this process. The Causal Pathway 3 directly addresses Barrier 3: Limited data, knowledge and experience to support decision-making processes on LDN.

Project Assumption 3 (A3):

Relevant data and information for evaluating project gaps from previous projects will be made available and with sufficient resolution for field application. Behaviour change is a long-term process. The project success will be accumulated after the project ends and may not be accounted for at the time of final evaluation to demonstrate impact. Thus the success of the intervention is based on learning from previous experiences, both already published and still in draft. Another related critical assumption is that the knowledge and expertise developed and piloted under the project will influence behaviour change of a wide range of stakeholders, from direct beneficiary to policy-maker level.

A brief description of expected outcomes and components of the project

The project seeks to deliver intended outcomes through three interlinked project components leading to the desired objective *to promote sustainable land management, landscape restoration and nature-based solutions for improved food security and nutrition, livelihoods and resilience, supporting the achievement of Cabo Verde's LDN commitments.* To assess and carefully design the behavioural change of the complex biophysical-socio-economic system, a number of baseline studies will be conducted during the PPG. Two cross-component baseline studies are envisaged: 1) land potential analysis for nature-positive production, and 2) social and gender analysis[46] to develop a gender-specific Theory of Change, project-specific Gender Action Plan, determine social drivers of degradation and capital/asset base for social vulnerability to shocks. An initial list of Component-related studies is provided below.

Component 1. Enabling Environment for LDN monitoring

This component will strengthen the enabling environment for LDN by tackling fragmented policy and planning processes and weak institutional capacities. The project's policy-focused interventions will therefore include reviews of policy and territorial planning instruments to enhance local stakeholder participation and mainstreaming of LDN. The reviews will have clear, achievable recommendations for cross-sectoral coordination and collaboration within a revised national framework, as well as providing support to GoCV and in testing and development of potential incentive programs for SLM technologies and approaches.

The increased coordination – through the revival and strengthening of the LDN working Group - at wider landscape levels could also improve the efficiency of the agricultural inputs management, landscape-scale water retention through water harvesting, and increase economic opportunities, etc. To ensure that counterbalancing measures do not diminish the well-being of land users, beneficiary targets identification has to be participatory and inclusive, adhering to GEF guidelines and the GoCV protocols and standards (some of which will be updated under Component 1 of the project), with efforts going towards supporting vulnerable livelihoods dependent on natural ecosystems and ecosystem services. Among the public and private sectors, LDN is still an innovative concept globally. To achieve the project objective, capacity will need to be built among key actors within private and public institutions, as well as local land users, and training will play a key role in this process. Project developers will also need to look outside traditional groups, such as youth and women's groups, for capacity building and knowledge transfer by including a wider range of sectors and representatives.

This component also seeks to develop the basis for an LDN decision support system (DSS) to prevent future land degradation and allow the country to have a solid quantitative basis to achieve its LDN targets by 2030. The design of the DSS will include the identification, testing and calibration of different metrics for LDN indicators (i.e. land cover, soil organic carbon, land productivity, soil erosion rate, and other relevant indicators) that will allow decision-makers to analyse trade-offs and synergies between different types of land uses, practices, and national objectives (for example, food security and nutrition or poverty reduction). The selection of these metrics will build on the work currently being done by the country on desertification, erosion, drought management, climate resilience building, food security and nutrition, poverty alleviation, and other relevant work. These metrics will then feed an LDN decision support mechanism based on the land use planning units and a software (application based on the online map prepared for the PIF that is available at https://bit.ly/3mIYVyr). The LDN DSS will be developed and tested allowing analysis of trade-offs and synergies between different land use development options.

The mechanism will be designed as a forward looking process aimed at integrating and coordinating activities for the prevention and reduction of land degradation, rehabilitation of partly degraded land, and reclamation of desertified and salinized land. Action plans (or iimplementation plans) for achieving LDN targets in the three target watersheds will be developed based on the experiences from the demonstration activities. This will be coupled with introduction of gender- and nutrition- sensitive sustainable livelihood strategies (done under Component 2) and a focus on enhancing land productivity to improve local incomes and livelihoods.

During the PPG, policy and land planning analysis will be conducted to further identify policy drivers of degradation and define the activities under Component 1. This may include the situation analysis on land tenure/land dispute mechanisms, land use planning units, available SLM scaling out support mechanism, activities that require awareness and/or action by policy makers seeking to ensure appropriate governance in support of LDN, policy coherence and co-benefits (linkages with relevant policies, such as water management, food security, poverty alleviation, etc.). Two outcomes are envisaged as a result of this work:

1.1. LDN mainstreamed into national policies and planning processes at multiple levels to support SLM in production landscapes. The outcome will be achieved through four outputs:

1.1.1. Review of strategic regulatory frameworks and territorial planning instruments to enhance local stakeholder participation and mainstreaming of LDN (update and regularize draft forestry law, territorial planning/land use management policy and law, participatory approach methodology in rural and peri-urban areas by the rural extension sector, land tenure, definition of grazing areas)

1.1.2. LDN Decision Support System (LDN DSS) for planning and implementation in place

1.1.3. LDN Action Plan with voluntary targets defined for each target landscape

1.1.4. LDN coordination mechanism reviving the LDN Working Group at national level is strengthened by vertical coordination with municipalities (through participatory approach methodology done under 1.1.1)

1.2. Enhanced capacity at national and sub-national levels to achieve LDN in target landscapes. The outcome will be achieved through two outputs:

1.2.1. Capacity development program in place for LDN implementation and monitoring targeting national and local government staff, including extension

1.2.2. Capacity building program on SLM to achieve LDN (using LADA, WOCAT, etc.) at local level for farmers in the target landscapes (applying the farmer field schools approach)

Component 2. Demonstrating the LDN approach and scaling out of SLM practices in target landscapes

This component will enjoy the slowly improving LDN policy and territorial planning processes (done under Component 1) and demonstrate and test the LDN DSS developed under Component 1 in the watersheds of Santiago Island (Ribeira Seca) and Santo Antao Island (Vale de Garça and Ribeira das Patas) with the aim of generating GEBs in terms of improved land cover, land productivity, and enhanced soil organic carbon sequestration, leading to improved local livelihoods, food security and nutrition, and reduced poverty.

Participatory landscape-specific improvement plans will be developed based on priorities identified by the stakeholders with the support of the DSS. Engagement and full participation of relevant stakeholders throughout the project cycle is at the core of the project. During the PPG, target beneficiary profile (including detailed criteria for selection) will be developed and stakeholder consultations will be conducted in order to identify stakeholder information needs (scale, type), capacity building needs, success factors/obstacles behind already introduced SLM technologies, determine the rules for counterbalancing land gains and losses, and engage them in the ground-truthing of the satellite images. The project recognizes the importance to ensure that actions taken in pursuit of the LDN target do not compromise the rights of land users. Taking into account lessons learned under the GEFID 9812 project, due consideration will be given to the local social/cultural values.

These plans will in turn inform the establishment of demonstration activities on SLM best practices in forests, rangelands and croplands that provide land productivity and carbon benefits (e.g. *assisted natural regeneration, re-naturalization of forested areas, live barriers on fallow lands/cliffs, manure application on drylands, installation of green barrier on rain-fed lands, mineral fertilizer management in irrigated lands, grazing crop residues to allow vegetation recovery, pasture rotation, agro-forestry, conservation agriculture, restoration of salinized lands, use and upscaling of drip irrigation and rainwater harvesting, use of*

solar energy for pumping water from drilling, pest management in agro-forestry systems, etc.). In addition, enjoying the strong linkages with the Adaptation Fund project, measures and approaches for reducing the impacts of climate change (especially drought) will be integrated into the SLM practices to enhance their resilience to climate change.

SLM options are ultimately subject to economic realities, thus making value chain development and diversification another vital component for project success in achieving project outcomes. During the PPG, potential agriculture value chains – that are climate-resilient, gender- and nutrition-sensitive - will be studied for LDN potential, then selected and mapped based on transparent criteria for selection of relevance to the national LDN agenda based on the market linkage assessment. These could consider options for nature-positive nutrition-sensitive VCs (e.g. introduction of resilient nutrient-rich crops and/or re-introduction of indigenous/ forgotten nutrient-rich crops, bio-fortification[47]. As nutrition can be a business opportunity, targeting the tourism sector will be explored during the PPG (market assessment and investment baseline analysis), including promotion of nutritious local foods (example of Slow Food presidia and Geographic Indication). Likewise, post-harvest food loss issues and opportunities will be explored during the PPG. Criteria for access to credit could include the promotion of LDN-oriented nature-positive production and nutrition-sensitive food systems based on gender sensitive approach.

During the PPG, available SLM technologies and approaches will be mapped to define the bright spots for the project replication, success factors and obstacles for the performance of SLM field trials, and finally off-site impacts of SLM. Along the way, the opportunities to add value for livelihoods strengthening and private sector project positioning will be sought. The project will undertake an analysis of the current status and expectations of women and youth in the pilot watersheds and define mechanisms to answer their needs in terms of economic development and livelihood enhancement. Two outcomes are envisaged as a result of this work:

2.1. SLM technologies and approaches in the target landscapes upscaled to achieve LDN. The outcome will be achieved through two outputs:

2.1.1. Participatory integrated plans developed in the target landscapes within the watersheds of Santiago Island (Ribeira Seca) and Santo Antao Island (Vale de Garça and Ribeira das Patas) (land use plans, forestry /agroforestry management plans in accordance with National Forest Inventory)

2.1.2. Innovative SLM practices implemented to enhance productivity, restore degraded land and increase climate resilience (assisted natural regeneration, re-naturalization of forested areas, live barriers on fallow lands/cliffs, manure application on drylands, installation of green barrier on rain-fed lands, mineral fertilizer management in the irrigated lands, grazing crop residues to allow vegetation recovery, pasture rotation, agro-forestry, conservation agriculture, restoration of salinized lands, use and upscaling of drip irrigation and rainwater harvesting, use of solar energy for pumping water from drilling, pest management in agro-forestry systems, etc.)

2.2. Increased investments in SLM and NBS to achieve LDN. The outcome will be achieved through two outputs:

2.2.1. Priority gender-sensitive and nutrition-sensitive value chains selected and a functional framework for their sustainable development proposed (involving suppliers, producers, support-advice, financiers, traders)

2.2.2. Innovative and sustainable financial mechanisms (e.g. subsidies, tradable permits, Public-Private Partnerships, certification programs, penalties, local resource mobilization plans, etc.) for producers and their organizations along the priority value chains identified and developed

Component 3. Land degradation data and information, project monitoring, evaluation and lessons learned

The component focusses on enhancing the evidence base for improved decision-making to support integrated landscape management. Physical boundaries of the land use and system classes as well as land tenure boundaries are also essential to prevent conflicts and avoid illegal changes of land use (e.g. from forest to arable land).

GEBs generated by the field demonstration under Component 2 will be monitored and assessed for reporting on SDG 15.3 and to the GEF, but also for drawing broader lessons on the design of LDN interventions with the objective to maximize GEBs while ensuring LDN and sustainable livelihoods. The project will seek to disseminate and analyze best practices in sustainable irrigated and dryland agriculture, rangeland and forest management and publish best practices using, e.g. the WOCAT reporting template, as well as publishing LDN guidelines based on the project's experiences. The project will share information with other interested countries through the UNCCD, FAO, regional and national platforms (see *Knowledge Management* section).

The LDN DSS will initially attempt to use the LDN monitoring framework through systematic measurement of the three global voluntary LDN indicators (land cover change (LCC), net primary productivity trend, and soil organic carbon (SOC) trend) supported by the recently developed LDN Interpretation Matrix[48], plus additional national *impact, process, and stress-reduction* indicators described below[49]. LDN monitoring framework – the essential basis to track progress towards 2030 - contains the recommended global indicators, each with a different aspect relevant to LDN: LCC detects the human actions that drive land degradation and its reversal; land productivity reflects the impacts of those drivers on plant production as a measure of ecosystem function; and change in the SOC stocks, which responds more slowly, indicates a change in productive capacity.

The three SDG 15.3.1 global sub-indicators are essentially *"change of state",* or *"impact"* indicators and represent only one dimension in the LDN impact pathway, providing for the view that this alone is insufficient to capture more subtle changes in landscape processes until a change of state has been made[50]. How to link the spatial results and trends to LDN practices is currently under debate and initial stages of testing. To monitor LDN along its entire impact pathway there is the need to include also *"Process"* and *"Response"* indicators that are related to the improvement of enabling environment, which includes policy framework changes, increased capacities of stakeholders and improved information/monitoring systems. Also, there are the *"stress reduction/change of pressure"* indicators - these are the improved management of natural resources, sustainable management practices, land-use planning activities, that in time may either produce a *"change of state",* and/or act in avoiding and reducing land degradation.

Linked to the LDN monitoring system, a national soil information system will be guided by the indicators described in the *Protocol for Sustainable Soil Management (SSM) assessment of the voluntary guidelines of sustainable soil management* (VGSSM)[51]. In this regard, the quantification by soil indicators will be

based on the national soil laboratory capacities and guided by the SSM indicators which have been developed under this Protocol in order to accurately assess the effectiveness of the implementation of selected SSM practices in varying circumstances, including different soil types, climate, food production systems and available means[52].

Additional national impact indicators linked to the national SDG priorities have been proposed and will be validated during the PPG phase by the GoCV. Therefore, under this project, the aim is to develop, test and consolidate an accepted methodology for measuring LD and ecological trends and having an agreed system of criteria for defining LD. These considerations are portrayed in the initial design of the LDN Monitoring Framework of Cabo Verde (see *Theory of Change*).

During the PPG, stakeholder consultations will be conducted in order to identify knowledge gaps and needs for further research to support evidence-based decision-making (i.e. LDN monitoring system, LDN decision-support system, circular economy system dynamics model, land potential, insights (i.e. local assessment tools and methods, quantification for decision-making, etc.) on off-site impacts of SLM, climate change risks and opportunities for scaling out SLM, costs and benefits of SLM, national system dynamics model for policy cross-pollination/true integration, etc. One outcome is envisaged as a result of this work:

3.1. Data and information on land degradation improved. The outcome will be achieved through four outputs:

.1.1. Data and information on land degradation status and trends (such as LADA, Sustainable Soil Management Protocol, soil map, grazing map, soil organic carbon map, soil fertility map, land cover map, etc.) made available

3.1.2. A national soil information system and remote sensing-based land degradation monitoring and knowledge sharing system are set up and operational (linked to the LDN DSS (1.1.2))

3.1.3. M&E system in place to capture and develop knowledge. Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed

3.1.4. Knowledge sharing/dissemination plan implemented

4) Alignment with GEF focal area and/or Impact Program strategies;

Land Degradation Focal Areas LD-1-1 Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through SLM and LD-2-5 Create enabling environments to support scaling up and mainstreaming of SLM and LDN: The project proposes to strengthen the policy and decision-making environment to facilitate investment in land degradation measures toward achieving LDN, with the underpinning of enhancing climate resilience, that in the case of Cabo Verde is of critical importance given the impacts climate change, manifested in storms, floods and droughts, having immediate impacts on recharge of aquifers, reduced crop productivity, and shrinking native vegetation to microrefugia sites, with detriment in farmers livelihoods. Drought alone is expected to reduce incomes by USD 2 million due to crop failure. This will be in line with the proposal contained in the Cabo Verde's LDN Target Setting Program. The project will address the drivers of land degradation within productive landscapes of three watersheds on two target islands that are under most intensive production and land use, with the integration of innovative SLM and nature-based restoration measures along with climate-resilient agriculture within

the context of a comprehensive landscape approach manifested in integrated watershed planning. The project is expected to generate co-benefits to improved food security and nutrition, livelihoods, equity, overall resilience, including to the impacts of climate change that will contribute to the global environmental benefits.

5) Incremental cost reasoning and expected contributions from the baseline, the GEFTF and co-financing;

The project will have three components where incremental GEF support builds on the strong national baseline to strengthen land policy, planning, management, and knowledge sharing that will eventually lead to Land Degradation-Neutral Cabo Verde by 2030.

Project Component	Baseline scenario	With-project scenario
Component 1. Enabling Environment for LDN monitoring	The project builds on the strong baseline that is inherited thanks to the work of the LDN Working Group that led the development of the national voluntary LDN targets, where all types of stakeholders took an active role. The country has a fairly stable and robust institutional structure with relevant state institutions having the mandates on the environmental protection, management and use of land and natural resources, monitoring and impact assessment. The implementation of environmental protection measures are entrusted to a number of Ministries and entities, whose functions and actions are clearly defined. However, the country does not have a robust multi-level coordination mechanism that meets LDN criteria. The regulatory framework that supports the environmental sector and maintaining ecological balance is in place at national level. A set of strategic instruments guides the entire development process of the country, aiming to mainstream environmental issues into the planning process to eradicate poverty and to promote sustainabl	With the GEF investment, land degradation neutrality objectives will provide a basis to guide land use planning and policy reform for land degradation mitigation. The GEF investment will contribute to enhancement of stakeholder engagement in contribution to planning and development processes. GEF support will revive the LDN Working Group and strengthen capacities at national and sub-national level to achieve land degradation neutrality and no net loss of productive land. With GEF funding, the project will complement baseline interventions to capacitate key stakeholders for an integrated planning and implementation of sustainable landscape-level interventions and for mainstreaming LDN into relevant policies and practices, enabling the upscaling/outscaling of SLM. The project will focus on building capacity of government institutions within the three target watersheds, but keeping in mind the underlying goal of the project to upscale its experience both at the island (other watersheds) and national levels (under similar biophysical and socio-economic contexts).

	e development. In the baseline, however, policies still have limited reach and scop e, and there is a lack of holistic, integrate d approach for landscape level planning. Unclear land tenure is one of the biggest obstacles for SLM as reported by the LDN TSP report. The country has different levels of land pl anning that ranges in given sectors or lan dscapes and led by different institutions. A “watershed” is considered the minimu m land planning unit that allows sound m anagement approach for tackling various land degradation causes and trends (drou ght, salinity, etc.). The array of planning pr ocesses needs to be better coordinated i n order to support the LDN approach in w hich land degradation management is co upled with land use planning. The instituti ons at national levels that are leading in d esigning and implementation of the secto ral plans should be better informed to ens ure successful acceptance and integratio n of the LDN concept and approach for i mplementation at site level. As land degr adation is a multi-sectoral issue, the priori ties and needs arising from following an LDN approach have to be reflected in all o f the planning and management processe s and tools. In addition, there is limited capacity and k nowledge on LDN, and the role that SLM can play in strengthening resilience of far mland and landscapes. The country does not have any LDN monitoring or decision	The project will develop the basis for an LDN d ecision support system (DSS) to analyse trade-offs and synergies between different types of l and uses, practices, and national objectives to prevent future land degradation and allow the country to have a solid quantitative basis to ac hieve its LDN targets by 2030.	

	support system or action/implementation plans at local level. As such, will be unable to meet the country's commitments by 2030.	
Component 2. Demonstrating the LDN approach and scaling out of SLM practices in target landscapes	Since most of the rain-fed cropland is on steep slopes, the main concern has been to protect citizens from crop failure due to erosion. Following six famines in the 20th century that took more than 75,000 lives and caused outmigration, the authorities took famine eradication measures by stabilizing the agricultural landscape. Thus, significant investments have been made on technology-based solutions, such as terraces, dams, afforestation, and irrigation schemes, thus reducing the acute risk of erosion and food insecurity. While the hillsides were protected from runoff and erosion caused by heavy rain events, in-field agronomic measures, or nature-based solutions that lead to sustainable productivity increase, such as soil cover and nutrient management were neglected. There is also no systematic effort to strengthen value chains in support of sustainable resilient production systems. Without GEF support, baseline interventions would be limited in scope and not lead to long-term increase of productivity of limited land resources.	The GEF project will make targeted investments in implementing ecological restoration through climate-resilient SLM under integrated land use plans that will be developed in a participatory manner. The project will complement baseline interventions with enhancing agricultural know-how and leveraging investments for sustainable resilient value chains with focus on gender and youth inclusion. It is anticipated that the improved practices and restoration interventions will generate significant land degradation GEBs and deliver climate change adaptation and substantial socio-economic co-benefits that are closely linked to the national SDG targets. Thus, the project presents a strategic opportunity to position LDN to leverage the achievement of the national SDG priorities.
Component 3. Land degradation data and information, project monitoring, evaluation and lessons learned	In the baseline, the country lacks an integrated information management framework/monitoring system that is focused on assessment of land degradation status and trends and tracking of investments in sustainable land management across agricultural and rural landscapes in particular. Vital national maps, such as land cover	GEF investments will fund the incremental costs of setting up the LDN monitoring system based on the three global LDN indicators, one national indicator (soil erosion rate), and additional national impact, process, and stress-reduction indicators. Special attention will be given to the national priority SDG indicators for higher leverage. Local knowledge and continuous lear

	map, soil map, grazing map, soil organic carbon map are missing. This compromises the ability to invest in the process of establishing LDN that may inform spatial development trade-offs and decisions on land development. Monitoring and assessment of SLM measures in Cabo Verde are at an initial stage. Information on past interventions is scattered and of little influence for new SLM activities. Technical professionals do not have capacity in state-of-art research tools and methodologies that prevents them from employing them adequately in their work or maintaining them beyond initial investment when introduced under short-term initiatives. At a national scale, this also hampers the achievement of the SDG commitments, as the linkages between them are not sought/accounted for. Consequently, there is low buy-in and limited recognition of the importance of data application by stakeholders. Generally, knowledge gained from field data collection are not translated into public awareness products to drive behavior change.	ning will be applied to validate/interpret the data, and anticipate/adjust/create new steps – closing the LDN loop. Furthermore, regular meetings and exchanges will be organized under the Project Steering Committee, to ensure that lessons learned in the project are compiled, shared, and used to inform policies at the national and sub-national levels.

6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

The proposed project will deliver global environmental benefits in the form of the following:

· Increased amount of productive land (4,000 ha land restored and 5,500 ha land degradation avoided) in three watersheds

· Increased CO_2 sequestration in AFOLU systems (avoided emissions amount to 249,456 metric ton $CO_{2\text{-eq}}$) thanks to LDN demonstration measures and improved management in agriculture, grass and forest land

The proposed project will also have important co-benefits:

- Increased climate resilience of the local farmer communities
- Functional framework for promoting sustainable local value chains (suppliers, producers, support-advice, financiers, traders)
- Functional and operational innovative and sustainable financial mechanism for producers and their organizations
- Increased # of agricultural-based investments have access to markets that incorporate SLM
- Increased # of people have knowledge on SLM/LDN
- Decreased poverty incidence rate (%)*
- Decreased # of households at risk of food and nutritional insecurity (%)*
- Decreased youth unemployment rate (%)*
- Increased annual rate of GVA of the agricultural sector and the output of producers (%)*
- Increased annual rate of the value of local agro-pastoral products (%)*

** Relevant priority SDG indicators monitored under process of Cabo Verde's Voluntary National Review on the Implementation of the Agenda 2030 for Sustainable Development (2021)[1]. GEF project contribution will be defined, while attribution not accounted for.*

The project results will thus be attributed to SDG 15.3, and contribute to a number of others, especially SDG 1, 2, and 13.

[1] https://sustainabledevelopment.un.org/content/documents/282392021_VNR_Report_Cabo_Verde.pdf

7) Innovation, sustainability and potential for scaling up

In the recent decades, several SLM practices and climate change mitigation and adaptation measures and technologies have been developed to cope with the gradual degradation of the environment and people's livelihoods. However, these practices have faced a multitude of constraints, particularly in terms of their implementation at the local level. A rapid analysis of lessons learnt from past investments point at some context-specific elements to consider for a more sustainable project that has a potential for up-scaling and out-scaling.

Innovation:

This initiative together with the baseline projects on turning the LDN concept into practice is the first of its kind in Cabo Verde and is linked to the global target setting project and other activities promoted by the UNCCD. As such, the project will generate multiple innovative approaches and set the foundation for the coutnry's achievement of the LDN by 2030. The communities, hard hit by the destabilization of production systems and the structural adjustment, have been concerned primarily with surviving on a daily basis. Populations in remote areas have limited options for managing land and accessing other benefits of economic development. The structural food deficit is exacerbated by drought and worsening soil fertility, putting an increased pressure on natural resources, destabilizing fragile production systems, and their eventual degradation, and subsequent conversion of nearby woodlands and forests and ultimately leading to outmigration.

The project targets enhancing climate-resilient food production and nutrition in productive landscapes through nature-based solutions in support of Cabo Verde's voluntary LDN targets. Cabo Verde faces substantial land degradation issues, further exacerbated by climate change, and drought in particular. COVID-19 pandemic has further exposed the vulnerabilities of the economy of the country that is extremely reliant on tourism, underscoring the need to diversity the economic base through investment in other sectors, such as agriculture – the sector that already supports livelihoods and food security on the weak natural capital base. To avoid anticipated land degradation, the project intends to introduce innovation in policy and planning processes that mainstream SLM into wider national development planning frameworks under the national land use planning processes (watershed unit).

Analysis of the policy options may include examination of the dynamic system behavior, where a system is understood as "a set of elements or parts that is coherently organized and inter-connected in a pattern or structure that produces a characteristic set of behaviors, often classified as its functions or purpose"[1]. Such socio-economic system is bound by the ecosystems' carrying capacity locally and nationally, and "planetary boundaries" regionally and globally. Thus, an important and innovative feature of the project is the LDN Decision Support System that is linked with relevant priority SDG indicators within a context of a single system bound by a system boundary (island, watershed) and feedback loops[2] (social and economic drivers through social/institutional network connectivity). Understanding of the long-term dynamic behavior of watersheds for exploring plausible policy scenarios is necessary for cross-sectoral management and synergies. As management of natural resources often overlooks feedback processes between key social and economic system components, a dynamic integrated decision support system for policy-makers will be developed and updated as new data and information becomes available, thus serving as a long-term planning tool for risk informed decision-making.

Opportunity for innovation will also be extended in the project's field investments into nature-based solutions and climate-resilient agricultural production practices that will help reduce and reverse land degradation. Innovation in technical assessment and knowledge management systems will be introduced through improved data and information on land degradation that will initially feed into the LDN DSS, and eventually into policy planning.

Lastly, the project will involve the stakeholders at all levels, from local to national and international. The project rationale is grounded in the results and lessons learned of FAO-WOCAT DS-SLM project. The project will develop a strategy and action plan for mainstreaming, scaling up and scaling out of SLM. For that, further analysis of the relevant previous activities, the existing data and information on different SLM practices, including their implementation details, and the remaining critical barriers will be conducted.

Sustainability: The current COVID-19 pandemic poses a significant 'global risk' on sustainability of all projects, and this project is not shielded from this risk. Furthermore, current and future climate change impacts threaten the sustainability of SLM investments. However, there is a demonstrated interest of the government and local community to develop and implement a soil and water conservation program aimed at combating erosion, increasing water availability to sustain production while the government has the willingness to develop the capacity as well as strengthen its environmental institutions. Furthermore, the country's young population has a critical role towards sustainable development and shaping the future, being active architects of development.

In order to sustain the project outcomes, key design considerations have been made for better durability. For instance, the project emphasizes multi-stakeholder processes, supporting the capacity building and mobilisation of multiple stakeholders at national and landscape level. Stakeholder needs at the local level will be supported with strategic capacity assessments and capacity building activities tailored to local culture and targeted to develop champions and build trust and ownership. Capacity building and training activities targeting farmers will be conducted in collaboration with MAA. Gender empowerment is at the forefront of the project, with the establishment of a capacity and knowledge building programme targeting women.

The project outcomes and outputs will be sustained, and the impacts on the lives of the local communities will be maintained through demonstration of SLM practices with locally adapted measures supporting distributional benefit, which will be possible for the target community to sustain thanks to an enabling financial context and improved access to finance for SLM investment contributing to LDN. The project is targeting to remove major barriers causing degradation of land, such as land tenure. The capacity and knowledge development actions of the project seek to strengthen local know-how, which equips the communities with the right skills to pave their own development paths in a sustainable manner.

The LDN approach will be effectively mainstreamed into key sectors, especially environment, forestry, agriculture and livestock, and tourism. Moreover, monitoring of LDN will capitalize on Cabo Verde's existing land use planning processes (watershed level). This will contribute to the financial and economic sustainability of the LDN approach and monitoring and DSS. In addition, an LDN action plan will potentially include an investment programme and capacity to develop bankable projects (potentially through FAO's Rural Invest tool).

The project strategy, throughout the project life cycle, places particular importance to engaging with women and in designing its activities as gender-sensitive as possible. Demonstrating SLM practices at local level need to take local needs and circumstances into account, so that they not only particularly target women and their specific needs, but to also include measures for broadening livelihood opportunities or improving nutritional status in LD targets. This is done to ensure the project's sustainability at the same time through strengthening incentive systems favoring SLM and conservation measures as well as increasing the rural population's intrinsic motivation.

Scalability: The project has significant prospect to be scaled-up and -out. First, it will revise the enabling environment with respect to know-how (not the least through the revival of the LDN working group), policies, regulations as well as capacity and knowledge building; which will ultimately lead to the improvement in the management of land in the country. With the enabling environment and practical experience, the government of Cabo Verde and municipalities will have the necessary skills to replicate the projects interventions in other watersheds and islands and in general at national level. Finally, the project will focus on

ecosystem vulnerability assessments and surveys of key land degradation leading to locally adaptive LDN measures, allowing for the establishment of a strong baseline to protect and maintain the ecosystem productivity. The integrated watershed management approach to SLM across degraded landscapes developed in this project can serve as a good practice model for other projects seeking to balance ecosystem conservation and long-term productivity, while also addressing socio-economic and food and nutrition needs of local vulnerable producers.

[1] From the book “Thinking in Systems”, by Donella H. Meadows

[2] Feedback loop” is defined as “an amplifying or enhancing feedback loop, reinforcing the direction of change”. From the book “Thinking in Systems”, by Donella H. Meadows

[1] INE Estimates from the Instituto Nacional de Estadisticas for 2021 - Projecções demográficas 2010 - 2030

[2] Instituto Nacional de Gestão e Desenvolvimento dos Recursos Hídricos (INGRH). Plano de Acção Nacional para Gestão Integrada dos Recursos Hídricos—PAGIRE; INGRH Serie No 45, 2; República de Cabo Verde: Praia, Cabo Verde, 2010.

[3] https://eros.usgs.gov/westafrica/land-cover/land-use-land-cover-and-trends-cabo-verde

[4] Langworthy, M.; Finan, T. Waiting for Rain: Agriculture and Ecological Imbalance in Cabo Verde; Technology and Engineer Book; Lynne Rienner Publishers: Boulder, CO, USA, 1997; p. 212.

[5] Note: During the period of 2009-2015, economic growth decelerated significantly, a result of the protracted impact of the global financial crisis. Countercyclical fiscal measures did not restore growth and instead led to a sharp increase in the stock of public debt.

[6] https://data.worldbank.org/country/CV

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[45] DPSIR is a causal framework for describing the interactions between society and the environment: Drivers, Pressures, State, Impact and Response of an intervention.
[46] A household survey may be commissioned depending on data availability at local levels

[47] Biofortification - using agronomic practices that promote nutrient-rich local varieties (including NUCS), healthy soils and sustainable land management - can also address the problem of hidden hunger (micronutrient deficiencies) among the most vulnerable rural communities

[48] UNCCD 2020, A land degradation interpretation matrix for reporting on UN SDG indicator 15.3.1 and land degradation neutrality, in UNCCD Knowledge Hub, consulted 28 June 2021.

[49] See *LDN Monitoring System* in the ToC diagram provided.

[50] Gonzalez-Roglich et al. 2019, Synergizing global tools to monitor progress towards land degradation neutrality: Trends.Earth and the World Overview of Conservation Approaches and Technologies sustainable land management database,E nvironmental Science and Policy 93 (2019) 34–42

[51] Developed through within the framework of the Global Soil Partnership (GSP). The guidelines provide technical recommendations on how sustainable soil management can be achieved. The technical principles recommended by VGSSM, are: (1) to minimize soil erosion; (2) to enhance soil organic matter content; (3) to foster soil nutrient balance and cycles; (4) to prevent, minimize and mitigate soil salinization and alkalinization; (5) to prevent and minimize soil contamination; (6) to prevent and minimize soil acidification; (7) to preserve and enhance soil biodiversity; (8) to minimize soil sealing; (9) to prevent and mitigate soil compaction; and (10) to improve soil water management.

[52] Protocol for the assessment of the impact of sustainable soil management practices. Available at http://www.fao.org/fileadmin/user_upload/GSP/eighth_PA/SSM_Protocol_PA2020.pdf

1b. Project Map and Coordinates

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

The project selected landscapes can be seen in the next figure but also on the on-line map using the following link: https://bit.ly/3mIYVyr

Figure 7. Project target watersheds.

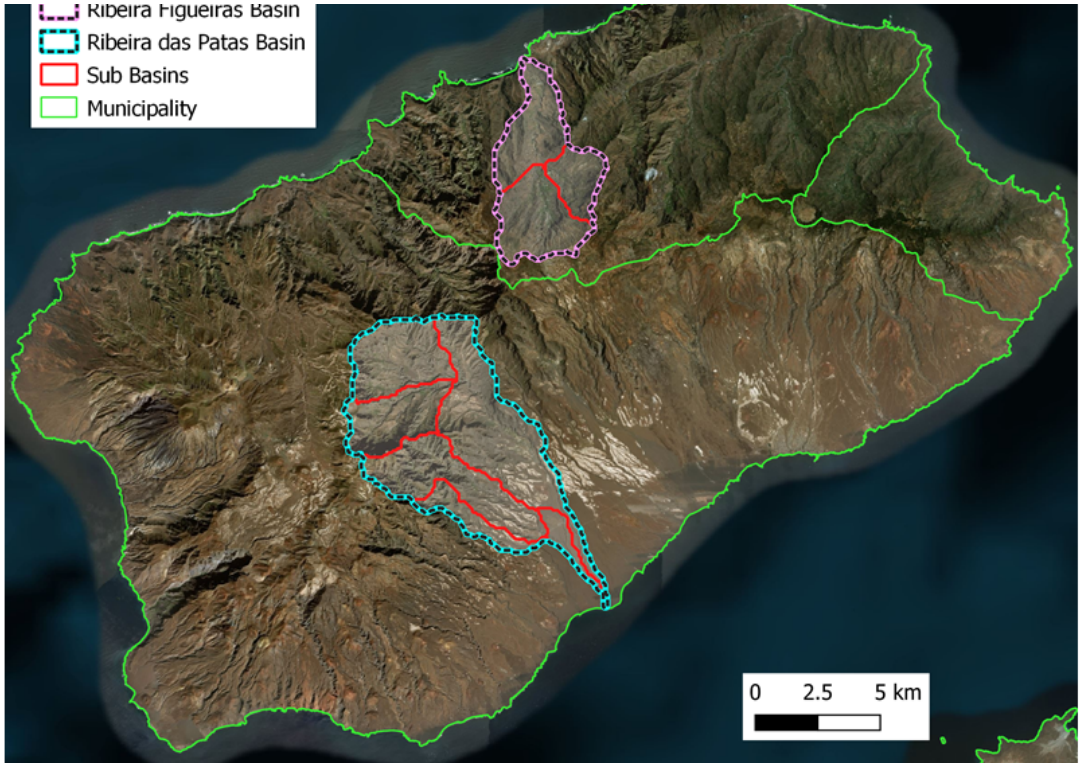
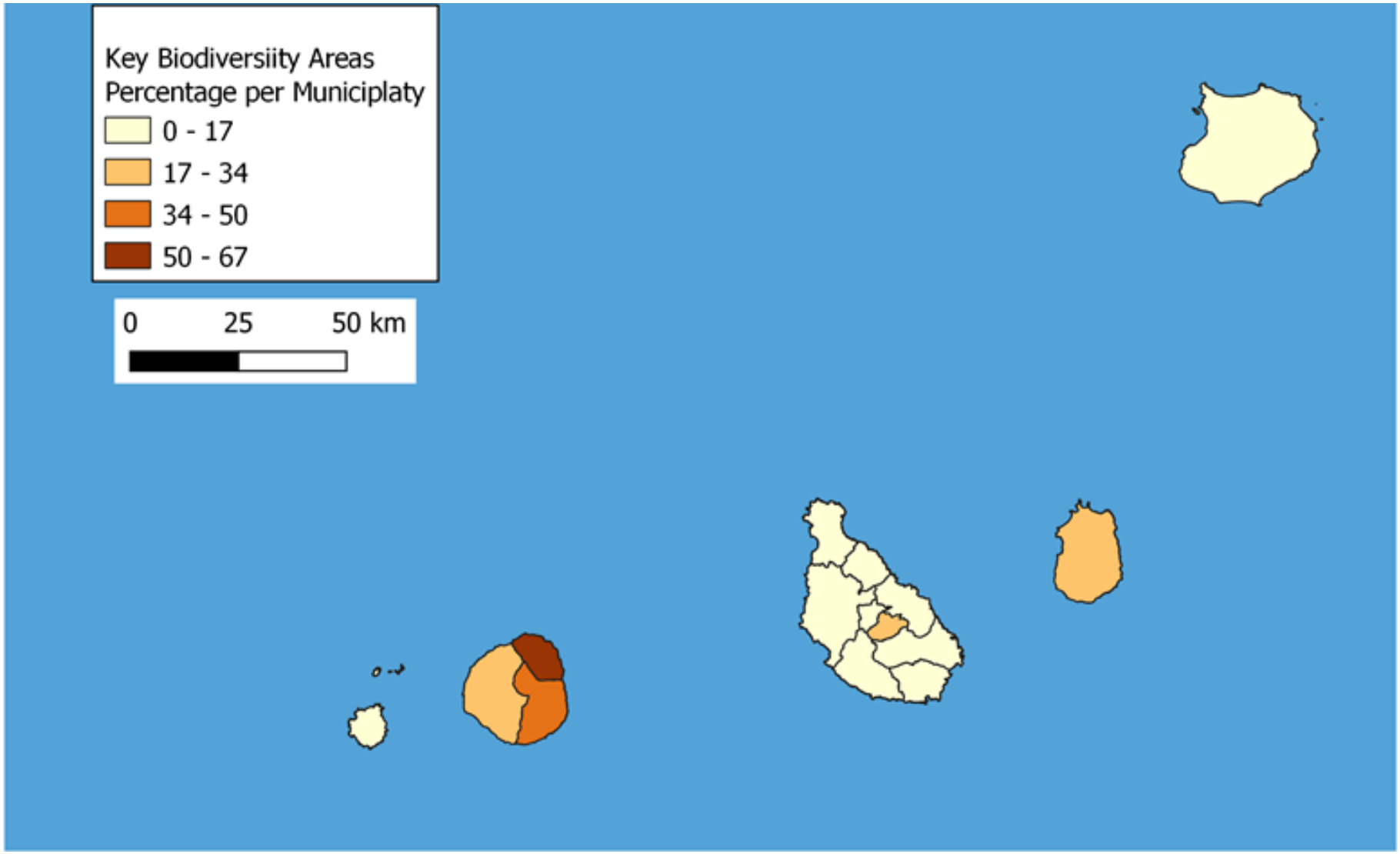


Figure 8. Key Biodiversity Areas as percent per municipality.



Watershed	Island	Municipality	Latitude	Longitude
Vale de Garça	Santo Antão	Porto Novo	17° 6'48.79"N	25° 9'46.30"W
Ribeira das Patas	Santo Antão	Ribeira Grande	17° 2'8.19"N	25°11'35.23"W
Ribeira Seca	Santiago	SLDO/SD/SC	15° 3'42.04"N	23°35'3.76"W

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:

The timing of PIF formulation coincided with the Covid-19 pandemic in the year 2021. For the most part, this led to an increased role of remote sensing and virtual stakeholder consultation and engagement. Field consultations were limited in time, number, and mode (only those that could be easily reached online). Nonetheless, from the following consultations and validation it was observed that the overall approach and subsequent results met with expectations from different stakeholders and does provide a basis on which to inform the prospective project design.

Consultations: The initial consultation phase was organized from 8 July 2021 to 31 August 2021 and included a series of virtual meetings with each partner individually or jointly in a group. These workshops mobilized various actors (see summary table below) from central and local, decentralized institutions. These consultations also made it possible to capitalize on the achievements and constraints of baseline projects under implementation, and to formulate proposals for the choice of landscapes and other project targets. Discussions focused on the points listed below:

- Review of the partner's current and up-coming initiatives for synergy and co-financing;
- Examination of the feasibility of the results, indicators and targets of the projects;
- Suggestions on the geographical coverage of the project and on the areas of direct intervention;
- The package of context specific options to tackle land degradation;
- The selection criteria (pre-selection) of the project implementation areas were validated; it was on this basis that landscapes were prioritized;
- The direct and indirect target beneficiaries of the project;
- Social and environmental safeguards, gender inclusion, experiences and good practices in progress in the proposed areas were identified, prioritized and validated with the assistance of stakeholders;
- Roles and place of the partner in the project and which other partners to involve;
- Relevant reference document that can feed into the baseline (data and cartographic productions according to the type of degradation; Soil map; Soil Organic Carbon Map; productivity map); and
- Socio-economic indicators to be taken into consideration;

Validation workshop: The validation workshop was held on 9 September and provided an opportunity to raise awareness on the project and discuss its approach and strategy - including its preliminary theory of transformational change, the concept of sustainability and the project's landscape approach - with key stakeholders. The components of the project, expected results, outcome indicators and outputs were presented to the targeted actors.

Also, a number of consultations where held after the validation workshop with the municipalities, farmers associations, civil society and representatives of the private sector.

The below table is a summary table of stakeholder consultations carried out during PIF design and the salient points resulting from the exchanges. The stakeholders below will be engaged during the project design to anticipate the implementation arrangements.

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Consultation Findings	Date	Comments
Mr Alexandre Nevsky Rodrigues, Advisor to the Minister of Agriculture and Environment OFP	Partner	National Government Institution body	Virtual Meeting	FAO developed a list of potential target islands based on 1) the national LDN TSP report priorities, 2) analysis of the GIS data, and 3) relevant national statistics. The criteria included the following: Normalize difference vegetation index (NDVI) 2001-2020; Population trend 2010-2030; Population and energy consumption - # of people that use wood as energy source; Screening of main types of LD processes, extent, and its drivers; Poverty (%); Food insecurity (%); Area of agriculture land as % of total; Importance of agriculture sectors to the local economy and livelihoods. As a result of the screening, three most prospective islands have been discussed: Santo Antão, Santiago, Fogo. The Government has decided to prioritize the “watershed” as project target landscape unit and proposed the following three watersheds for project focus: Ribeira Seca watershed (Santiago Island). and Santo Antao Island (Vale de Garça and Ribeira das Patas)	8 July 2021	Transparent screening of the entire country and the LDN report priorities expedites the prioritization of potential project target landscapes.
Ms Eneida RodriguesM						It has been agreed that additional

AA / DGASP /Director General Ms Ester Brito, Advisor to the Minister of Agriculture and Environment Mr Alexandre Centeio, MAA / DGASP /Director Forestry Services Ms Carmen Costa, MAA / DGASP /Director Services Ms Maria João do Rosário, Director Agriculture Services UNCCD Convention Focal Point a.i Mr Alexandre Centeio, MAA / DGASP /Director Forestry Services Ms Leopoldina Furtado, MAA/DGASP/Technician	Partner	National Government Institution body	Virtual Meeting	DGASP led the meeting that focused on the review of the zero-draft PIF. The review was favorable. The request to focus project Outcome 2.2 mainly on youth has been incorporated. Revival and strengthening of the LDN Working Group has been incorporated into the draft. Request to use the Collect Earth results (2016) for project positioning (core indicators/targets) has been incorporated.	15 July 2021	consultations with private sector were needed to ensure alignment with GEF policy.
Mr Alexandre Centeio, MAA / DGASP /Director Forestry Services Ms Leopoldina Furtado, MAA/DGASP/Technician Mr Amarildo Reis, INIDA, Technician	Partner	National Government Institution body	Virtual Meeting	DGASP and INIDA validate the proposed project components and intervention logic. Proposal to reactivate the LDN Working Group. The project can support the creation of an inter-sectoral expert group at national and local level to support the implementation of the LDN. Government agree to use Collect Earth data to calculate project targets and to update the national targets.	03 September 2021	It has been agreed that additional information on watershed selection and co-funding would be provided by the government.
						It was agreed that the selected tar

Mr Joel Barros, Delegate MAA, Porto Novo	Partner	Local Government Institution/body	Virtual Meeting	Overall acceptance for the project components and intervention logic. Delegations will be essential during project implementation as they are the ministry representatives at the local level and have a history of close relationship with the farmers and local communities through the different projects implemented on behalf of the Ministry. They are also essential to providing technical support to the farmers.	8-09 September 2021	get areas are one of the most affected by land degradation in the island.
Mr Orlando Delgado Delegate MAA, Porto Novo Mr António Andrade,Delegate MAA Santa Cruz Mr Ermelindo Barros, Delegate MAA São Domingos Ms Ana Afonso, Ms Jamira Duarte, Mr Ermelindo Tavares, Mr José Alves, Municipality of Santa Cruz Mayor Carlos Fernandes, Municipality of São Lourenço dos Órgãos	Other			The municipalities welcome the project and assure collaboration and full support to ensure success. They have appointed a focal point for follow-up during PPG.	13 September 2021	They are keen to actively work with FAO to define the criteria for target beneficiary and target value chains.
Mr Felisberto Veiga ,ACAISA - Santiago's agricultural, industrial and commercial service association	Indirect Beneficiary	Local community		ACAISA is a commercial association and helps its members to improve livelihoods trough income-generating activities. They mentioned the importance of the involvement of the local community and importance of training. Also the importance of improving agricultural productivity to attract more youth to the sector has been recalled.		They are keen to actively work with FAO for the sustainable development of selected target value chains.
				Mr Delgado expressed satisfaction with the project and its components,		They are looking forward to work

Mr Arlindo Delgado, President of Ribeira das Patas farmers Association	Indirect Beneficiary	Local community		particularly its focus on women empowerment. Most of the heads of families in Ribeira das Patas are women. They work primarily in the production of fruit plants. Ribeira das Patas is the second largest community in the municipality of Porto Novo. It has been severely affected by drought and land degradation. Ribeira das Patas has been receiving some investments to increase the number of irrigated areas.		with FAO and collaborate to improve the livelihoods of the community members
Ms Ana Barros , Ms Fatima Alves and Ms Maria Aleluia Andrade - MORABI Ms Eloisa Cardoso and Ms Idalina Freire OMCV – Cabo Verde's women organization Ms Marina Almeida, Cáritas Cabo Verde	Other	Civil Society Organization	Virtual meeting	The NGOs agreed with the proposed project components and sites, which have been under pressure because of the last 4 years of drought. They congratulated FAO for the well designed PIF which translates the main concerns of key actors. Cáritas Cabo Verde has expressed interest in involving Cáritas USA that have been funding projects in these areas and may be interested in increasing their support through this project.		They are looking forward to collaborate in the full project formulation and implementation. They have expertise in conducting projects aiming at women's empowerment, raising awareness, training and micro-credit (Morabi and OMCV).

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 detailed stakeholder engagement plan will be developed during the PPG, following a more detailed stakeholder mapping with the actors already engaged in the process. The table above lists the stakeholders engaged during PIF design. These actors will remain engaged in the following phases of the project cycle, and their specific roles and responsibilities will be detailed during PPG.

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).

The project recognizes women's practical needs associated with their traditional gender roles and seeks windows of opportunity to strengthen and expand them. Therefore, the project will identify a gender focal point within the team in order to coordinate actions, track adherence to the GAP operational principles (to be detailed during the PPG in line with the FAO, GEF, and UNCCD guidelines and policies), and report on the GAP implementation.

A preliminary review of gender analyses of the agricultural sectors in Cabo Verde lays bare the vulnerability and fragility of female farmers. Women usually work the smaller and less productive parcels, and have limited access to land and water resources, inputs and finance, all negatively affecting their full potential to contribute to SLM and land planning efforts, and their competitive participation in agriculture and food markets. Land tenure rights are gendered, and larger parcels predominantly owned by men. Because of women's limited access to inputs and finance, female farmers predominantly work on rain-fed plots, sensibly increasing their production's exposure to climate and other hazards. Their ability to respond to change and shocks is limited, their production unpredictable, and therefore nearly entirely destined for self-consumption. Economic opportunities for rural women is particularly difficult due to discriminatory social norms, geographical isolation and the lack of acknowledgement of their role as economic actors. 2015 survey data therefore do not come as a surprise, as they show a disproportionate incidence of poverty amongst women (53%) and female-headed households (60, 5%).

These barriers faced by women need to be overcome in order to achieve the LDN targets, and fully embrace LDN as an accelerator of other development objectives. Indeed, women traditionally engage in agricultural sub-sectors and tasks critical to SLM, including plant production in nurseries, seed selection, planting, collection of fuelwood and fodder, amongst others. A gendered approach in programming has become even more critical in a context of continuing emigration of men, as more and more women became heads of agricultural units and are tasked with production process decision-making.

During the PPG phase, relevant information and data on gender will be drawn from the socio-economic baseline report, field consultations and desk research to be conducted during the PPG, and will lead to the development of a dedicated gender analysis. The gender baseline report will analyse gender in select policy provisions and decision-making (including relevant SDGs), women's contribution to farming and gaps in access to agricultural inputs, and gender dimensions in the target value chains.

The analysis will lead to the development of Gender Action Plan (GAP). The GAP goal is to promote gender responsive SLM to achieve LDN commitments of Cabo Verde and to promote increased access to natural resources, economic benefits from these resources, increased participation in decision making related to these resources, and reduced workloads for women. In addition to gender-sensitivity in applying SLM at local demonstration sites, the project will use its leverage in working with governorate and national agencies for amending and establishing policies that explicitly refer to gender-differentiated roles and responsibilities for agriculture, SLM and species conservation. Similarly, both monitoring systems and capacity development strategies in component 3 will strive to maintain a gender-differentiated perspective, so as to enhance opportunities in socio-economic participation and decision making for the entire rural population the project is targeting. Indeed, gender responsive governance arrangements and more secure tenure will provide a more stable platform for

investment and for developing local rules and regulations for land management. Case studies will also be developed to highlight the role of women in conservation and sustainable land management. Project communication strategy will be gender-sensitive and the gender-disaggregated indicators will be featured in the project M&E systems.

In final, the project design team is conscious of the fact that reaching out to women is often challenging in patriarchal societies and organizing inclusive training or demonstration activities is not always possible. The project will nevertheless aim in this direction and pay attention to hiring women as part of the project staff and extension personnel to being able to address rural women to the extent possible and necessary.

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.

The private sector to be engaged in this project encompasses investors, landowners, food and retail operators, tourism, microfinance sector and family farmers, either organized in producer organizations or not. These actors are critical stakeholders in the project as their land use and development practices are concerned by project activities. Sustainable land management will be mainstreamed into private sector actors' operations as they work within the guidance provided by an integrated watershed management plan to support equitable, sustainable and resilient development. The private sector actors will be part of the LDN working group that will be revitalized under Component 1, and will be a key actor for successful project delivery under component 2. Indeed, there is a significant benefit for the private sector actors investing in SLM, including improved yields of goods, new business opportunities and novel markets, and creating and ensuring social "licenses to operate". The private sector can position itself to take advantage of these potential benefits in the context of the project, including: (i) new products and markets that are resource-use efficient and are suited to restoration and rehabilitation sites; (ii) improvements in existing markets by increasing production and adding value (agro-processing and marketing); and (iii) the supply of agricultural inputs and provision of technical services (in the area of drip irrigation, improved seeds/breeds, soil and water conservation techniques, pest control).

Furthermore, private sector stakeholders will be involved during the project design phase to identify options for financial incentives that will facilitate the adoption of SLM practices and the decoupling of economic activities from the unsustainable use of natural resources. Capacity building targeting small businesses and family farmers will be done through the development of needs-based skills development and training programs, contributing to the promotion of sustainable land management. Relevant stakeholders in the decentralized microfinance sector will be engaged both in project development and in providing financial support for consolidation and scaling up of gains on SLM practices. This support will validate and develop markets for priority value chains under Component 2.

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)

Risks to the project

Risk description	Risk	Risk mitigation measures
Lack of political will to reform and harmonize a cross-sectoral policy framework for LDN	L	Project priorities are aligned with the international commitment of the GoCV to the UNCCD and with the most recent national strategies, policies and legislation. Support for LDN will be further strengthened through implementation of components 1 focusing on improving the enabling environment for LDN that will increase the chances for long term buy-in. The leading role of the MAE and DGASP will build robust support to LDN among technical staff from key ministerial departments that enjoy a more stable position within the administration and reducing turnover volatility. The institutional success will be particularly assured by the revival and strengthening of the LDN Working Group under Output 1.1.4.
Insufficient capacity within the concerned ministerial departments of the GoCV to successfully engage in a comprehensive LDN multi-sectoral and multi-level programming	L	Component 1 will strengthen capacity at the national level to enable DGASP and other stakeholders to effectively engage and coordinate multi-sectoral and multi-stakeholder integrated land planning and implementation processes. Capacity development efforts will also be supported by Component 3, particularly through opportunities for learning and knowledge sharing.
Land users are reluctant to engage in SLM in their respective landscapes	M	The project design will recognize that capacity development does not equate to the number of workshops; it is a long-term endeavour requiring long-term support throughout the right implementation process. Community-based organizations will help consolidate the long-term adoption of SLM by land users. The participatory nature of the development of integrated land management

		ure of the development of integrated land management plans and selection of SLM priority interventions based on the LDN hierarchy of responses, together with the accompanying capacity development actions and financial mechanism will maximize community buy in. The fact that the project interventions are clearly aimed at food security and rural poverty reduction and creating business opportunities for the communities will encourage involvement of the grassroots beneficiaries. The targeted communities will full consultation during project design to ensure proposed technologies and approaches reflect the nuances of the socio-economic dynamics. The project will involve all stakeholders in the dissemination of good practices using appropriate tools for building social mobilization, gender mainstreaming capacities developed by FAO and other partners. Capacity building activities will be secured to prepare land users for implementation of the project.
Women participation in project decision-making and implementation is limited due to socio-cultural barriers	L	The project recognizes the gender constraints of women-headed households in terms of land tenure rights, access to credit, to irrigation technology and modern farming and livestock practices. Capacity enhancement interventions will address the specific role, constraints and needs of women in rural development, with concrete awareness raising and training activities to strengthen women leadership and secure their land rights and effective involvement in SLM and value chains. A project-specific gender action plan will be developed during the PPG, proposing corrective measures to ensure full and active participation of women throughout the project components. Sex-disaggregated targets will be aimed at for capacity development activities and with respect to access to finance for investments in SLM and sustainable value chain development.
Project activities are implemented in a compartmentalized fashion with little integration and coordination with all relevant gove	L	The project will establish a multi-stakeholder platform (Under component 1) to ensure that Stakeholders and key sectors coordinate and can influence and benefit from lessons learned from the project through a structur

rnment departments / municip alities		ed dialogue on mainstreaming results. A stakeholder e ngagement plan will be drawn up which defines the rol es of the stakeholders at the early stage of the project. During project implementation, the project will actively engage local communities and will raise awareness thr ough communication campaigns.
Current and future climate chan ge impacts threaten the sustain ability of the SLM investments demonstrated in selected water sheds	M	The climate change risk screening informs project pr oponents on the sensitivity to change, while also prop osing concrete ways to further embed mitigation acti ons into the project response strategy. Furthermore, t he project seeks to restore and improve land producti vity, strengthening resilience to anticipated climate h azards and threats (with a focus on drought), embed ding resilience into land planning and SLM investmen ts. Also, project approaches (e.g. farmer field school s) have the capacity to absorb climate change, addre ssing it in real time in curricula, and therefore minimis ing the immediate and visible impact on SLM.
COVID-19 pandemic threatens t iming and quality of project deli very due to continued restrictio ns on mobility and changing pri orities of development actors, a nd target communities	M	The number of COVID-19 cases continues to rise with c oncentration in the largest island of Santiago, though t he recovery rate is high. COVID-19 exposed the vulnera bility of the food market. According to the IMF[1], the e conomic outlook remains highly uncertain and depend ent upon the duration of the pandemic, the global econ omic recovery, and the Government' ability to support t he expected economic recovery through the appropriat e policies and reforms. Although the remittance growth by 0.5% was a sign of solidarity and an initiative to offs et the crisis, the scale of remittance is still insignificant compared to the required amount to compensate the e conomy. There are no dedicated fiscal recovery measu res available for the AFOLU sectors. Santiago island, d ue to its greatest agricultural potential, has suffered fro m a significant reduction in agricultural production and a significant increase in food prices due to the COVID-1 9 restriction measures. As the country does not have a dedicated fiscal recove ry package for agriculture, the project will demonstrate

		ty package for agriculture, the project will demonstrate an opportunity for green recovery and “building back b etter” in the wake of the COVID-19 pandemic, particular ly addressing the needs in islands of Santiago and San to Antao where the already vulnerable family farmers h ave been severely affected. The project is therefore mo re likely to contribute to an increased interest from dev elopment actors and target communities, rather than s uffering from re-allocation of already engaged investm ents. Working around restrictions on mobility, the project PP G and implementation work will further the approach a dopted during PPG, with virtual exchanges with stakeh olders, a close engagement of experts from national re search and government institutes and an enhanced foc us on decentralised delivery of project activities. Nevertheless, due to limited human resources with rele vant profiles available at national or international level (i.e. Portuguese speaking staff), at project inception, a roster of vetted national and international candidates will be created, identified by FAO and the Government.

A climate change risk screening has been carried out, and can be found as separate attachment. The project falls into the moderate climate risk category and therefore it does not require an in-depth climate risk assessment at the PPG stage. The project area is likely to be adversely affected by weather hazards; however, these are predictable and expected to be temporary and/or reversible. Additionally, there is a low probability of serious adverse effects to human health and livelihoods, but the impacts on the environment are expected to be irreversible. Together with the CCRS some recommendations have been made to better integrate climate change into the project design. These can be found, by component, in the attached document.

Risks from the project

The Environmental and Social Risk screening has been carried out during PIF design by a technical officer of the GEF Agency, based on a standard checklist. Safeguards 1, 3 and 7 were triggered, and the risk level was classified as moderate. During PPG, this risk level will be further confirmed, and a risk mitigation plan prepared, based on guidelines provided.

[1]

[1] https://www.imf.org/en/Publications/CR/Issues/2021/04/02/Cabo-Verde-Third-Review-of-the-Policy-Coordination-Instrument-Press-Release-and-Staff-Report-50334

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.

The suggested execution partner is the Directorate General of Agriculture, Forestry and Livestock (DGASP) from the Ministry of Agriculture and Environment. The DGASP will lead the project operational execution. It is a central service of the Ministry of Agriculture and Environment (MAA) and is tasked with the design, regulation, coordination, execution and direct support to the Minister in the field of agriculture and crop protection, forestry, livestock and health and animal welfare, veterinary public health, engineering rural and hydro-agricultural, agricultural land management, as well as rural extension and qualifications of rural agents and enhancement and economic diversification of rural areas. Its services are multiple and include: (i) the support to farm modernization, organization of producers, private sector development, production units, transformation and commercialization of agricultural products; (ii) the promotion of a value chain approach to increase agricultural productivity and production; (iii) the adoption of a natural resource sustainable use policy; (iv) the management of water resources (such as developing, executing and accompanying studies and projects), representing the MAA in matters related to water use in agriculture; (v) the promotion of proper management of agricultural land, in collaboration with other relevant services and bodies; (vi) the protection and valorization of plant and animal genetic recourses; and (vii) the promotion of integrated pest management.

The GEF Implementing Agency for the proposed project is the Food and Agriculture Organization of the United Nations (FAO). FAO will be responsible for the risk management plan, and play a critical role in project monitoring and evaluation. Since the 1980s, FAO interventions in Cabo Verde have extended to virtually all areas related to agriculture and rural development, with significant achievements in the areas of agricultural policies and institutional capacity, reforestation, horticultural production and micro-irrigation, food security, and artisanal fisheries. FAO has been working with and is working with a multitude of national and international development actors.

During the PPG phase, the operational capacity of the DGASP will be assessed (micro HACT assessment) and execution arrangements defined in detail. DGASP will be the Operational Partner managing the project funds, engaging other execution partners such as INIDA where required. Pending the outcome of the micro HACT assessment, the potential role of FAO or another execution partner in project execution, however limited and targeted, as per GEF policies, will be costed within the project management cost (PMC), and further contribute to operational capacity development of DGASP via provisions taken in the institutional arrangements.

Other partners will be involved as appropriate in project steering and execution (no particular order of importance):

GoCV:

- Ministry of Agriculture and Environment;
- Ministry of Infrastructures, Territory Management and Housing;
- Ministry of Finance;

- Minister of State, Family, Inclusion and Social Development;
- Decentralised authorities;
- City Hall.

Civil society:

- Local farmer organizations;
- NGOs, radios (located in target landscapes);
- Women and youth associations (in target landscapes);

Private sector:

- local SMEs; and
- microfinancing actors.

During the PPG phase, partnerships with local and international institutions will be envisaged. Potential partners include associations and local NGOs with proven tenure and natural resources management experience and/or expertise in agricultural value chain development, as well as local service providers and research institutes.

Numerous national projects that focus on land management, SLM and NBS for rural development in Cabo Verde and Santiago and Santo Antao islands in particular are being implemented. These projects offer insights, lessons and context-specific success factors. These have been integrated in the alternative scenario section, while further exchange with relevant investments will be maintained during PPG through bilateral meetings, joint field missions, participation in consultation workshops.

Particularly concerning the coordination across the GEF portfolio in Cabo Verde, under the leadership of the GEF Operational Focal Point, an inter-Agency working group will be set up to secure progress reporting and diligent sharing of lessons and knowledge, and where possible, explore synergies to maximize the return on investment.

The following GEF investments are of particular interest to the LDN project, and the project teams and partners will continue to be called upon and engaged throughout PPG and implementation:

- IFAD: Rural Socio-economic Opportunities Programme (2012-2022);

- Planned FAO/Aadaptation Fund project: Increasing the resilience of local communities to climate change through improved watershed management and land restoration;
- Planned UNDP/GEF: Strengthening biodiversity governance systems for the sustainable management of living natural resources in Cabo Verde;
- FAO/GEF (GEF ID 9126): Delivering Sustainable Environmental, Social and Economic Benefits in West Africa through Good Governance, Correct Incentives and Innovation (2017-2022); and
- UNIDO/GEF (GEFID 9812): Sustainable Energy Access to Manage Water Resources: Addressing the Energy-water Nexus (2018-2022).

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assesments 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

LDN

With the implementation of the targets set for LDN 2030, various leverage opportunities will arise. During the LDN Group meeting after the formal launch of the project, a range of opportunities were identified that will arise for different sectors such as agriculture, forestry, rural engineering, food security, agricultural research, livestock, among others. LDN will bring several positive impacts and accelerate the achievement of SDGs linked to the fields of poverty reduction, food and nutrition security, environmental protection and sustainable use of natural resources.

LDN WG has put forward the following priorities:

- Propose and design guidelines for a genuine land tenure and land use management policy;
- Promote effective articulation with the institutions responsible for Territorial Planning, so that interventions may be in accordance with the national policy and directive for territorial planning and with what is established in the respective planning plans, already prepared and/or to be prepared;
- To identify and adopt measures to regulate the use of fertilizers, particularly NPK, in irrigated agricultural production systems, taking into account the impact that their inappropriate use has caused on the degradation of agricultural land and water points.
- To look for alternatives for the civil construction sector, so that the prohibition of inert extraction on beaches is viable and to increase the "protection" of agricultural soils, against the salinization process;
- Design and propose intervention measures in non-irrigated land (dry culture) and restrict the type of crops in areas with a high slope, as a way of minimizing the process of erosion and degradation of such land;
- To design and propose animal production techniques that maximize production, adapt to the carrying capacity and minimize the effects of soil compaction by livestock (ruminants) and the consequent soil degradation;
- To update the national carbon stock, both in its aerial component and in the soil;
- Revaluation of agricultural land invaded by inappropriate species according to the productive capacity of such land and the needs of the affected population.
- Propose the integration of interventions, which contribute to the mitigation of climate change effects, in a logic of integrated intervention with the other land protection measures;

- Institutionalize an information and knowledge-sharing network as a way of avoiding the duplication of efforts and waste of resources, and of enhancing a more integrating intervention;
- Set up a multidisciplinary team to monitor and evaluate indicators on the neutrality of land degradation.

To achieve land degradation neutrality by 2030, in 2015 Cabo Verde has set the following targets based on the global data sources:

1. From 2,156 ha of land degraded due to shifting occupation to 1,078 ha. This means working to ecologically recover 50 % of this land.

2. To go from 8,404 ha of land with negative productivity to 3,182 ha (45 % reduction)[1].

3. Increase by 2% the soil organic carbon stock within ecosystems whose stock varies between 18-45 t/ha.

4. Reduce from 40% of eroded land to 15%, betting heavily on the correction of water lines, maximizing the conservation of agricultural land (rain fed and irrigated), recovery of hydro-agricultural works weakened by exceptional rains, strengthen the protection of pasture land with the containment of animals and also strengthen awareness campaigns and training of land users in relation to the problem of soil erosion.

NDC

Cabo Verde made the following relevant commitments: renewable energy and energy efficiency, sustainable low carbon policies and limiting the global average temperature increase to a maximum of 2º C and in the long term 1.5º C. Some commitments contained in the INDC document were put forward, namely the forestation of an additional 10,000 ha of land with its own funding, and if there is support from the international community, it could reach 20,000 ha by 2030 (Building adaptive capacity and resilience of the forestry sector in Cabo Verde, 2016).

National Adaptation Programme of Action on Climate Change (NAPA)

The main goal of the NAPA is the identification of the urgent and immediate needs and concerns of Cabo Verde relating to adaptation to the adverse effects of climate change. As per the guidelines, the formulation of the Cabo Verde NAPA followed a participatory process that involved those most affected by climatic impacts, that is rural people and the poor. Moreover, the NAPA process builds upon existing coping strategies implemented by local communities in order to enhance their adaptation capacity. More specifically, the objectives of the NAPA were: (1) to understand the main characteristics of climate hazards in Cabo Verde (notably floods, droughts and sea level rise); (2) to understand coping mechanisms to climate hazards and climate change at the grassroots level; (3) to understand existing programmes and institutional arrangements for addressing climate hazards and climate change; (4) to identify and prioritize adaptation activities to climate hazards and climate change[2].

[1]

[1] Note: During the PIF preparation, FAO has analyszed the data to update the LDN baseline up to year 2020. Land productivty dynamics indicator shows that between 2001-2020, 10.5% of land had a negative land productivity trend.

[2] FAO. 2018. Cabo Verde – Policy. Available at:

http:// www.fao.org/faolex/country profiles/generalprofile/seemore/en/?iso3=CPV&countryname=Cabo%20

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 knowledge management strategy of the project is two-pronged, with a focus on knowledge capture and one on knowledge development and sharing targeting multiple audiences at the landscape and national levels primarily. The proposed project will develop and update a set of manuals and knowledge products that describe the improved practices, measures and technologies, for use by extension workers and producers (Component 3). These products will document lessons learnt, share validated technical options developed under Component 2. In addition, Component 3 will strengthen existing knowledge networks of national partners, and enhance participatory management of the knowledge of producers' associations and organizations and their discussion forums, to identify relevant innovations while improving the tools for communication with external partners.

The activities implemented under Component 3 - effective knowledge management (KM) through Result Based Management (RBM), Monitoring and Evaluation - will result in (Outcome 3.1) the elaboration of a Knowledge Management System that captures and shares the results of the project and supports the replication of tested methodologies in other municipalities and regions across the country. The KM system will contribute to scale-up and replicate context-specific best options using various types of knowledge products produced, including thematic case studies, evaluation and learning reports and briefs; strategic papers, educational and informational materials in printed and digital forms.

In order to achieve this outcome the following will be delivered and/or implemented by the project team: RBM system of the project will promote adaptive management through capturing key results of the project activities (Output 3.1.4); a Gender-Sensitive Project Monitoring & Evaluation Plan and a relevant system will be developed (Output 3.1.3); Project Mid-term review and Final Evaluation will be conducted (Output 3.1.3); A Communication Strategy and A Knowledge Management Strategy (supported with annual work plans) will be developed and implemented for information and knowledge-sharing with other regions and dissemination and replication of verified data and tested methodologies (Output 3.1.3).

The project's broad participation process, involving relevant policy making, research, gender, extension and education institutions, will ensure that knowledge is shared efficiently within the country. The MAA will be an important partner for lesson sharing and knowledge management. The knowledge management strategy will capitalize on the achievements of FAO led project REFLOR-CV (Building Adaptive Capacity and Resilience of the Forestry Sector in Cabo Verde) that is putting in place with MAA a portal for electronic storage systems of various knowledge products and exchanges with government agencies.

Internationally, FAO's relevant platforms (Mountain Partnership, SIDS , including SOILCARE platform in the Caribbean, Hand-in-Hand Initiative Data Portal, and others) will be used for lessons and data sharing. Particular efforts will be geared towards platforms and initiatives targeting SIDS.

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
Medium/Moderate			

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.

Safeguard Triggered	Risk Identified	Answer	Risk Classification	Reference Guidance	Additional Description (if any)
1	1.5 - Would this project aim at improving an irrigation scheme (without expansion)?	Yes	Moderate	The ICID-checklist will be included, as well as appropriate action within the project to mitigate identified potential negative impacts. Projects aiming at improving water efficiency will carry out thorough water accounting in order to avoid possible negative impacts such as waterlogging, salinity or reduction of water availability downstream.	The project will promote the use and upscaling of drip irrigation and rainwater harvesting.

					Land tenure rights are gen dered, and larger parcels predominantly owned by men. These barriers faced by women need to be over come in order to achieve t he LDN targets.
1	1.10 - Could this project result in any c hanges to existing *tenure rights*[1] (*form al and informal*[2]) of individuals, comm unities or others to land, fishery and fo rest resources? [1]Tenure rights are rights to own, use or benefit from natural resources such as land, water bodies or forests [2]Socially or traditionally recognized ten ure rights that are not defined in law m ay still be considered to be 'legit imate tenure rights'.	Yes			A Gender Action Plan (GA P) will be developped duri ng PPG to promote gende r responsive SLM to achie ve LDN commitments of Cabo Verde and to promot e increased access to nat ural resources, economic benefits from these resou rces.
1	1.10.1 - Could this project result in a n egative change to existing legitimate t enure rights?	No	Moderate	Demonstrate how the project app lies and adheres to the principle s/framework of the Voluntary Gui delines on the Responsible Gover nance of Tenure land, Fisheries a nd Forests in the Context of Nati on Food Security (VGGT)	
3	3.2 - Would this project provide seeds/ planting material for cultivation?	Yes			The supply of agricultural inputs including in the are a of improved seeds/bree ds that are resilient to cli mate change. It will also e nhance farmers access to planting material
				• Adhere to existing national for est policies, forest programmes or equivalent strategies. • The observance of principles	

				9, 10, 11 and 12 of the Voluntary Guidelines on Planted Forests su ffice for indigenous forests but m ust be read in full compliance wit h ESS 9- Indigenous People and Cultural Heritage. • Planners and managers must incorporate conservation of biolo gical diversity as fundamental in their planning, management, utili zation and monitoring of planted forest resources. • In order to reduce the environ mental risk, incidence and impac t of abiotic and biotic damaging agents and to maintain and impr ove planted forest health and pro ductivity, FAO will work together with stakeholders to develop and derive appropriate and efficient r esponse options in planted fores t management.	The project will support fa rmer to deploys assisted natural regeneration, agro forestry, re-naturalization of forested areas using na tive species, on their own l and.
3	3.4 - Would this project establish or m anage planted forests?	Yes	Moderate		
7	7.2 - Would this project operate in sect ors or value chains that are dominated by subsistence producers and other vu lnerable informal agricultural workers, and more generally characterized by hi	Yes	Moderate	Take action to anticipate the likel y risk of perpetuating poverty and inequality in socially unsustainab le agriculture and food systems. Decent work and productive empl oyment should appear among th e priorities of the project or, alter natively, the project should establ ish synergies with specific emplo yment and social protection prog rammes e.g. favouring access to some social protection scheme o r form of social insurance. Speci fic measures and mechanisms s hould be introduced to empower in particular the most vulnerable	

	and more generally characterized by hi gh levels "working poverty"?			/disadvantaged categories of rur al workers such as small-scale pr oducers, contributing family work ers, subsistence farmers, agricult ural informal wage workers, with a special attention to women and youth who are predominantly fou nd in these employment statuse s. An age- and gender-sensitive s ocial value chain analysis or liveli hoods/employment assessment is needed for large-scale project s.
7	7.3 - Would this project operate in situ ations where youth work mostly as un paid contributing family workers, lack access to decent jobs and are increasi ngly abandoning agriculture and rural areas?	Yes	Moderate	Take action to anticipate likely ris k of unsustainably ageing agricul ture and food systems by integra ting specific measures to suppor t youth empowerment and emplo yment in agriculture. A youth livel ihoods/employment assessment is needed.Complementary meas ures should be included aiming a t training youth, engaging them a nd their associations in the value chain, facilitating their access to productive resources, credit and markets, and stimulating youth- f riendly business development ser vices.
	7.4 - Would this project operate in situ			Take action to anticipate likely ris k of socially unsustainable agricu lture and food systems by integra ting specific measures to reduce gender inequalities and promote rural women's social and econom ic empowerment. A specific soci al value chain analysis or liveliho

7	ations where major gender inequality in the labour market prevails? (e.g. where women tend to work predominantly as unpaid contributing family members or subsistence farmers, have lower skills and qualifications, lower productivity and wages, less representation and voice in producers' and workers ' organizations, more precarious contracts and higher informality rates, etc.)	Yes	Moderate	ods/employment assessment is needed for large-scale projects.Facilitation should be provided for women of all ages to access productive resources (including land), credit, markets and marketing channels, education and TVET, technology, collective action or mentorship. Provisions for maternity protection, including child care facilities, should be foreseen to favour women participation and anticipate potential negative effects on child labour, increased workloads for women, and health related risks for pregnant and breastfeeding women.	
7	7.7 - Would this project involve sub-contracting?	Yes	Moderate	Take action to anticipate likely risk of perpetuating inequality and labour rights violations by introducing complementary measures. FAO projects involving sub-contracting should promote, to the extent possible, subcontracting to local entrepreneurs - particularly to rural women and youth - to maximize employment creation under decent working conditions. Also, FAO should monitor and eventually support contractors to fulfil the standards of performance and quality, taking into account national and international social and labour standards.	Implementation is forseen to be through OPIM modality.

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
ESS Moderate risk	

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).

Name	Position	Ministry	Date
Alexandre N. Rodrigues	GEF Operational Focal Point	Ministry of Agriculture and Environment	5/20/2021

ANNEX A: Project Map and Geographic Coordinates

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

Please, see maps uploaded earlier and weblink: https://bit.ly/3mIYVyr