GEF-7 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund AND LEAST DEVELOPED COUNTRIES FUND

PART I: Project Information

Project Title:	Restoring and Enhancing the Value of Degraded Lands and Forest Ecosystems for Enhanced Climate Resilience in Benin (PIRVaTEFoD-Benin)		
Country(ies):	Benin	GEF Project ID:	10688
GEF Agency(ies):	UNDP	GEF Agency Project ID:	6514
Project Executing Entity(s):	Ministry of the Living Environment and Sustainable Development (MCVDD)	Submission Date:	27 October 2020
GEF Focal Areas:	Multi-focal: Land Degradation; Climate Change Adaptation	Project Duration (Months)	72 months

A. INDICATIVE FOCAL/NON-FOCAL AREA ELEMENTS

Programming Directions	Trust Fund	(in $)	
		GEF Project Financing	Co-financing
LD-2.5: Creating an enabling environment to support voluntary LDN target implementation	GEFTF	1,060,250	4,487,300
LD-1.3: Food systems, land use and restoration	GEFTF	3,506,417	15,000,000
LDCF-1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation	LDCF	4,466,210	17,805,200
Total Project Cost		**9,032,877**	**37,292,500**

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To support achievement of Benin's Land Degradation Neutrality[1] (LDN) targets through climate risk integrated sustainable land and forest management practices and strengthen the climate resilience of vulnerable populations in the Niger Valley, Alibori Sud-Borgou Nord-2KP and Zou-Couffo Agricultural Development Areas[2]

Project Components	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in $)	
					GEF Project Financing	Co-financing
1: Political, financial, institutional, and regulatory frameworks to achieve climate risk informed Land Degradation Neutrality (LDN) and advance integration of vulnerability assessments and adaptation options within land use decisions.	TA/INV	1.1 Strengthened national policy, governance and financial frameworks and capacity to implement climate risk informed SLM and SFM, and climate-proofed sustainable livelihoods contributes to achievement of LDN. *Indicators and targets:* *- Biannual national reports on the impact of production sectors on forest ecosystems*	1.1.1 National centralised LDN database created within the MCVDD with a link to global monitoring of restoration and LDN.[4] 1.1.2 National monitoring system for tracking climate change vulnerability in the agricultural sector and changes in adaptive capacity, land cover change, degradation, restoration and forest ecosystems, and ecosystem services, is created.[5]	GEFTF LDCF Total	360,250 288,750 649,000	1,300,000 1,260,000

[1] In line with the recommendations of GEF STAP Guidelines for Land Degradation Neutrality, April 2020.
[2] Although Benin is not formally part of the Great Green Wall Initiative, this project will contribute significantly to the objective of the partnership to restore 100 million hectares of currently degraded land, sequester 250 million tonnes of carbon and create 10 million jobs in rural areas by 2030. Benin has already committed to bringing into restoration 0.5 million hectares of degraded and deforested lands under the Bonn Challenge.
[4] For example, the national centralized LDN database could link to the IUCN-managed BC Barometer for restoration progress.
[5] This will include creation of a national centralized database (housed at the Ministry of the Living Environment and Sustainable Development) that will draw on the various databases at each of the sectors and will result in more streamlined reporting

		and the state of land degradation. *Annual analysis of change in climate impacts and vulnerability to climate risks (floods, droughts, rainfall variability) in project areas.* *The targets for the new national, country led monitoring system which will include indicators on land use change and resilience, vulnerability and adaptive capacity indicators contextualized to local climate change risks will be determined during project development under the PPG* *- National mapping institute responsible for cartography and remote sensing has necessary tools to track and monitor land and forest degradation, changes in soil moisture, surface run-off, temperature variations and precipitation patterns, etc, ecosystem restoration[3], potential changes in ecosystem services generated* *- 30 MCVDD personnel are trained in use of climate change scenarios, vulnerability assessments and climate risk informed ecosystem service valuation, SLM/LDN tools.* *- A Monitoring Review and Verification system (MRV) for Land and Forest Degradation and relevant climate resilience indices is operational.*	1.1.3 The National Committee to Combat Desertification is strengthened for enhanced ownership and capacity of national authorities to address expected scenarios of climate change hazards and sensitivity. 1.1.4 The National Forestry Development Fund, National Environment and Climate Fund, and National Agricultural Development Fund have harmonized programs integrating CCA and LDN objectives, strengthened governance mechanisms and the capacity to mobilize resources 1.1.5 Training and equipment provided to key agencies (Ministries of Environment, National Geographic Institute, National Agricultural Resource Institute) to improve implementation of climate risk informed and resilient SLM technologies[6] and conservation of production landscapes, with improved coordination and monitoring of climate change impacts, land degradation trends, restoration, and sustainable forest management[7].			
2: Restoration of land and forest ecosystems for	TA/INV	2.1. Integrated climate risk informed management and restoration of target	2.1.1. Integrated land use, landscape restoration, and forest management plans are	GEFTF LDCF	3,201,400 1,207,600	8,250,000 8,000,000

[3] Benin has committed to bring 500,000 hectares of land into restoration by 2030 under the Bonn Challenge. As such, Benin is already able to access, adopt and use the Barometer of Restoration progress, a monitoring tool (managed by IUCN) to report on progress towards restoration of degraded lands. Additionally, restoration planning and practices adopted in the proposed project will integrate appropriate consideration of climate change projections in order to identify restoration interventions best suited to a drier climate (in northern Benin) and more rainfall variation in central and southern Benin. Actions to support achievement of Benin's Land Degradation Neutrality targets will be climate risk informed and selected with resilience to climate change as one of the criteria.

[6] The term technologies is used here following the standard WOCAT definition, as in April 2014 UNCCD officially nominated the World Overview of Conservation Approaches and Technologies (WOCAT) database – hosted by CDE – as the primary recommended database on best practice and technologies of sustainable land management (SLM).

[7] Investments will be required to provide the necessary power supply (solar) and equipment to enable the National Geographic Institute to carry out its monitoring functions. Ministries and research institutions will also need data management software, as well as trained personnel at the various agencies who can manage the databases.

improved agricultural productivity, prevention of deforestation, and enhanced climate resilience of vulnerable communities[8]		degraded and abandoned lands, forests and ecosystems in selected PDAs 1, 2 and 5 *Target sites to be confirmed during PPG:* *In each of the target sites below, the hectares to be brought under SFM and SLM through a prioritisation process that includes **climate impacts and scenarios** amongst the variables informing the multi-criteria assessment.* *<u>Niger Valley</u>:* *- Karimama (1000 ha SFM; 1500 ha SLM)* *<u>Alibori Sud-Borgou Nord</u>:* *- Kouandé (4000 ha SFM; 3000 ha SLM)* *- Gogounou (3000 ha SFM; 3000 ha SLM)* *- Ségbana (3000 ha SFM; 3000 ha SLM)* *<u>Zou-Couffo:</u>* *- Za-Kpota (1000 ha SFM; 1000 ha SLM)* *- Covè (1000 ha SFM; 1000 ha SLM)* *- Klouékanmè (1000 ha SFM; 1000 ha SLM); Aplahoué (1000 ha SFM; 1500 ha SLM)* *Indicators and targets:* *- Functionality in line with Forest Health Index (baseline to be determined at PPG)* *- 24,000 producers in 18 communities are provided with training and extension support for sustainable and climate resilient) agricultural production* *- 15,000 ha of forest ecosystem brought under*	developed, with climate change scenarios informing risks and selection of adaptation options, and operationalised at target sites, with capacity to implement[9]. 2.1.2. Degraded lands amounting to at least 15,000 hectares, and at least 15,000 hectares of forest are under climate resilient restoration and functional and sustainable management regimes. 2.1.3. Awareness raising and training of 1,000 national and local government and administration officials (including ATDAs and DGEFC[1]), paliamentarians and representatives of private sector in climate resilient and degradation neutral planning and policies, with focus on agriculture, animal husbandry and forestry,[1] targeting the mainstreaming of CCA and LDN in all policies and administrative decisions. 2.1.4. Extension services in climate resilient and degradation neutral agriculture, animal husbandry and agroforestry provided to 24,000 farmers and community leaders (50% women), including on climate resilient and degradation neutral cotton production. 2.1.5. Green Belt infrastructure against the advance of the desert in the north of Benin strengthened through development of manuals for climate change resilient restoration and forest regeneration,	Total	4,409,000	

[8] Management Plans exist for Parc W, the Pendjari Complex, and Classified Forests in Benin. However, the capacity of responsible agencies to implement these Management Plans needs to be strengthened. To fortify the Green Belt and exercise control over agricultural development, targeted efforts will be required to develop nurseries for trees to replant in forest corridors where agricultural production occurs. Agriculturalists will receive training on sustainable land management techniques, landscape restoration and climate resilient agricultural techniques, including promotion of organic cultivation and increasing use of organic compost and pesticide control.

[9] The existing management plans will be reviewed and, where necessary, updated so that they include climate change vulnerability and adaptation options, LDN, soil and water conservation, as well as sustainable forest management concerns.

		climate change risk informed restoration and under improved management (Core Indicator 3) *- 15,000 ha of degraded land brought under restoration and under improved management practices* (Core Indicator 4)	community managed nurseries for drought resilient tree species of local preference, communal fire control measures, protection of watercourses, integration of tree fodder production to accommodate seasonal passage of pastoralists, and locally managed monitoring for landscape and forest restoration. 2.1.6 Peer-to-peer exchanges are hosted between project sites and other countries participating in the Green Belt in order to generate and exchange learning on the most successful and resilient ways of landscape restoration and of improving the local climate and water supply through forest restoration.			
3: Building diversified income-generating activities and value chains to strengthen community resilience to climate change.	TA/INV	3.1. Communities at pilot sites receive tangible benefits from engagement in diversified, climate resilient income generating activities (with supporting value chains that promote LDN) *Indicators and targets:* *- Income, disaggregated by gender, from improved resilient value chains or joint venture partnerships* *- Number of direct beneficiaries (disaggregated by gender) earning income from targeted climate risk informed value chains (10,000 new youths, 7,000 men and 7,000 women)* *[These figures will be revised during project development under the PPG and further field visits to the Communes will be carried out]*	3.1.1. Agricultural value chains are analysed with regard to their potential for climate resilience, zero degradation land management, sustainable income generation for rural communities with specific emphasis on women, and on this basis those value chains for strengthening through additional investment and extension support are prioritized. 3.1.2. Building on the value chain analysis of output 3.1.1, climate resilient and sustainable agricultural and agroforestry practices and market channels are strengthened through investments and extension support for climate smart agricultural practices, leading to triple-bottom-line benefits, strengthened adaptive capacity of vulnerable communities, job and SMME creation. 3.1.3. Local, national, regional and international partnerships established to support and promote 'forest-friendly' and climate	GEFTF LDCF Total	435,937 2,435,900 2,871,837	8,619,300 7,348,200

			resilient income-generating opportunities. 3.1.4. Improved market access for farmers and communities practicing climate resilient, zero degradation agriculture and agroforestry[10], including NTFPs[11], through strengthened cooperatives and farmer organizations and negotiated partnerships with traders and processors. 3.1.5. Technical guidance on adoption of climate resilient value chains developed and disseminated, integrating climate risks, to enhance productivity and climate resiliency of targeted value chains and agroforestry systems.			
4: Gender Empowerment, Knowledge Management and M&E	TA/INV	4.1. Improved coordination and information sharing among stakeholders and partners at the national, regional and international levels 4.2. Reporting of progress on land restoration actions using tools such as the *Barometer* as part of M&E, to contribute to national reporting. *Indicators and Targets:* *- % of women participating and benefiting from project activities* *<u>Baseline and targets to be confirmed during PPG</u>*	4.1.1. Gender empowerment strategy developed and used to guide project implementation. 4.1.2. Participatory M&E of land under improved management and restoration, and learning framework developed and implemented at project sites. 4.1.3. Nationwide communications and public awareness program developed and launched. 4.1.4. Lessons learned through participatory M&E and gender empowerment are produced, published and disseminated locally, nationally, regionally and internationally.	GEFTF LDCF Total	351,620 321,283 672,903	390,000 350,000
			Subtotal	GEFTF LDCF Total	4,349,207 4,253,533 8,602,740	36,792,500
			Project Management Cost (PMC)	GEFTF	217,460	928,000

[10] Targeted agricultural value chains include: mango and citrus trees, cashew, organic cotton, and market garden produce. Forums ('platforms') exist for the various sectors, including a Communal Producer Union (CPU) for cotton, a CPU for mango, CPU for citrus, and a CPU and Village Producer Association (VPA) for market garden produce. The project will develop activities to strengthen the forums and enhance the synergies.

[11] Targeted NTFPs are: Baobab, Shea Tree, and Locust Bean Tree. All of these species occur in agricultural areas as well as in forests. Capacity exists at community level to develop nurseries for all of the listed NTFP species, although project inputs are required to assure protection of the existing stock as well as provide guidance on appropriate planting regimes for improved survival rates. The methods used to transform NTFPs into marketable products requires modernisation and refinement, and links to markets need to be strengthened. All necessary activities will be developed during project development under the PPG.

	LDCF	212,677	847,000
	Total	430,137	1,775,000
Total Project Cost		**9,032,877**	**37,292,500**

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount ($)
Recipient Country Government	Ministry of the Living Environment and Sustainable Development	In-kind	Recurrent expenditures	800,000
Recipient Country Government	Ministry of Agriculture, Livestock and Fisheries (MAEP)	In-kind	Recurrent expenditures	600,000
GEF Agency	UNDP	Grant	Investment mobilized	500,000
Donor Agency	European Union: CoforMO[12] : Support program for the sustainable management of communal forests in Benin (Phase I)	Grant	Recurrent expenditures	2,000,000
Donor Agency	African Development Bank: PAGEFCOM, The project aims to improve food and nutritional security and reduce poverty through valorization and the sustainable management of natural resources of the local communities' forests in the targeted departments	Grant	Recurrent expenditures	2,000,000
Donor Agency	World Bank: Classified Forests Project Forestry and climate change. The project aims to improve the integrated management of targeted classified forests, to facilitate the access of the main cities of South Benin to wood energy produced in a sustainable manner and to promote the value chain of targeted NTFPs, improving the incomes of communities dependent on forests	Grant	Recurrent expenditures	28,000,000
Donor Agency	BOAD-BM: Projet de Sécurité Alimentaire par l'Aménagement de Bas-fonds et le Renforcement des capacités de Stockage au Bénin (PSAAB) Valorisation of the lowlands ; promotion rice cultivation and market gardens	Grant	Recurrent expenditures	2,000,000
Donor Agency	Green Climate Fund: Project to improve the climate resilience of rural communities in central and northern Benin	Grant	Recurrent expenditures	1,000,000
Donor Agency	Korea Forest Service: Buffer zones around protected areas.	Grant	Recurrent expenditures	92,500
Civil Society Organisation	CoforMO[13] : Support program for the sustainable management of communal forests in Benin (Phase II) FFEM	In-kind	Recurrent expenditures	200,000
Beneficiaries	Communes	In-kind	Recurrent expenditures	100,000
Total Co-financing				**37,292,500**

Describe how any "Investment Mobilized" was identified.

The co-financing from partner agencies has been apportioned based on real expectations of funding allocations through parallel projects and stakeholder engagement in project activities. Recurrent expenditures have been identified as the co-funding contributions that are allocated to activities that will be carried out by partner project staff, together with complementary activities covered by that agency's budgets. Investment mobilized comprises grants generated as cash contributions in addition to the GEF Trust Fund and LDCF grants, such as the TRAC resources provided by UNDP's

[12] FFEM Phase II project "Support Program for Sustainable Management of Communal Forests in Benin.
[13] FFEM Phase II project "Support Program for Sustainable Management of Communal Forests in Benin.

country office in Benin. This investment mobilized will be allocated to direct project expenditures and will be itemized as actual project costs in the detailed workplan and budget to be drafted during project development under the PPG. As priorities shift to accommodate global and national post-Covid-19 recovery efforts, particularly with regard to food security, resilience, and adopting a 'healthy environment for healthy lives' approach, it is anticipated that further sources of co-funding will be identified, including from the private sector and small businesses with whom the project will collaborate to identify and develop promising value chains for sustainable development and climate resilience. This will also be explored in more detail during project development under the PPG.

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee **(b)**	**Total (c)=a+b**
UNDP	GEFTF	Benin	Land Degradation	LD	4,566,667	433,833	5,000,500
UNDP	LCDF	Benin	Climate Change	LDCF	4,466,210	424,290	4,890,500
Total GEF Resources					**9,032,877**	**858,123**	**9,891,000**

E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee (b)	**Total** c = a + b
UNDP	GEFTF	Benin	Land Degradation	LD	100,000	9,500	109,500
UNDP	GEFTF	Benin	Climate Change	LDCF	100,000	9,500	109,500
Total PPG Amount					**200,000**	**19,000**	**219,000**

F. PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Annex B provides further explanation of the project's target contribution to GEF 7 Core Indicators.

Project Core Indicators		**Expected at PIF**
3	Area of **land restored (**Hectares)	15,000 ha
4	Area of **landscapes under improved practices** (excluding protected areas)(Hectares)	15,000 ha
6	**Greenhouse Gas Emissions Mitigated** (metric tons of CO_2e)	5,233,610 $MtCO_2e$
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	24,000 7,000 men 7,000 women 10,000 youth

The estimated metric tons of carbon sequestered as a result of project activities were calculated using the Winrock FLR Climate Impact Tool[14] and based on the number of hectares at each project site that would be impacted by SLM and SFM efforts under the project. The Forest Landscape Restoration (FLR) activities used for calculating potential carbon sequestration under this project are a) Agroforestry; b) Plantations and Woodlots; and c) Natural Regeneration. The Winrock Tool provided data for the 12 Departments in Benin and the calculations are available in Annex to this Concept Note.

G. PROJECT TAXONOMY

The detailed GEF Taxonomy Worksheet is provided in Annex B.

[14] https://www.winrock.org/document/forest-landscape-restoration-climate-impact-tool/

1. PROJECT JUSTIFICATION

1a. *Project Description*

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

The Republic of Benin is a low-income food-deficit country with an estimated population of 11.2 million, who are predominantly rural. A politically stable democracy since 1990, with a socio-political environment that is friendly and conducive to business, the country nevertheless ranked 163 of 189 countries on the 2017 Human Development Index and the national poverty rate stood at 40.1 percent in 2015.

Agriculture is the primary economic activity in Benin and accounts for 28% of the national GDP (2019) and employing 70% of the workforce, while also being highly exposed to climatic pressures. Agriculture in Benin is mainly practiced on smallholder farms, with over 70% of the population practicing subsistence agriculture to maintain livelihoods. Land and ecosystem degradation is undermining human development in Benin and has resulted in a 47.2% increase in cultivated areas, a 14.8% decline in shrub savannah, and a 21.3% decrease in forest areas. Land degradation has also impacted negatively on the productivity of these ecosystems in Benin, with reductions amounting to 19.1% for cultivated land, 18.7% for shrub savannah and 20.2% for forests,[15] leading to increased poverty as agricultural production deteriorates.[16] The total annual cost of land degradation to Benin's economy was estimated at US$ 490 million in 2007, corresponding to 8% of GDP (UNCCD 2018). Since the 1990s, Benin's forest ecosystems have been threatened mainly by shifting slash-and-burn agriculture, the exploitation of wood energy, bush fires, and intensive grazing. It is estimated that about 2.2 million hectares of land, or 19% of the national territory, have degraded between 2000 and 2010 (CENATEL 2017). In addition, due to the practice of extensive agriculture, large areas of land are completely depleted and are no longer suitable for food crops commonly cultivated in Benin; this is particularly the case in the south-west of the country. In 2010, 4% of Benin's population (243,000 people) living on degraded lands did not have market access. Further intensification and expansion of land degradation could impact severely on labour productivity and water availability and jeopardise agriculture-based livelihoods in the country.

A national agriculture development plan (Strategic Plan for Development of the Agricultural Sector (PSDSA) 2025) has been developed with the main objective to invest in agricultural production and to 'produce more, produce better'. The Plan aims to provide not only for national food security, but to position Benin as a competitive producer within the region. Agricultural crop and value chain diversification are an important strategy identified in Benin's Nationally Determined Contribution (NDC, 2017) to withstand projected climate impacts. Integrating consideration of climate risks into agricultural development and strengthening climate change adaptation for water resources, biodiversity and human settlements were identified in the National Action Plan for Adaptation (2008). In order to implement the PSDSA, seven Agricultural Development Areas (*Pôles de dévéloppement agricole*) or PDAs, each with its own associated Territorial Agency for Agricultural Development (ATDA),[17] and twelve Decentralised Departments for Agriculture, Livestock and Fisheries (DDAEP), have been established. Multi-sectoral forums, such as Producer Unions, Interprofessional Associations and Thematic Committees, have also been created at national, district and local levels to support implementation of the national agricultural reforms and provide guidance for improved agricultural production and human development. The role of the Territorial Agency for Agricultural Development (ATDA) is to facilitate improved coordination between value chains across the territories and to ensure that the relevant tools and procedures are applied, particularly with regard to: the selection of priority sectors and value chains for each PDA; making inputs and strengthenthing the various links in promising value chains; strengthening relations between the different 'players' in the value chains; establishing strategic partnerships for targeted responses to problems faced by producers, processors, financial services, traders (in agricultural products and their derivatives), and consumers; promoting the development of hydro-agricultural and agricultural mechanization, as well as the development of infrastructures within the PDA.

The Agricultural Development Poles (PDAs) and sectors that are relevant to this project are: (i) **PDA 1: Niger Valley** (rice, market gardening, cattle, sheep, goat, poultry); **PDA 2: Alibori Sud-Borgou Nord-2KP** (cotton, maize, sorghum, soybeans, cattle, sheep, goats and poultry); and **PDA 5: Zou-Couffo** (citrus, mango, oil palm, rice, maize, cowpea, peanut, small livestock). Agricultural development in these PDAs will require consideration of the existing management regimes for the neighbouring Protected Areas (PAs) of W and Pendjari as well as the classified and

[15] Note Politique NDT 2017.

[16] Despite a robust institutional context for management of the forestry sector, national forest coverage, estimated at 8.12 million hectares in 2007, fell to 7.9 million hectares in 2016, a loss of over 215,000 hectares.

[17] The creation, roles and responsibilities of the Territorial Agencies for Agricultural Development are governed by Decree No. 2017-101 of 27 February 2017

community protected forest reserves.[18] The Pendjari National Park and the W Regional Park (shared by Benin, Burkina Faso and Niger), located in Atacora and Alibori Departments respectively, are two of the most protected and biodiverse semiarid grassland ecosystems in West Africa. They comprise part of the UNESCO World Heritage W-Arly-Pendjari Complex,[19] a refugium for the region's largest population of elephants and West African lion.[20] Both Pendjari and W Parks are managed by the National Centre for Management of Wildlife Reserves (*Centre National de Gestion des Réserves de Faune*, CENAGREF) under the Ministry of the Living Environment and Sustainable Development. They are also both co-managed by African Parks through a management agreement with the Government of Benin.[21] Balancing the needs of local communities to strengthen climate resilience, reducing degradation and safeguarding the biodiversity conservation efforts within the parks and buffer zones is a key consideration for this project.

Climate change impacts and adaptation challenges: Benin is ranked as the 17th most vulnerable country to climate change according to the ND-Gain index, with low readiness to adapt.[22] The annual number of wet days and annual total maximum 30 day rainfall declined from the 1960s to 2000,[23] while intensity of rainfall has increased leading to more flash floods and soil erosion. Climate models project an increase in temperature for the entire country, with increasing temperatures and reduced precipitation affecting both subsistence and cash crops, such as cotton. In the Niger Valley (PDA 1), desertification is a serious threat, with lower rainfall, changes in seasonality, stronger wind storms and droughts, while in the south (PDA5), rainfall variability and floods caused by intensive rainfall are becoming more frequent. Lower and/or less predictable rainfall impacts vulnerable smallholder farmers and small scale livestock herders most severely, many of whom are also directly dependent upon the declining forest and savannah ecosystems for safety nets during times of climatic or economic shocks. Climate impacts on farmers are most clearly seen in reports of damage to crops from water stress, high temperatures and stronger winds, disease and pests; unpredictability of rainfall and changes in the onset and length of the wet and dry seasons challenging the seasonal calendar and leading to a decline in staple food crop yields, increased pest and diseases affecting both livestock and agricultural production. Climate change interacts with and compounds the problems caused by deteriorating ecosystem services, landscape degradation, soil erosion and biodiversity loss, exacerbating livelihood risks and leading to displacement, emigration and food insecurity for many affected communities. Northwestern Benin (Atacora) has seen both in-migration from neighbouring countries to the areas around Pendjari Biosphere Reserve and out migration/emigration due to food shortages, soil degradation, poverty and declining livelihoods.[24] In the southern plateau area, maize production during the short rainy season is no longer viable for many farmers because the soil is flooded due to excessive rains or river floods.[25]

Land Degradation Neutrality (LDN)*:* Benin has established national land degradation neutrality targets and aims to achieve LDN by 2030. This will be facilitated through the restoration of 1.25 million hectares of degraded land and increasing efforts to avoid and reverse degradation. The country has developed land-based mitigation plans as part of its Nationally Determined Contributions[26] (NDC), which include: 5.7% reduction in emissions between 2021-2030 by reducing the annual rate of deforestation by 41.7%; 20.6% reduction in methane emissions by 2030; strengthening reforestation and planting efforts through sustainable development of forests; promoting organic fertilisers for sustainable soil management; and promoting access to fuel-efficient stoves to reduce wood energy consumption. Climate risk informed ecosystem restoration and sustainable land management efforts implemented to help achieve land degradation neturality support climate adaptation through reducing soil erosion, regulating the microclimate, and improving water quality and quantity. Furthermore, sustainable land management and restoration interventions (including natural regeneration), including agroforestry provide direct benefits through enhanced food production, diversified income sources and more resilient value chains. Benin's NDC articulates the following priorities for adapting to and strengthening resilience to climate impacts across the agriculture and forestry sectors by 2030: Reduce the vulnerability of communities arising from degradation of forest ecosystems and land

[18] Benin's classified forests are detailed on the Protected Planets portal: https://www.protectedplanet.net/country/BEN
[19] UNESCO reference at https://whc.unesco.org/en/list/749/
[20] African Parks: https://www.africanparks.org/the-parks/pendjari
[21] Further information on African Parks's conservation and development efforts in Benin can be found at: https://www.africanparks.org/benin-government-commits-long-term-protection-w-national-park
[22] GAIN index summarizes a country's vulnerability to climate change and other global challenges in combination with readiness to improve resilience. Benin profile: https://gain.nd.edu/our-work/country-index/rankings/
Methodology: https://gain.nd.edu/assets/254377/nd_gain_technical_document_2015.pdf
[23] https://reliefweb.int/sites/reliefweb.int/files/resources/Benin.pdf
[24] Sow, P. S. Adaawen and J. Scheffran. 2014. Migration, Social Demands and Environmental Changes Amongst the Frafra of Northern Ghana and Biali in Northern Benin. Sustainability , 6 (1): 375-398. *Sustainability*. 6. 375-398.
[25] Baudoin et. al. 2014. Small scale farmers' vulnerability to climatic changes in southern Benin: the importance of farmers' perceptions of existing institutions. *Mitg.Adapt.Glob.Change.*
[26] Benin's NDC. October 2017. https://www4.unfccc.int/sites/NDCStaging/Pages/Party.aspx?party=BEN

degradation; ensure diversification and promotion of high value-added climate resilient agricultural value chains, as well as modernizing resilient farm infrastructures required to adapt to climate change; promote suitable systems of agricultural production that is resilient and adapted to climate change for food and nutritional security (climate-smart agriculture); and define new agricultural calendars adapted to a changing climate and specific to each of the major agro-climatic zones. In addition to the adaptation options articulated in the NDCs, adaptation strategies employed by farmers include mulching, diversifying crops grown, adopting crop rotation, abandoning certain crop types that require the application of high rates of pesticides and fertilizers, and adopting the use of shorter growing time varieties for crops like maize. Agroforestry with fruit trees is an important diversification strategy used by some farmers in building resilience to climate change.[27] Agroforesty also plays an important role in reducing and reversing land degradation, and thus is an important aspect of climate change adaptation in Benin's agricultural sector.

Benin's National Voluntary LDN Targets and Measures

To achieve land degradation neutrality by 2030, Benin has set the following three **targets**: i) Restore at least 50% (1.2 million ha) of degraded land; ii) Limit the loss of non-degraded land to 5% (398,200 ha); and iii) Attain 12% (1,364,603 ha) net improvement in vegetation cover (Benin Country Profile: Global Mechanism). The **measures** and efforts needed to attain the LDN targets include: Reduce forest and savannah conversion from 21% to 5% (1,484,900 ha to 353,547 ha); increase forest cover by 5% (154,895 ha); increase agricultural land productivity on 2,431,400 ha; include LDN in national and local political priorities; reinforce political and institutional framework on management of forests; actively include local stakeholders and promote alternative livelihoods; promote climate-smart and resilient agriculture; develop fruit tree arboriculture; and restore degraded natural forests, degraded, bare and abandoned lands. This project will contribute to national efforts to achieve these targets and to do so through the inclusion of climate change scenarios to support climate resilient LDN action.

UNCCD 2030 Strategic Framework and the Sustainable Development Goals

The 2030 Agenda for Sustainable Development places strong emphasis on an integrated approach to achieving SDGs that can harness synergies and minimize potential trade-offs. Land plays an important part in accelerating the achievement of many SDGs. Benin has prepared a road map that sets out a number of participatory and inclusive activities bringing together government agencies, municipal authorities, locally-elected officials, parliamentarians, civil society and the media, and members of the private sector to support achievement of the SDGs. Maintaining and restoring land resources in Benin will play a vital role in tackling climate change, securing biodiversity and maintaining crucial ecosystem services, while ensuring shared prosperity and well-being. Healthy and productive land can play an unparalleled role as an engine of economic growth and a source of livelihood for billions worldwide, including the most vulnerable populations. Achieving climate risk informed and resilient land degradation neutrality (LDN) will help Benin to achieve multiple SDGs across the board including SDGs 1, 2, 3, 5, 6, 7, 8, 11, 12, 13 and 17. This project is also fully aligned with the overarching 2030 UNCCD strategic framework, the newly launched Benin Vision (National Development Plan) 2017-2025[28], the National Action Program (NAP) 2018-2027 and the National Drought Plan 2019-2024.[29]

Climate change adaptation in the policy framework

Benin has adopted a series of strategic documents that include the 2008 National Adaptation Programme of Action, the NDC (first submitted as an INDC in 2015, later becoming the First NDC in 2017), and the 2016-2025 Low-Emission Climate-Resilient Development Strategy. In addition, the Government of Benin has recognised the threat posed by climate change in its 2016-2021 Government Action Plan (Plan d'Action Gouvernemental - PAG) which outlines Benin's vision for a sustainable economic and social development. PAG integrates consideration of the SDG 2030 and the Paris Climate Agreement at its heart. Benin's NDC is anchored in the SDGs in relation to the priority targets for national development and the Government Action Plan (PAG 2016-2023) specifies six areas of adaptation priority, including resilience in agricultural production and water resources. Adaptation objectives for the agricultural sector in the NDC include: i) *ensuring diversification and promotion of high value-added agricultural value chains, as well as modernizing the resilient farm infrastructures in climate change context;ii) promoting suitable systems of agricultural production resilient and adapted to climate change for food and nutritional security;iii) defining new agricultural calendars adapted to a changing climate*. Various implementation actions have been undertaken at the regulatory, institutional and political levels. These actions include the development of

[27] Fadina, R. and D. Barjolle. 2018. Farmers' adaptation strategies to climate change and their Implications in the Zou Department of South Benin. *Environments.* doi:10.3390/environments5010015

[28] https://www.gouv.bj/actualite/199/le-benin-lance-son-ambitieux-plan-national-de-developpement-pnd/

[29] https://knowledge.unccd.int/sites/default/files/country_profile_documents/plan_national_secheresse_benin_2019-2024.pdf

laws and normative measures, the definition of policies and strategies, the formalization of the institutional framework through the establishment of bodies and structures (political, technical and financial), etc. These are: (i) the establishment of the implementation committee of the Benin NDCs; (ii) the internalization of the document at regional, national, and local levels; (iii) the ongoing implementation of the Reporting and Verification Measures (MRV) system with support from GEF and FAO; (iv) the ongoing evaluation of Technology Needs; (v) the implementation of certain projects in various sectors of the country (agriculture, energy, water resources, coastal erosion); (vi) the ongoing updating of the NDC document with the support of UNEP; (vii) Benin's accession to the Nationally Determined Contributions (NDC) Partnership; (viii) the passage of the Law on Climate Change; and (iv) the transformation of the National Determined Contribution into a Climate Business Plan to better encourage investors. A comprehensive process for developing the country's National Adaptation Plan (NAP) will likely yield the NAP in 2021. The NAP process is being supported by the joint UNDP/UNEnvironment's National Adaptation Plan Global Support Programme (NAP-GSP), GIZ, AfDB and the preparatory programme to the Green Climate Fund (GCF). Achieving climate risk informed and resilient agricultural livelihoods will contribute to Benin's objective for SDG 1, 2, 3, 5, 8, 10, 13, and 15.

Root causes: There are multiple underlying drivers, or root causes of the environmental degradation and vulnerability described above. These include: a) poverty and increasing demands for agricultural produce, wood energy, and land, that is driving continued encroachment into forest areas, as well as inadequate access to credit and financing to develop agricultural production, resulting in the 'cycle of poverty'; b) poor land management and ineffective enforcement of land use plans, partially due to insufficient rural extension service provision at the grassroots level; and c) a lack of community awareness of new agricultural policies and techniques, and adequate support for adoption of such techniques that could provide resilience to the compounding effect of climate change, a key root cause of erratic rainfall patterns, high temperatures, changes in dry season and extreme weather leading to drought, poor or failed crops, and transhumance and migration. An overarching long-term solution will be to improve resilience of rural livelihoods, that are dependent on agricultural production, to climate change, with diversification of agricultural livelihood options being a key solution that the project will address. For example, agroforestry and crop-livestock diversification are among these long term strategies. Working collaboratively with the communal and local forums and platforms, as well as the Agricultural Agencies (ATDAs) that exist, will ensure that a sustainable local development mechanism will be developed to respond to real needs on the ground into the future.

Climate Change Vulnerability: Benin is one of the countries most vulnerable to climate change in Africa, specifically manifested through changes in rainfall seasonality, intensity and duration, changes in the onset of seasons, and increasing risk of droughts as well as floods and coastal erosion due to sea level rise. With over 70 % of population dependent upon agriculture, most of which is rain fed and small scale, observed climate change and future climate scenarios have direct consequences on food production across Benin's dominant agro-climatic zones. Direct and indirect effects of climate change on agricultural production are projected to increase in the absence of appropriate adaptation strategies. As agriculture and livestock accounts for 41% of employment, in addition to food security issues, adverse climate impacts on agriculture are seen beyond the agricultural sector.[30] The most vulnerable groups are smallholder farmers, small scale cattle herders and fishing communities. Moreover, smallholder farmers and small-scale cattle herders are interdependent as feed for the cattle comes partly from post-harvest farm grazing. Gender differentiated vulnerability to climate change is well documented, with one study finding only 28 % of female headed households have sufficient food for the year, as compared to 43 % for male headed households.[31] Medium-term climate projections indicate the risk of insufficient levels of rain in certain regions, mainly to the North (Niger Valley PDA), but also increased evapotranspiration and more rainfall variability during the cropping seasons, together with increased temperatures. Droughts and floods are already becoming more severe.[32] The mean average temperature has increased by 1.1ºC since 1960, and the average number of 'hot' days per year has increased by 39 between 1960 and 2003, and hot nights by 73 over the same period. In contrast, the frequency of 'cold' days and nights, annually, has decreased significantly since 1960.[33] Current climate variability and change, together with projected changes, indicate more stress on natural resources and the agricultural production system – most notably on growing rain-fed crops, which is the predominant means of crop cultivation for subsistence farmers at the project's target sites, resulting in declining yields and water stress. Climate scenarios project reduced precipitation and increase temperatures up to 2 ºC for some of Benin's staple food growing and cotton production zones in the north, northwest

[30] Honunnou, F., et. al. 2019. Economy wide effects of climate change in Benin: An applied general equilibrium analysis. *Sustainability.*
[31] Climate Change Profile – Benin. 2018. Accessed at:
[32] http://www.bj.undp.org/content/dam/benin/docs/publication/rapportdevhu/RNDH_2015_SYNTHESE.pdf
[33] Climate change profile for Benin. https://reliefweb.int/sites/reliefweb.int/files/resources/Benin.pdf

and central part of the country, and reduced yields, for example, reduction in maize production of 5-25% and increase in the import of root crops and tubers.[34] In one study on experiences and adaptation strategies from the Niger Valley zone of northern Benin, subsistence farmers report major declines in yield of the traditional staple groundnut food crop, with changes in the dry season, more extreme wind storms, greater soil erosion and increasing temperatures.[35] In Zou-Couffo, increased rainfall variability has affected crop calendars, leading to decline in yields from certain widely cropped varieties. Drought is seen as a combined result of poor land management practices, such as overgrazing, and periods of low rainfall. Maize, cassava and sorghum, the other staple crops, also show declines in yield attributed to changes in rainfall patterns, a shorter/less predictable growing season, higher/more violent winds, and increasing temperatures and longer dry spells (in Alibori Sud-Borgou Nord-2KP).[3637] Upto 12 % of rural households experience food insecurity.[38] A regional study of crop yield change estimates using process based crop models of West Africa indicate major crop losses during the 2000-2009 decade, with a decline of 10–20% for millet and 5–15% for sorghum.[39] Finally, export crops such as cotton and cashewnut are also affected by changes in rainfall, length of seasons and extreme weather, and decreases in production of cotton are expected in the short term.

Barriers: The current barriers to achieving Benin's LDN targets, implementing climate change adaptation planning and action, improving climate risk informed SLM, and securing new or improved markets for agricultural produce include the following:

- Gaps in national policy and appropriate regulations and limited capacity for coordination and implementation of national strategies to achieve land degradation neutrality, which has led to the continued degradation of forests and soils in the targeted areas. Despite the new national strategy "National Action Plan on Sustainable Land Management (PAN-GDT 2018-2027)", the Government of Benin has been unable to apply to the extent required the necessary reforms to the national agricultural development plan – Strategic Agricultural Sector Development Plan (PSDSA). Whilst there has been some integration of Sustainable Land Management (SLM) practices into the national Agricultural Policy, the main indicator for the agricultural sector remains the number of hectares of land that is cultivated (as part of the Government's 'produce more, produce better' approach), which is counter to the policy, goals, and indicators of the Green Belt initiative, agriculture-specific adaptation needs, such as diversifying crop-livestock systems, adopting improved agricultural practices that can strengthen resilience to climate impacts, for example, using crop rotation, cover crops, soil conservation, mulching, and other climate smart agricultural practices, and greater adoption of agroforestry, and forest conservation. Moreover, climate change scenarios based planning for SLM and SFM is also required. A project is underway in Benin, with funding from the European Union, to ensure that SLM and SFM concerns are integrated into national legal frameworks. This GEF-7 project will coordinate with the EU-funded project and capitalise on the outcomes of the policy review for improved multi-sectoral application of relevant governance and regulatory tools. Furthermore, an ongoing UNDP GEF-5 LDCF supported project (2017-2022) aims to build climate resilience within the national agricultural sector and support communities in south-eastern Benin. This proposed project will capitalize on the gains made on integration of climate risks to national agricultural plans, while expanding implementation support to the highly vulnerable regions of central and northern Benin. The need to strengthen collaboration between the sectoral Ministries will also be addressed by the GEF-7 project in order that the various 'platforms' that exist can coordinate more effectively their sectoral goals and perspectives. A Technical SLM Group has been established at the Ministry of the Living Environment and Sustainable Development (MCVDD), which, together with Producer Unions and Forestry Management Units, will provide extension services and monitor activities and progress on the ground. Many interventions to improve agricultural climate risk reduction reduce and reverse land degradation, thus contributing to achieving LDN targets. Yet, these adaptation actions are not reported under LDN. Enhanced coordination across institutions can improve this situation.
- Gaps in implementation of the NDC: implementation of the commitments made on climate change adaptation in the NDC are confronted to the shortcomings related in particular to: (i) poor operational implementation,

[34] Climate change Profile – Benin. 2018. Government of the Netherlands.
[35] Dah-gbeto, A.P. and Villamor, G.B. 2016. Gender-specific responses to climate variability in a semi-arid ecosystem in northern Benin. *Ambio* 45, 297–308. https://doi.org/10.1007/s13280-016-0830-5
[36] Agbossou, E.K. et al. 2012. Climate variability and implications for maize production Benin: a stochastic rainfall analysis. *African Crop Science Journal.*
[37] Sohou EB. Benin agriculture in front of climate change: challenges and implications: Kandi case. 2017. Forest Res Eng Int J.;1(2):67–68.
[38] Baudoin et. al. 2014. Small scale farmers' vulnerability to climatic changes in southern Benin: the importance of farmers' perceptions of existing institutions. *Mitg.Adapt.Glob.Change.*
[39] Sultan, B., Defrance, D. & Iizumi, T. 2019. Evidence of crop production losses in West Africa due to historical global warming in two crop models. *Sci Rep* **9,** 12834 .

(ii) lack of convergence of efforts and sustainability of achievements, (iii) poor visibility of actions, rarely observed concretely in the field.

- Limited capacity for restoration and recovery of degraded lands for improved and sustainable land management and its role in building climate resilience: Integrated land management plans are lacking for the target areas where agricultural development plans need to be aligned with forest protection objectives. Skills training will be required to improve management practices of communities, farmers, and administrative structures. Key problems include inconsistent application of national agricultural development policy across the targeted landscapes, with inadequate human, financial and material resources to put in action the country's LDN measures and targets. The project will provide focused inputs to reinforce the skills and understanding necessary at site level, where management tools are not applied and material resources are limited;
- Need for diversification of income-generating activities that are aligned with Benin's LDN, NDC, and social development targets: Agricultural expansion in Benin has been carried out at the expense of natural ecosystems in all areas of agricultural production, which combined with poor agricultural practices, has resulted in reduced agricultural productivity in cash crops (due partly to poor soil fertility). Agriculture figures prominently in the country's first NDC, with diversification an important strategy for climate resilience[40]. Full engagement of target communities in securing markets for produce is limited, despite the creation of producer associations and forums. Adaptive capacity of many of the smallholders is low, with smallholder farmer producers often unable to access credit to purchase agricultural materials, and the 'top-heavy' forums (or platforms) that have been established are not all-inclusive, demonstrating kinship linkages and favoritism. Changing the traditional and occasionally exploitative system of chiefdom will require that traditional leaders are included in project design and project implementation. Providing education and assistance at the farmer level will strengthen the ability to engage in these various forums. Diversification of value chains from cash crops to fruit trees and non-timber forest products (NTFPs), through a targeted value chain analysis that integrates climate resilience and gender responsiveness[41], can provide triple bottom line benefits: socioeconomic, environmental and climate adaptation benefits. Accessing new markets and forging new value chains for agricultural and non-timber forest produce that are resilient to climatic stressors also require solid business plans and entrepreneurial partners for economic success and sustainability. Produce is often wasted at the farm gate (for example, mangoes in the north of Benin) when agricultural promotion is not developed in parallel with planning for produce transformation and access to markets. Experience cultivating organic cotton exists at the project sites and can be promoted further as an income generating activity in the periphery of parks and forest galleries;
- Insufficient outreach, and knowledge management**:** Regulations governing sustainable land management to achieve LDN targets, integrating climate change risks and adaptation actions as well as any lessons learned from successful projects carried out across the country, are not well known. Although the government of Benin has established decentralised agencies for the development and implementation of its agricultural development policy (the ATDAs), the extension services required to disseminate vital information on addressing land degradation, promoting and integrating climate smart agricultural practices and crop diversification strategies, and improving forest-friendly agricultural productivity have not been achieved. Efforts to address this under previous and ongoing projects, and sharing of lessons learned and experiences gained, need to be strengthened further to ensure a broader reach to a wider audience of stakeholders (for example, the lessons learned and knowledge arising from the GEF-funded PAGEFCOM1 project executed by the African Development Bank, AfDB). Enhancing sustainable land management skills will be aided through improved information management under the project.

Threats: There are a number of threats preventing climate resilient agriculture and sustainable land and forest management in Benin, including:

- Smallholder farmers are unable to access credit at the banks, with the result that very little cash is available to pay for seeds, agricultural materials, or labour assistance.
- Conflicts with livestock herders (transhumants) encroaching into forest and agricultural land, which also is leading to soil erosion (through repeated trampling) and over-grazing of vegetation, as well as threats to and conflicts over scarce water supplies in some areas. It should be mentioned that the controlled entry of livestock into agricultural fields during the fallow season is a traditional practice and can contribute to soil fertility regeneration through manure, and is therefore not in itself a source of conflict, whereas excess

[40] Benin's NDC. October 2017. https://www4.unfccc.int/sites/NDCStaging/Pages/Party.aspx?party=BEN

[41] https://reliefweb.int/sites/reliefweb.int/files/resources/nap-ag_toolkit_for_value_chain_analysis_.pdf

livestock densities combined with uncontrolled burning to stimulate grass regrowth as well as excessive lopping of trees for fodder lead to the degradation of soil and vegetation. Therefore, the objective is not to exclude cattle herders from agricultural lands but rather to reach (or re-instate) agreements that are beneficial for both sides.

- Fruitfly invasions (*Bactrocera dorsalis*) that have decimated mango production and caused significant losses in mango orchards. To address this problem, the Government of Benin created three multi-stakeholder (including mango farmers, processors, nursery growers, financing institutions traders, management structures) innovation platforms[42] in the south-central region, the Atacora-Donga region and the Borgou-Alibori region and a study was initiated to assess their operation and evolution (Houngbo, 2019).[43] The study identified that the platforms had a top-down structure, favoured kinships over professional relationships, and limited participatory planning and implementation of activities, resulting in poor motivation to contribute to effective up-take of the information and knowledge.
- A value chain evaluation of mango production in Benin was carried out in 2013 and noted the considerable wastage of mango crops, not only through fruitfly invasions but also the inability to access the necessary biological pesticides and baits. In addition, there were difficulties finding buyers and a general lack of organisation amongst producers, who are also facing constraints linked to poor access to credit and technical support. The potential for value-added mango cultivation is negatively affected by the losses at the farm gate, and the inability to establish linkages between producers, transformation or processing plants, and new markets. A juicing factory that was built in PDA 5 (Zou-Couffo) is no longer functional, although a small business is producing fruit juices.
- In addition to existing limitation in agricultural development, including the lack of much capital or technical investment in food crop production and soil conservation techniques to increase yield, direct climate change impacts to agricultural yield arising from changes in temperature, rainfall variability, high winds and intense rains, drought and dry season lengths are resulting in fluctuating or declining yields in staple crops, fruits and cash crops. As a consequence subsistence and small holder farmers do not see any livelihood improvements. Changes in the seasonal calendar, to which the rain fed agricultural production systems have adopted over millennia, now result in damages to crops, shortened growing period and increased instances of pests, all leading to a decline in yield and food shortages. Households cope over the short term by selling livestock in small numbers, or are experimenting with adaptation strategies, for example changing the crop variety to favour those with shorter growing periods, introducing mulching to and abandoning certain crops such as the Barambara groundnut. However, the poorest communities also have some of the lowest levels of adaptive capacity, in terms of access to climate resilient seed varieties, technological improvements, or even ownership of small livestock as a safety net.[44] Migration, especially by men, is another response strategy seen in some communities. Women are more interested in land use management as the land is seen as a means of avoiding or minimizing food shortages.
- The Covid-19 pandemic is having a detrimental effect on agricultural production in the rural areas and comprises a threat to achieving the project's objectives. As the pandemic continues to spread across the globe, the likelihood that all of Benin will be affected is very high, including not only in urban areas, but in the targeted rural landscapes. Outbreaks of Covid-19 in the project's intervention zones would negatively affect project beneficiaries and cause losses at target locations. Governments are constantly developing their responses to Covid-19 and Benin is no different, with a newly launched "Benin Covid-19 Preparedness and Response Project" to aid the country's response to the pandemic and also improve its resilience to health emergencies (World Bank, 2020; UNICEF, 2020)[45] as well as through UNDP, which is leading the UN's socio-economic response to the pandemic and its aftermath.[46,47]

2) The baseline scenario and any associated baseline projects

Benin has joined the land degradation neutrality process and has committed to achieving the goal of zero net land loss by 2030 in order to preserve terrestrial and aquatic ecosystems. Benin's NDC clearly indicates its awareness of

[42] The 3 platforms are: Save Mango of Atacora and Donga (PSaM/AD), Beautiful Borgou-Alibori Mango (PLABEMBA), and Mango is Treasure (PLAMAT/SC).

[43] Report is available online at: https://www.researchgate.net/publication/336532601_Factors_of_Development_Actions_Sustainability_In_Agriculture_The_Case_of_Innovation_Platforms_on_Mango_In_Benin

[44] Honunnou, F., et. al. 2019. Economy wide effects of climate change in Benin: An applied general equilibrium analysis. *Sustainability.*

[45] https://reliefweb.int/report/benin/benin-covid-19-situation-report-15 and https://www.worldbank.org/en/news/press-release/2020/04/28/benin-an-additional-10-4-million-to-fight-coronavirus

[46] https://www.africa.undp.org/content/rba/en/home/covid-19-pandemic-response/undp-response-by-country.html

[47] https://www.undp.org/content/undp/en/home/coronavirus.html

and commitment to addressing the needs for adapting the agricultural sector to climate change impacts. Climate change adaptation and reversing land degradation are interconnected, for example, with many climate smart agricultural practices contributing to improving soil fertility, reducing soil erosion, and restoring ecosystem services through restoration and regeneration of ecosystems. Achieving climate resilient LDN in Benin will require an integrated approach to address the various causes of land degradation taking place at the project sites, which also undermine the ability of vulnerable populations to adapt to climate impacts: i) droughts and desert encroachment in the north, ii) agricultural expansion at the expense of natural ecosystems in all areas of agricultural production, iii) uncontrolled exploitation of quarries in the south-west; and (iv) poor agricultural practices in large agricultural areas. This project Restoring and Enhancing the Value of Degraded Lands and Forest Ecosystems for Enhanced Climate Resilience in Benin (PIRVaTEFoD-Benin) is designed as an integrated LDN project that aims to reverse current trends in land and ecosystem degradation in Benin, build adaptive capacity to enhance climate change resilience, and implement dynamic local resilience, land restoration, and improved livelihoods for communities in the target areas.

As noted above, the Government of Benin carried out a number of reforms to implement the PSDSA (ie, creation of seven Agricultural Development Areas (PDA), each with their own Territorial Agricultural Development Agency (ATDA),[48] deployed across 12 Decentralised Departments for Agriculture, Livestock and Fisheries (DDAEP)[49]. The principal project partners will be the ATDA structures at the targeted sites and the project will assist these Agencies, and relevant and selected multi-sectoral, multi-party forums that have been created at national, district and local levels to implement the reforms underway. The project will further provide technical guidance for improved climate resilient agricultural production and sustainable human development that is aligned with Benin's land degradation neutrality targets. The proposed target sites are located in three of these seven Agricultural Development Areas **(PDAs 1, 2 and 5)** and include community farmers as well as private forest concessions and plantations (such as teak, eucalyptus and acacia tree species). As noted above, Benin's agriculture development plan (Strategic Plan for Development of Agricultural Sector – PSDSA 2025) has an ambitious objective to invest 'massively' in agricultural production, with the aim to provide not only for national food security, but to position Benin as a competitive producer within the region. The project's proposed target sites are located at the following Communes in the **three** PDAs highlighted, ie PDA 1 (Karimama), PDA 2 (Kouandé, Gogounou and Ségbana), and PDA 5 (Za-Kpota, Covè, Klouékanmè and Aplahoué). The project sites include or are in close proximity to classified, community, and sacred forests, as well as protected areas; for example, in the Niger Valley, Karimama,[50] is in close proximity to the Parc W, whilst Kouandé[51] is close to Pendjari National Park; Gogounou[52] and Ségbana[53] (both in PDA 2, ie Alibori Sud-Borgou Nord-2KP), and Aplahoué (Zou-Couffo, PDA 5) include sacred forests. The commune of Aplahoué[54] is associated with a group of sacred forests within Agoua Classified Forest (Terminal Evaluation Report of UNDP SGP project, GEF Project ID 3770).[55] These areas are large and cover an area exceeding 1.2 million hectares, with the result that the impact of the project could extend to beyond the 30,000 hectares noted in Section F (*Project's Target Contributions to GEF 7 Core Indicators and CCA Indicators*) above.

Under Benin's Government Action Program (PAG), the agricultural sector is a key development priority for enhancing national economy and rendering agriculture as the main lever for job creation, economic development, and wealth creation. The 7 Agricultural Development Areas (PDAs) were created to promote the development of high value-added agricultural sectors, notably pineapple, cashew, vegetable crops, maize, rice, cassava, meat, milk and aquaculture. In addition, Benin's National Plan for Agricultural Investments and Food and Nutritional Security (PNIASAN), linked to the ECOWAP strategy, takes into account trade, nutrition, resilience, climate-smart agriculture, and risk management, as well as cross-cutting issues such as gender and youth empowerment. Two objectives of the PNIASAN are to: i) transform agriculture and provide for inclusive sustainable growth; and (ii) strengthen systemic capacity for its implementation. The strategic actions aim to increase production and productivity

[48] Roles and responsibilities for the ATDAs were defined in Decree No. 2017-101 (27 February 2017) and Decree No. 2017- 582 (13 December 2017)
[49] The creation and roles and responsibilities of the DDAEP are noted in Order No 2016-681 of 07 November 2016
[50] Karimama is a town, commune and arrondissement in Alibori Department and covers 6,102 sq kilometres (610,200 ha). It is located in the north-east of Benin at 12º4'N; 3º11'E
[51] Kouandé is a town, commune and arrondissement in Alibori Department with an area of 4,500 sq kilometers (450,000 ha). It is in the north-west of Benin at 10º19'54"N; 1º41'29"E
[52] Gogounou is a town, commune and arrondissement in Alibori Department with an area of 4,910 sq kilometers (491,000 ha). It is in the north-east of Benin at 10º50'19"N; 2º50'10"E
[53] Ségbana is a town, arrondissement and commune located in Alibori Department with an area of 4,471 sq kilometers (447,100 ha). It is in the north-east of Benin at 10°55′40″N 3°41′40″E
[54] Aplahoué is a commune and a city in Couffo Department (it is the Capital of Couffo) and has an area of 572 sq kilometers (57,200 ha). It is in the south-west of Benin at 6°56′N 1°41′E
[55] Terminal Evaluation of GEF-funded UNDP SGP: *Intégration des Forêts Sacrées dans le système des Aires Protégées du Bénin - PIFSAP*

of agricultural value chains and improve markets. Through these improvements, the resilience of livelihoods and systems will be increased, together with strengthened governance of land, forests and water. Implementation of the National Plan (PNIASAN) will not only restore and ensure sustainable land management, but will also increase carbon sequestration and improve agricultural yields.

Support is being provided to the Government of Benin by a number of donor and development agencies (see Table 1 below). For example, the IFAD is providing funding to the Government of Benin to implement a project on "Agricultural Development and Market Access Support" (PADAAM)[56] that focuses on value chain growth for improved economic and food security in the country. The target value chains are cassava, rice and maize and the project's aim is to increase the competitive value-added for these products on national, regional and international markets and to reduce reliance on food imports. The IFAD project is also assisting with climate change adaptation in the agriculture sector and initiating an insurance scheme that primarily targets smallhoder farmers. The African Development Bank (AfDB) has provided technical farming and forestry skills training to enhance sustainability and increase agricultural productivity at 23 communes in Collines, Zou and Atlantic departements (Project PAGEFCOM-1). A second phase of this project (PAGEFCOM-II)[57] is currently being implemented to reduce food insecurity through promotion of green economy value chains, improved management of natural resources, and improved adaptation to climate change. While there is no overlap geographically with PAGEFCOM-II project intervention villages, there are opportunites for sharing knowledge and promoting exchanges on lessons learned as the proposed project and the PAGEFCOM-II project are implemented in parallel (albeit in different villages and arrondissments). LDCF investments proposed here focus on the identification of climate resilient value chains and support for promoting sustainable and resilient livelihoods. In addition, the proposed national monitoring system which includes tracking vulnerability and resilience (Output 1.1.2) can be used to aggregate data from multiple projects and scales. Insights from the application of the climate resilient integrated value chain analyses will be relevant at a broader scale for adaptation initiatives across the country. The proposed project has noted that the lessons learned from its project outcomes can be applied in other agricultural-forest-mosaic landscapes throughout the region that experience similar root problems. The project Projet APADT- WAP (UE-UEM OA) is a transfrontier project (Benin, Burkina Faso, Niger) focused on the integration of adaptation and mitigation within the management of the WAP[58] cross-border parks complex. The project aims to strengthen the resilience of ecosystems and improve the living conditions of populations in the WAP complex in the face of climate change through the establishment of a multi-risk early warning system relating to droughts, floods and fires, and the implementation of adaptation measures to manage these emergencies. The APADT-WAP project focuses interventions within community wildlife management associations, and these interventions and the target sites do not overlap with that of the proposed project. A third project, the FFEM focuses on sustainable forest management. Investments made through LDCF resources under the proposed project will build upon lessons learned from baseline projects (Table 1), while integrating climate change scenarios and resilience as criteria for identifying and selecting restoration and sustainable land management interventions, identifying value chains that are climate resilient and supporting the adoption of these through extension services and investments. Thus, the proposed project outcomes provide an opportunity to facilitate knowledge exchange with initiatives such as the APADT – WAP, PAGEFCOM-2 and FFEM, and collaboration in aggregating information up from the level of individual projects to the national level.

The Organisation of the Petroleum Exporting Countries (OPEC) has provided support to farmers in the south of Benin to manage fuelwood plantations and replant severely degraded forests, together with preparation of co-management plans for forests that have been restored. The project will also capitalize on (and scale up) the achievements of the GEF-SGP funded project to manage and restore sacred forests (Project ID: 2823), as well as the lessons learned during the pilot phase of a UNEP-implemented project (with financial support from the Korea Forest Service, KFS) to set up a green belt against the advancement of the desert in the north of Benin, and the lessons learned from the recently completed GiZ-funded project "Protection and Rehabilitation of Soils to Improve Food Security".

A parallel project being carried out in Benin that contributes to achieving the broader goals is a GEF-5 project currently under implementation in the south-east and middle-east of Benin to support climate resilient agriculture and livelihoods, as well as to mainstream climate risks into national and local planning processes, thereby reducing

[56] The Total project cost is US$ 97.61m; IFAD financing is US$ 31.04m with co-funding from the OPEC Fund for International Development (US$10m), the Swiss Agency for Development and Cooperation (US$ 1.5m), and the private sector in Benin (US$ 5.6m). Further information is available at https://www.ifad.org/en/web/operations/project/id/2000001073

[57] The PAGEFCOM-II project [GEF ID 9383] was endorsed in May 2020 and will be implemented over 48 months, thus coinciding with the project period of this GEF-7 project.

[58] The WAP Complex (W-Arly-Pendjari Complex) is a transboundary Natural UNESCO World Heritage Site in Benin, Burkina Faso and Niger.

community vulnerability to climate change (Project "Strengthening the resilience of rural livelihoods and sub-national government systems to climate risks and variability in Benin", GEF Project ID 5904). This 5-year project is being implemented by the Ministry of Planning and Development (*Ministère du Plan et du Développement*).

Table 1: Projects under implementation in Benin

Project and Donor	Sector and location	Main anticipated results	Project period	Contributing to co-finance?	Implementing Partner	Total Cost US$
Classified Forests Project	Forestry and climate change. The project aims to improve the integrated management of targeted classified forests, to facilitate the access of the main cities of South Benin to wood energy produced in a sustainable manner and to promote the value chain of targeted NTFPs, improving the incomes of communities dependent on forests Project site overlap: **Gogounou**, and **Ségbana**	- Restoration of degraded forests - Strengthening the governance sector mechanism - Promotion of alternative income-generating activities	2019-2026	Yes	DGEFC	75,000,000
Projet APADT-WAP (UE-UEM OA)	Transfrontier project (Benin, Burkina Faso, Niger) on Integration of adaptation and mitigation measures to climate change in management of the WAP[59] cross-border parks complex. The project aims to strengthen the resilience of ecosystems and improve the living conditions of populations in the WAP complex in the face of climate change through the establishment of a multi-risk early warning system relating to droughts, floods and fires, and the implementation of adaptation measures to manage these emergencies Project Site overlap: **Karimama, Gogounou,** and **Kouandé**	- Integration of climate change aspects and the emergency plan (MREWS) in the management of the WAP Complex - Design and implementation of a multi-risk early warning system (drought, floods and fires) - Improving ecosystem resilience and human livelihoods through implementation of adaptation actions - Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex	2019-2023	Yes	Sahara et Sahel Observatory (OSS)	11,536,200
PAGEFCOM 2 (AfDB)	The project aims to improve food and nutritional security and reduce poverty through valorization and the sustainable management of natural resources in the targeted departments Project Site overlap: **Covè** and **Za-Kpota**	- Promotion of green economy value chains - Sustainable management of natural resources - Adaptation to CC	2020-2024 [approved by CEO GEF in May 2020; project period = 48 months]	Yes	DGEFC	2,627,226
Project to support the development of the cashew sector and agricultural	The Project aims to reduce poverty and improve food and nutrition security in Benin. It also aims to develop the cashew sector and to promote agroforestry	- Reshaping of rural roads - Construction of warehouses - Rehabilitation of old plantations - Creation of modern orchards - Creation of processing units	2019-2024	No	MAEP/ATDA 4	16,024,263

[59] The WAP Complex (W-Arly-Pendjari Complex) is a transboundary Natural UNESCO World Heritage Site in Benin, Burkina Faso and Niger

entrepreneurship in Benin (PADEFA-ENA)[60] (FAD)	No project site overlap but complementary activities and collaboration and sharing of lessons learned	- Jobs for youth				
Support program for the sustainable management of communal forests in Benin (Phase II) FFEM	Sustainable management of communal forests in Benin No project site overlap but there are parallel project objectives	- Promoting private communal forests - Sustainable supply of energy wood and charcoal - Promotion of alternative measures for sustainable management of classified forests	2018-2023	Yes	COFORMO	1,128,410
Integrated Program for Development and Adaptation to Climate Change in the Niger Basin (PIDAC)[61] (BOAD[62]-BM)	The project aims to improve the resilience of Niger River ecosystems and populations through sustainable management of natural resources Project site overlap: **Karimama**	- Water resource management and construction of water reservoir - Restoration of African fan palm - Rehabilitation of two hydroelectric dams - Dam construction for the promotion of rice growing	2019-2024	Yes	DGEau/MEM[63] DQIFE[64]/MAEP	17,215,060
Project to improve the climate resilience of rural communities in central and northern Benin (Green Climate Fund)	Management of forest and agricultural landscapes No project site overlap but important for coordination and collaboration on mechanisms and activities of mutual value	The project aims to protect communities from the harmful effects of climate change through adapting agricultural livelihoods and productivity, and investing in land management Climate-resilient agricultural interventions will be implemented in seven central municipalities and in the north of Benin in the municipalities of: Dassa, Tchaourou, Djougou, Ouaké, Cobly, Boukoumbé and Banikoara	2022	No	DGEFC	10,000,000
Intensive Reforestation Project (BN)	The project aims to strengthen the country's forestry through intensive reforestation of land and forests in all of Benin's municipalities in order to make wood energy more available and to fight climate change Project site overlap: **Gogounou, Ségbana, Kouandé, Karimama, Covè, Za-Kpota, Kouékanmè** and **Aplahoué**	- Develop industrial plantations for the sustainable supply of wood needs - Strengthen the sustainability of urban, peri-urban and rural areas to the harmful effects of climate change - Support the dissemination of sustainable land management practices to improve the resilience of populations to the harmful effects of climate change - Strengthen the institutional, technical and organizational capacities of the various actors	2017-2026	Yes	DGEFC	65,959,100

[60] PADEFA-ENA - Programme d'Appui au Développement de la filière Anarcade et de l'Entrepreneuriat Agricole au Bénin
[61] PIDAC : *Projet Integré de Développement et d'adaptation au Changement Climatique dans la Vallée du Niger*
[62] BOAD - *Banque Ouest Africaine de Développement*
[63] MEM : *Ministère de l'Eau et des Mines*
[64] DQIFE - *Direction de la Qualité de l'Innovation de la Formation Professionnelle et de l'Entrepreneuriat*

Project to support the development of market gardens (PADMAR)	PADMAR will be limited to the southern regions of Benin and will intervene in 7 of the 12 departments of the country, namely Atlantic, Couffo, Littoral, Mono, Ouémé, Plateau and Zou. In these departments, the Project will intervene in 27 communes out of a total of 44 communes	Focused on the development of market gardens.	2017-2023	NO	FIDA	
Pro-Agri3: Programme de Promotion de l'Agriculture (ProAgri)	Atacora : Tanguiéta, Kérou , Kouandé, Péhunco Donga : Boukoumbé, Copargo, Djougou, Ouaké Borgou : Nikki, N'Dali, Pèrèrè, Tchaourou Collines : Ouèssè, Glazoué, Savè, Dassa-Zoumè	Focused on agricultural support for cashewnut, rice, soybean and shea butter value chains.	2017 - 2020	No	BMZ/GIZ	
PROSOL : Protection and rehabilitation of soil and improvements in food security	Zou (Abomey, Bohicon, Zogbodomey, Agbangnizou, Djidja, Covè, Zagnanado, Ouinhi, Zakpota), Collines (Savalou, Bantè), Borgou (Bembéréké, Kalalé, Sinendé), Alibori (Kandi, Gogounou, Ségbana, Banikoara)	Aim to bring 20,000 hectares of soil under improved management and protecition in target sites	2015-2021	No	GIZ	
PROCIVA: Centre for green innovation in agriculture and food security	Sinendé, Bembéréké, Kalalé ; Gogonou, Sègbana, Kandi ; Zogbodomè, Abomey, Zakpota, Zagnanado, Bohicon, Djidja, Agbangnizoun, Covè, Ouinhi ; Bantè et Savalou,Natitingou, Toucoutouna et Tanguieta	Focus on Sustainable and high-impact approaches to promote the protection and rehabilitation of degraded soils.	2014-2021	No	GIZ	

3) Proposed alternative scenario with a brief description of expected outcomes and components of the project
The long-term solution is *to support achievement of Benin's Land Degradation Neutrality (LDN) targets through climate risk informed sustainable land and forest management practices, and strengthen the climate resilience of vulnerable populations, in the Niger Valley, Alibori Sud-Borgou Nord-2KP, and Zou-Couffo Agricultural Development Areas.* The project intends to: i) promote sustainable, resilient and climate smart production systems in degraded lands and deforestation hotspots in Benin, ii) facilitate implementation of green infrastructure, selected through integration of climate scenarios and resilience potential under current climatic stressors, to strengthen the Green belt as a nature based solution against desert advancement and support communities' in climate change adaptation in the north of the country, iii) strengthen the protection and preservation of forest ecosystems located in large agricultural production basins, iv) identify and promote climate resilient value chains and increase productivity and competitiveness of the horticultural sectors, and v) facilitate the mobilization of innovative financing and the involvement of private sector for the scaling up and sustainability of climate smart agriculture, climate risk informed sustainable land and forest management. It will address the barriers and challenges outlined in the sections above and will be carried out at national, communal, and local site levels where degraded lands have been targeted for improved climate risk informed land management practices to achieve Benin's LDN goals and meet its NDC objectives for climate change adaptation.

At the national level, the project will carry out activities to strengthen the capacity of the Ministry of the Living Environment and Sustainable Development to meet the country's LDN and climate change adaptation commitments, and the Ministry of Agriculture, Livestock and Fisheries to attain its national agricultural production goals in line with its objectives for adapting agricultural practices to withstand climate change as articulated in its NDC. The project will facilitate the development of guidelines for potential funding mechanisms to enable the National Forest and National Agricultural Development Funds to function effectively and sustainably into the future; this will ensure continuity in supporting individual producers, farmer associations, and producer Unions to implement technologies for climate smart agriculture, and climate risk informed SLM and SFM. At the local level, the project will provide support to generate land and forestry benefits, including critical ecosystem services, by improving the technical capacity of land planners and managers to integrate climate change into management plans, apply management plans, climate change vulnerability analysis and other tools for integrated landscape restoration and climate resilient

agricultural planning. The project will create stakeholder awareness and build the capacity of agricultural land managers and national agency staff to support the scaling up of integrated, climate resilient and risk informed landscape management approaches in three targeted Agricultural Development Areas, and ensuring their alignment with national LDN targets, climate adaptation needs and objectives. The project will raise awareness and strengthen capacities of beneficiary communities at the local level in the development of climate resilient value chains in non-timber forest products (NTFP) such as the African locust bean (*Néré*), *Parkia biglobosa*, the Shea tree (*Karité*) *Vitellaria paradoxa* (formerly *Butyrospermum parkii*), baobab (*Adansonia digitata)*, fruit trees (citrus, mango, cashew), and food crops (maize, rice, cassava, yam, groundnuts, beans etc). Alternative, diversified, income-generating activities such as livestock production, organic cultivation, climate-smart agroforestry and agriculture, transformation/processing of agricultural and fruit products, and small-scale market gardening of high-value crops (eg tomatoes, okra, chili pepper) will be promoted. The project will identify natural ecosystems for restoration[65], including natural regeneration, based on criteria that include resilience to current climate change and future projections, potential restoration of fallows in an ecosystem appropriate manner, development of community forests, and the promotion of private, communal and community restoration zones with valuable, climate resilient species for degraded lands and forests, informed through a multi-criteria analysis. Particular emphasis will also be placed on the reduction and controlled management of fire as a tool in land management, with the objective of reducing burning frequency and avoiding uncontrolled burns that lead to the degradation of soil and vegetation.

The project will adopt an integrated approach based on local vulnerability assessments and instigating site-specific solutions that include: a) developing and applying sustainable community forest management tools; b) implementing climate risk informed Sustainable Land Management (SLM), climate smart agricultural practices and soil fertility improvement techniques; c) providing extension services and material resources for agroforestry with fruit and fodder trees as an alternative to annual crops in Za-Kpota, Covè, Klouékanmè and Aplahoué; and d) initiating large-scale ecosystem appropriate restoration that factors in climate projections and contributes to the Green Belt initiative to counter the advancement of the desert in Karimama, Kouandé, Ségbana and Gogounou in northern Benin. Beekeeping will also be promoted to enhance restoration at site level and aid the development of fruit tree plantations, as well as provide diversification of livelihoods. The alternative scenario is fully centred on a community-inclusive, multi-stakeholder collaboration at national and local scales that integrates climate change impacts and adaptation needs with addressing and reversing land degradation and deforestation.

The project is structured around the following four components:

Component 1: Political, financial, institutional, and regulatory frameworks to achieve climate risk informed Land Degradation Neutrality (LDN) and advance integration of climate adaptation options within land use decisions. The anticipated *Outcome* of this Component is *Strengthened national policy, governance and financial frameworks for achieving climate risk informed LDN (with capacity to implement)*. This outcome will be delivered through five inter-related outputs: (i) National centralised LDN database created within the MCVDD with a link to global monitoring of restoration and LDN[66]; (ii) National monitoring system for tracking climate change vulnerability in the agricultural sector and changes in adaptive capacity, land cover change, degradation, restoration and forest ecosystems, and ecosystem services, is created, (iii) the National Committee to Combat Desertification is strengthened for enhanced ownership and capacity of national authorities to address expected scenarios of climate change hazards and sensitivity, iv) the National Forestry Development Fund, National Environment and Climate Fund, and National Agricultural Development Fund are operationalized with harmonized governance and capacity to mobilize resources to integrate climate adaptation options for agricultural landscapes and meet LDN objectives through climate risk informed SLM and SFM; (v); training and equipment provided to key agencies (Ministries of Environment, National Geographic Institute, National Agricultural Resource Institute) to improve implementation of climate risk informed and resilient SLM technologies and conservation of production landscapes, improved coordination and monitoring of the dynamics of land degradation, climate impacts and vulnerability, and restoration, and sustainable forest management. The project will assist with the institutionalisation of biannual national reporting on the state of land degradation and forest ecosystems. This will require that multi-sectoral consultations are developed and strengthened to review and harmonise relevant policies, sectoral strategies and programs in order to mainstream land degradation neutrality targets, informed by climate change scenarios,and objectives. Establishing and building capacity to monitor land degradation, land cover change, ecosystem services, as well as climate risks,

[65] Through, for example, working with partners to integrate current climatis stress and projections into models such as those produced by IIS-Rio and applied in Brazil, countries in South America and the global scale. Also see: Strassburg, B. et al. 2020. Global priority areas for ecosystem restoration. *Nature.*

[66] For example, the national centralized LDN database could link to the IUCN-managed BC Barometer for restoration progress

vulnerability and adaptation metrics, is central to assessing impact. Engaging relevant government entities will be necessary and activities will include development of tools and measures to facilitate the adoption and operationalization of the principle of no degraded, bare, or abandoned land due to agricultural practices. Support, advice and awareness-raising will be provided to representatives at all levels of decision-making to enable the revision of national strategies, plans and sectoral indicators in accordance with the recommendations inherent and contained within these regulatory texts.

Component 2: Restoration of land and forest ecosystems for improved agricultural productivity, prevention of deforestation, and enhanced climate resilience of vulnerable communities. The anticipated *outcome* will be that *Priority degraded and abandoned lands and targeted forests are brought under restoration and sustainable management practices while integrating climate risks, sensitivity of response and climate resilience in SLM and SFM objectives.*. The outcome will be delivered through five outputs: (i) integrated land use, land restoration, and forest management plans are developed, with climate change scenarios informing risks and selection of adaptation options,, and operationalized at target sites, with capacity to implement; (ii) degraded lands amounting to at least 15,000 hectares, and at least 15,000 hectares of forest are under climate risk and vulnerability informed restoration and functional and sustainable management regimes; (iii) Awareness raising and training of 1,000 national and local government and administration officials (including ATDAs and DGEFC), paliamentarians and representatives of private sector in climate resilient and degradation neutral planning and policies, with focus on agriculture, animal husbandry and forestry, targeting the mainstreaming of CCA and LDN in all policies and administrative decisions; (iv) Extension services in climate resilient and degradation neutral agriculture, animal husbandry and agroforestry provided to 24,000 farmers and community leaders (50% women), including on climate resilient and degradation neutral cotton production; (v) Green Belt infrastructure against the advance of the desert in the north of Benin strengthened through development of manuals for climate change resilient restoration, reforestation and forest regeneration, setting up of community managed agroforestry nurseries for drought resilient tree species of local preference, designing and implementing of communal fire control measures, protection of local watercourses, integration of special areas for tree fodder production to accommodate seasonal passage of pastoralists with their herds, and the designing and implementation of locally managed monitoring methods for landscape and forest restoration and carbon sequestration; (vi) Peer-to-peer exchanges are hosted between project sites and other countries participating in the Green Belt in order to generate and exchange learning on the most successful and resilient ways of landscape restoration and of improving the local climate and water supply through forest restoration.

The project will assist the Government of Benin to implement at target sites the enabling environment developed under Component 1. Recognising that an integrated, collaborative approach is required to implement systematic climate change adaptation actions, including climate resilient SLM for improved food security for smallholders and farmer communities, the project will carry out activities at target sites to reduce further land and soil degradation. Activities will also involve creating green infrastructure resilient to projected climate impacts in Karimama and Kouandé to strengthen Benin's Green Belt against desert encroachment from the north. Training activities will lead to improved land management and capacity for ongoing monitoring at these sites so that they are able to act as carbon sinks as well as act as nature-based adaptation options to improve soil moisture, regulate the microclimate, and provide a diversified source of NTFPs resilient to climate change. This will be achieved by reducing the impact of land-intensive activities through the introduction of climate smart agriculture, improved, climate resilient SLM practices to reduce carbon release from soil, and increased water productivity of crops. Natural regeneration potential under likely climate projections, for example, through downscaled prioritization maps will inform sites where natural regeneration can be supported.[67] Activities will also focus on improved soil management through active organic cultivation, development of tree nurseries for reforestation, improved manuring techniques, and fire management. As a result, the project will contribute to improved, climate smart agricultural management and forest protection practices (for LDN and sustainability) with functional management platforms in place. In addition, peer-to-peer exchanges are hosted between project sites as a key aspect of sustainability and replication of landscape restoration techniques resilient to climate change, through local multi-stakeholder platforms to diffuse knowledge and know-how about landscape restoration and especially natural regeneration under projected climate scenarios.

Component 3: Community engagement for the development of promising, diversified value chain markets and improved climate resilience of livelihoods. The anticipated *outcome* will be that *Communities at pilot sites receive tangible benefits from engagement in diversified, climate resilient income generating activities* and this outcome will be delivered through five outputs: (i) Agricultural value chains are analysed with regard to their potential for climate

[67] See for example : Strassburg et al 2020. Global priority areas for ecosystem restoration. Nature

resilience, zero degradation land management, sustainable income generation for rural communities with specific emphasis on women, and on this basis those value chains for strengthening through additional investment and extension support are prioritized; (ii) Building on the value chain analysis of output 3.1.1, climate resilient and sustainable agricultural and agroforestry practices and market channels are strengthened through investments and extension support for climate smart agricultural practices such as rainwater harvesting and retention ponds, micro-irrigation and adoption of ground cover crops, leading to triple-bottom-line benefits, strengthened adaptive capacity of vulnerable communities, job and SMME creation; (iii) local, national, regional, and international buyers of target, climate resilient value chain products are engaged to develop partnerships that support and promote 'forest-friendly' and climate resilient income-generating opportunities; (iv) Improved market access for farmers and communities practicing climate resilient, zero degradation agriculture and agroforestry[68], including NTFPs[69], through strengthened cooperatives and farmer organizations and negotiated partnerships with traders and processors; (v) technical guidance on adoption of climate resilient value chains developed and disseminated, integrating climate risks, to enhance productivity and climate resiliency of targeted value chains and agroforestry systems. It is anticipated that activities will target three of the seven agricultural poles (PDAs), ie PDAs 1, 2, and 5. Development of promising, climate resilient agricultural and agroforestry value chains will be based on an analysis of the entire value chain for the target produce that integrates climate change impacts and resilience as criteria using published toolkits[70]. Specific vulnerability of smallholder farmers and small-scale cattle herders will be assessed through the use of tools such as SHARP. [71] Together with analysis of climate resilience value chains and adaptation options, these assessments will provide a comprehensive understanding of varying vulnerability to climate change, existing adaptive capacity, and farmer preferences for adopting more climate resilient value chains and climate smart agricultural practices. The value chain analysis will consider the capacity of markets to absorb additional products, and the project will encourage a range of partnerships (public, private and producers). The operational mechanisms for the agricultural 'platforms' that exist will be strengthened to ensure: a) full participation of all stakeholders along the national value chain, and b) reduced kinship favouritism. Extension training will target grassroots capacity building to adopt climate smart agriculture to bring about real benefits to needy communities. The viability of establishing incentive schemes for the creation and management of assisted natural regeneration sites and agroforestry plantings with the help of climate resilient agroforestry nurseries will be assessed.

Component 4: Gender Empowerment, Knowledge Management, and M&E. The anticipated *outcome* will be *Improved coordination and information sharing among stakeholders and partners at the national, regional and international levels* and will be delivered through the following four outputs: (i) gender empowerment strategy developed and used to guide project implementation; (ii) participatory M&E of land under restoration and improved management, and learning framework developed and implemented at project sites; (iii) nationwide communications and public awareness program developed and launched; (iv) lessons learned through participatory M&E and gender empowerment are produced, published and disseminated locally, nationally, regionally and internationally.

Throughout the project, efforts will be made to address specifically disadvantages for women in Benin's rural societies and to empower them to play an equal role to men in the sustainable development of the target area and rural Benin more broadly. Research in rural Benin has shown that women have less land access and lower tenure security than men, and that this reduces their willingness and ability to invest in longer-term assets such as the planting of valuable fruit trees, fertilizer and other investments in soil fertility, at a significant cost to society as a whole. It also results in women often farming marginal plots of land for lack of access to better land. Strengthening tenure security of women would therefore contribute to the objectives of this project in increasing investments in the long-term sustainability and productivity of land, as well as specifically the incomes of women and female-headed

[68] Targeted agricultural value chains include: mango and citrus trees, cashew, organic cotton, and market garden produce. Forums ('platforms') exist for the various sectors, including a Communal Producer Union (CPU) for cotton, a CPU for mango, CPU for citrus, and a CPU and Village Producer Association (VPA) for market garden produce. The project will develop activities to strengthen the forums and enhance the synergies.

[69] Targeted NTFPs are: Baobab, Shea Tree, and Locust Bean Tree. All of these species occur in agricultural areas as well as in forests. Capacity exists at community level to develop nurseries for all of the listed NTFP species, although project inputs are required to assure protection of the existing stock as well as provide guidance on appropriate planting regimes for improved survival rates. The methods used to transform NTFPs into marketable products requires modernisation and refinement, and links to markets need to be strengthened. All necessary activities will be developed during project development under the PPG.

[70] See for example, *Toolkit for value chain analysis and market development integrating climate resilience and gender responsiveness - Integrating agriculture in National Adaptation Plans (NAP-Ag) Programme. 2020. FAO and UNDP.*

[71] Self evaluation and holistic assessment of climate resilience of farmers and pastoralists (SHARP). Accessed at : http://knowledgecentre.resilientfoodsystems.co/kc/resource_library

households[72]. The project will therefore emphasize the access of women to land in the development of land use plans, including the demarcation by local committees of fertile lands for use by women and women groups (Component 3). It will strengthen the organization of women in informal groups, associations and cooperatives to strengthen their market access, position in value chains and control over revenues from agriculture, agroforestry and trade. Women groups will be involved in all stages also in forest restoration and reforestation activities (Component 2), and a particular emphasis on the roles and rights of women will be included in policy and institutional work under Component 1. Use will be made of the "Gender and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture"[73] of the CGIAR-CCAFS program as well as the UNDP/FAO "Toolkit for value chain analysis and market development integrating climate resilience and gender responsiveness"[74] for assessing the specific role and problems of women at the beginning of interventions and streamline activities with the specific local needs, both during the PPG and the full project implementation. Where appropriate according to those initial assessments and prioritized by the women groups themselves, specific value chains will be developed or strengthened for women groups and cooperatives, such as the production of honey, shelled cashew nuts, or dried mangoes, including their transport and sale in the capital and other larger towns, and where appropriate, for export, drawing on experiences from other projects such as the GEF Resilient Food Systems Impact Program[75].

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

The project aligns with the GEF-7 Land Degradation Goal to support UNCCD's LDN concept where the project will support the GEF-7 Land Degradation Focal Area Strategy Objective 1: *Support on the ground implementation of SLM to achieve LDN* and the GEF impact program *Food Systems, Land Use and Restoration.* Furthermore, the project aligns with GEF-7's goals on climate change adaptation, which in turn are fully aligned with the UNFCCC's Paris Climate Agreement goals for adaptation. Through addressing drivers of land degradation, the project will take a systemic approach to build climate resilience in vulnerable agricultural and degraded forest-mosaic landscapes, thereby mainstreaming climate adaptation needs and options in Benin. This project proposes actions that acknowledge the intrinsic links between reversing land degradation, supporting climate change adaptation for vulnerable communities, and reducing further pressures on existing natural ecosystems. It will support Benin in achieving its landscape restoration targets in a manner that integrates climate change risks in identifying and selecting types of restoration interventions, and climate resilience as an objective, as well as integrate systematic adaptation planning and action within agricultural communities and institutions. The project will specifically work with smallholders and local communities who depend on farming and small-scale cattle herding for their livelihoods to restore agroecosystems, adopt climate smart agricultural practices and diversify value chains in the productive landscape. The project's approach will address barriers and their underlying root causes, which are currently hindering effective integrated landscape management, addressing the physical, climatic, biological and socio-economic aspects affecting the agro-ecosystems and forestry management. The project will be innovative in its approach to bringing multi-sectoral government agencies together in a coordinated and unified approach for implementing climate adaptation actions through agro-biodiversity conservation, climate risk and vulnerability analysis, LDN, soil water conservation (SWC) and sustainable forest resource management (SFRM).

5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF and co-financing

Baseline practices	Alternatives to be put in place	Global Environmental Benefits (GEBs) and Project impacts
National plans and programs are in place but lack of coordination and defined responsibilities between government actors hinders effective implementation of the LDN priorities/targets and SLM Framework which in turn affects agroforestry (impacted by lack of appropriate SLM of the crop and forest lands at target sites).	Cross-sectoral Ministerial or Agency regulations (Decrees/Orders/Bills) for the LDN targets and the climate risk integrated SLM Framework will be developed where lacking, necessary, and appropriate, and signed into effect, ensuring effective coordination between the different sector entities within government, integration and mainstreaming of adaptation in efforts to achieve land degradation neutrality, as well as providing needed direction for effective implementation	Climate risk informed and reslient SFM, SLM and sustainable agricultural production approaches are adopted and implemented on **30,000 ha in three PDAs**, as follows: *- 15,000 ha of forest ecosystem brought under restoration integrating consideration of*

[72] G*oldstein, Markus; Houngbedji, Kenneth; Kondylis, Florence; O'Sullivan, Michael; Selod, Harris. 2016. Securing Property Rights for Women and Men in Rural Benin. Gender Innovation Lab Policy Brief;No. 14. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/25453 License: CC BY 3.0 IGO.*

[73] https://ccafs.cgiar.org/gender-and-inclusion-toolbox#.X4g2SNBKjIW

[74] https://reliefweb.int/sites/reliefweb.int/files/resources/nap-ag_toolkit_for_value_chain_analysis_.pdf

[75] http://www.resilientfoodsystems.co/news/for-women-in-benue-state-beekeeping-offers-an-avenue-for-income-and-independence

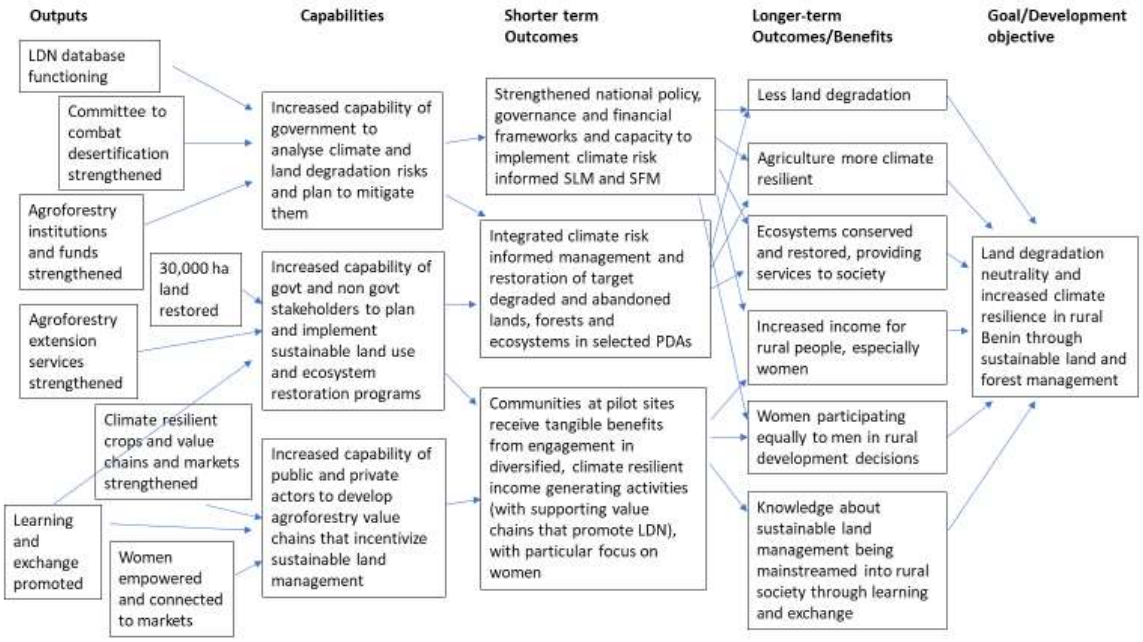
National funding through the government systems will continue to be available, but this does not meet the funding gap at local level where funding for additional, climate risk informed SLM, restoration, and forest conservation efforts are needed. Smallholder farmers will continue focusing on traditional cash-crops and remain unaware and untrained on alternative, climate resilient value chains, agricultural practices and SLM, agroforestry possibilities that are financially viable. The economic returns from traditional farming systems and local varieties/traditional crops will continue to decline in the local farming communities.	towards meeting underlying targets. New or revised policies will in turn influence how forestry and other land management and land-use plans in target areas will be coordinated and implemented. Guidelines on how to access the LDN Fund and other funding sources will be elaborated, to enable project development in support of climate resilient and risk informed SLM and forest conservation at local level. The training in land degradation and neutrality target achievements through development of management tools and climate change risk integrated, land-use options will build the technical expertise of agencies, project staff, and producers in management of landscapes in the target areas. Specific vulnerability of smallholder farmers and small-scale cattle herders will be assessed through the use of tools such as SHARP. [76] Together with analysis of climate resilience value chains and adaptation options, these assessments will provide a comprehensive understanding of varying vulnerability to climate change, existing adaptive capacity, and farmer preferences for adopting more climate resilient value chains and climate smart agricultural practices. Training in effective climate smart agriculture, SLM and sustainable, climate risk informed and resilient agroforestry will enable farmers to implement methods that will increase land productivity, including increasing soil fertility, identify climate resilient value chains for diversifying income and livelihood sources, improve ability for on-farm water savings and micro-irrigation to increase water efficiency in order to face droughts, variability in rainfall and extremes, protecting local biodiversity, and carbon sequestration. A designated knowledge and learning exchange system will facilitate sharing of knowledge and information on improved, climate resilient SLM practices between project implementors and all stakeholders.	*climate change scenarios/risks and resilience criteria (e.g. using species resilient to current and future climate change) restored and under improved management (Core Indicator 3* - Area of **land restored;** *CCA Core Indicator 2 – area of land managed for climate resilience*) *- 15,000 ha of degraded land brought under restoration and under improved management (Core Indicator 4 and CCA Core Indicator 2* - Area of **landscapes under improved practices** [excluding protected areas]) *- 24,000 producers in 18 communities are provided with training and extension support for climate resilient, sustainable (climate-smart) agricultural and agroforestry production. (CCA core indicator 1 – total number of direct beneficiaries)* The capacity for developing climate risk informed and resilient forest and agricultural landscape and land-use plans is built through the provision of training and extension services to national MCVDD and MAEP staff, national agency staff involved in land use, land management, climate change adaptation and forest conservation at the targeted project sites Investment for SLM, climate smart agriculture and climate resilient value chains and sustainable agroforestry projects will increase as a result of the strengthened mechanism for funding through the National Forestry and National Agricultural Development Funds (this will be designed to provide compensation to farmers adopting climate resilient SLM technologies that lead to long term productivity, use of high-value sustainably grown, climate resilient and forest-friendly crops, and improved land and soil health as a result of reduced dependence on chemicals and fertilizers)

The draft **Theory of Change** on the next page, which will be further refined during the PPG, further explains the assumptions and pathways of change of the project. Building on the identified baseline practices, the project will put

[76] Self evaluation and holistic assessment of climate resilience of farmers and pastoralists (SHARP). Accessed at : http://knowledgecentre.resilientfoodsystems.co/kc/resource_library

in place a number of activities and outputs, which together will establish and strengthen capabilities within government and non-government stakeholders. These, in turn, will result in shorter-term and longer-term outcomes that together allow to reach the development objective or goal[77]. The main outputs of the project, to be achieved through activities that will be defined in detail during the PPG, will improve the information base for government decision making (LDN database), will strengthen multi-stakeholder processes such as the Committee to combat desertification for greater coordination of programs and actions, will strengthen institutions including their access to funding tasked with the promotion of land uses that conserve or rehabilitate the fertility and ecosystem services of the land with special focus on forestry, agroforestry and sustainable, climate resilient agriculture practices, will strengthen extension services, will pilot forest rehabilitation and sustainable land management models, will strengthen value chains for climate resilient agriculture, promote learning, and empower women in decision making and as market actors. This set of outputs at institutional and field level will establish and reinforce capabilities within stakeholders that currently are weak, thereby reducing barriers to change. Specifically, government will be better able to analyse climate and land degradation risks and plan their interventions accordingly; the capabilities of government and non-government stakeholders to implement ecosystem restoration and climate resilient land use programs will be increased, and public and private actors will have increased capabilities to promote value chains that encourage sustainable production and land management. These increased capabilities of key actors and institutions, in turn, will lead to the short-term outcomes of strengthened policies and increased funding for climate resilient and sustainable land use planning; better informed programs for ecosystem restoration and conservation; and tangible benefits for communities from increased climate resilience, reduced soil degradation, and income streams from sustainable value chains. Over the longer term, agriculture and land use generally in Benin (and beyond) will beome more sustainable and climate resilient, land degradation will decrease, ecosystems will be restored building on the project experience, rural people will have increased and more reliable income, women will play a stronger and more empower role in rural societies, and learning from this project will be exchanged with stakeholders in Benin and beyond through knowledge transfer. These long term outcomes (or benefits, in MSP language) will enable the project goal (or development objective) of "Land degradation neutrality and increased climate resilience in rural Benin through sustainable land and forest management".

Draft Theory of Change



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

[77] The Theory of Change model combines http://stapgef.org/theory-change-primer with elements of the Managing Successful Programs (MSP) methodology.

The environmental benefits generated by the adoption of climate smart agricultural practices, climate risk informed and resilient SLM and SFM under the project will contribute to land and ecosystem health, strengthen resilience of beneficiaries, and support community adaptation to the impacts of climate change. Through project activities, climate resilient value chains will be identified and promoted, agricultural practices and production at target sites will improve, integrating climate risk reduction strategies, with associated increases in revenue, and ecosystem integrity will be conserved. The project will carry out activities that will ensure reduced threats from unsustainable land and forest use practices, and, at the same time, limit land degradation and soil erosion, contributing to increased ecosystem services, build resilience in hydrological flows under climate change and strengthening adaptive capacity of the households in target sites. Through the project, Sustainable Land Management, and climate smart agricultural practices will be applied as an effective tool to limit soil and vegetation degradation and enhance water resource management. The project will additionally improve resilience to climate change through implementation of climate change risk informed Sustainable Forest Management practices that will conserve natural resources and reduce their unsustainable exploitation. Initiating and mainstreaming climate-smart agroforestry and carrying out training and agricultural extension services at ground level, including on adapting to climate change, will contribute to the uptake of SLM approaches and techniques that will increase community resilience to climatic hazards, re-build ecosystems, and increase agricultural supplies for subsistence and income generating purposes.

Quantitative indicators of global environmental benefits and adaptation benefits are listed in the last column of the table in Section 5. Here we provide additional information on the way the targets were determined:

Forest restoration targets: Based on the forest map of Benin and the degradation areas around protected forests (sacred, community, classified and wildlife reserves), the national SFM indicator has been defined. The CDN has set itself the ambitious target of restoring 150,000 hectares of degraded forests. The project committed to contributing 10% of the CDN's target and identified the most suitable sites in the project's intervention area, based on the prevalence of degraded forest in the zone. In line with the overall target, the project intends to restore 10% of the degraded forests at each intervention site.

Target of land under sustainable management: We have estimated the proportion of degraded arable land in the project's sites from land use maps, and have applied the land degradation neutrality indicator which is "10% of degradated land restored" according to the National SLM Action Plan (PAN/GDT). This resulted in a target of 15,000 ha of land to be brought under sustainable management.

Calculation of carbon gains: The carbon values were calculated with the Winrock carbon calculator[78]. This is a very basic calculator, which allows however to generate local estimates by subregion within a country, technical approach (agroforestry vs. Woodlots/plantations vs. Natural regeneration) and tree species used (eg broadleaf vs. Pines etc). The following assumptions were used: 15,000 ha of agroforestry plantations are established over a period of 6 years, and a further 15,000 of plantations/woodlots and natural regeneration (at a ratio of 12,800 : 2,200 ha). One ha of agroforestry or woodlot is estimated to sequester 11 t of CO_2e annually, while 1 ha of natural regeneration is estimated to sequester 3 t of CO_2e annually. Carbon sequestration in the soi is not calculated separately, nor is the likely effect of those techniques on avoidance of uncontrolled use of fire in the area, therefore the estimates can be assumed to be conservative. A more detailed estimate of climate change mitigation benefits will be made during the PPG.

Number of beneficiaires: We plan to benefit 20% of the youth (15 to 40 years-old) farmer population in each project intervention site. Estimations of population size are based on village populations and the proportion of active farmers in each village. Beneficiaries will be at least 50% women.

7) Innovation, sustainability and potential for scaling up

Innovation: The project is innovative as it will bring together a number of different Government agencies, supported by their development partners, to design and implement climate-smart agriculture and agroforestry, participatory forest management, land restoration, and sustainable agricultural production, all of which will be integrated through the framework of integrated land use planning. The timing of the project is ideal, as Benin is adopting a new Integrated Land Use Planning Policy and has recently set up structures to increase Government capacity and civil society participation to undertake spatial planning for development across local, district and national levels, integrating

[78] https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-018-0110-8

climate change adaptation planning. The project also takes an innovative approach to the challenge of agricultural input supply – promoting a small business development approach to supplying farmers with critical inputs for enhancing productivity and enabling sustainable intensification, whilst simultaneously avoiding the spread of the agricultural footprint further into the forest. The project aims to develop innovative partnerships at district level for enhanced spatial management and strengthened natural resource management through implementation of various management tools, such as the Master Town Planning, Forest Management Plan, Land Sub-division Plan, etc. GEF investment will provide hands-on technical assistance for the first 3 years of each income generating activity as it becomes established. Such businesses will be based on market analysis and will supply needed agroforestry / farming inputs, e.g. improved seeds, weeding tools, vermicompost start-up, compostable seedling bags. Specific innovation with regard to gender is the inclusion of targeted capacity development for women farmers and product developers such as shea butter from Shea trees, baobab products, which will provide women farmers and female headed households with the ability to participate fully in agricultural extension support programmes for tree crop cultivation, as well as for livestock farming, agroforestry, and citrus, cashew and mango plantations. Awareness raising and advocacy efforts through the project will use a wide range of available media and approaches – including local radio, mobile phone applications and messaging services, and exploring use of indigenous folk media forms.

Sustainability: The Government of Benin aims to mainstream LDN across different sectors in order to achieve its ambitious LDN targets. Building on experience of previous UNDP-GEF projects in Benin, this project will maximize opportunities for sustaining the gains of the project in the long term while also integrating a climate change risk informed lens into the identification and selection of efforts to achieve LDN targets. This will be achieved by ensuring that there is thorough buy-in and adoption of the project by Government, stakeholders and beneficiaries in order to improve and strengthen ownership of the project. Means by which sustainability post-project can be achieved will be evaluated during the project development phase. The maintenance of infrastructure for newly established small income generating opportunities will be addressed through business planning efforts and the overall sustainability will be promoted through provision of support services, including carrying out value chain analyses and market studies, and providing technical training and business planning.

Scaling up: Scale-up will be achieved through a new approach to building partnerships for agricultural extension, working closely with the Territorial Agencies for Agricultural Development to integrate climate risk, vulnerability and adaptation options in decision-making, and the various producer Unions, to bring in private sector partnerships with an interest in investing to build climate resilience in their supply chains, especially in the specialty organic cotton, citrus, cashew and mango, and other tree crop sectors. Scale-up of adoption of climate resilient value chains and agricultural practices will occur through the existing platforms, integration of lessons with the Scale-up of climate risk informed participatory forest management activities as part of fulfilling the restoration objectives set out in the Forest Sector Development Plan, will be addressed through investigating the feasibility of various financial incentives. Scale-up of project learning to other regions of Benin will also be addressed through Component 4 of the project, which includes holding annual dialogue and information sharing events with beneficiaries and stakeholders operating not only in different sectors, but also in different Departments across Benin. Project learning will also be shared with other GEF-funded projects addressing farming and forestry practices, particularly the Project ID 9383 “Sustainable Forest Management and Conservation Project in central and south Benin (Departments of Borgou and Donga)” being implemented by AfDB.

1b. *Project Map and Coordinates.*
Benin is located in the northern hemisphere on the African continent at 9º18’27.7”N and 2º18’57”E. A selection of maps showing the location of targeted project areas is provided in Annex A.

Project sites: During preparation of the PIF, field visits were carried out to several potential project sites. These target areas were selected by the Government of Benin based on sites identified during development of the national agricultural development plan (PSDSA) and the National Sustainable Land Management Action Plan (PAN-GDT), and were formally approved as target sites during the PIF validation workshop held in Benin, June 2020. The following criteria were used to select the target project sites: i. degree of soil fertility for successful agricultural production; ii. degree of forest cover; and iii. level of soil degradation and need for restoration. Consideration was given to the most vulnerable villages in areas of high land degradation, as well as to the sites identified during the national pilot phase of the Green Belt initiative. The proposed target project sites all comprise agricultural producer groups, market gardeners, citrus producers and forest users (eg charcoal producers).

2. *Stakeholders*. ☒ Indigenous Peoples and Local Communities; ☒ Civil Society Organizations; ☒ Private Sector Entities

During PIF development, a large and varied number of key stakeholders, from Government to local communities and farmers were consulted, and will continue to be engaged in the formulation of project activities during the project development phase. A stakeholder engagement plan will be developed during project development and will provide details on how the stakeholders will be involved in project implementation. Benin's population is young and, whilst there are no indigenous peoples in Benin, there are 42 recognised ethnic groups, including:

- Fon (38% of the population and mainly in the **Zou-Couffo** Department). Other ethnic groups at the project site include the *Adja*, *Aguna*, *Ede*, and *Yoruba*. The traditional economy of the Fon is based on agriculture (maize, cassava, yams for subsistence and palm oil for commercial interests) and both men and women plant the fields. The Fon group is patrilineal and polygynous, with families occupying neighbouring plots of land and compounds.
- Bariba and Fulani (10% and 8% of the population respectively, located in the **Borgou** and **Alibori** Departments in the northeast, and originated as nomads from Nigeria). Additional ethnic groups in Borgou Department include *Boko*, *Ede*, *Lokpa*, *Nago*, *Ottamari*, and *Yom*.
- Dendi (3% of the population located in the northernmost region of the country, in the lush plains of the **Niger Valley**). The Dendi grow rice, cowpeas, groundnuts, cassava, carrots, tomatoes, peppers, cabbage, millet and squash. They also rear cattle, camels, sheep, goats and chicken. Dendi culture is patrilineal and while the men work in the fields, the women cultivate fruits such as mango, citrus, guava, papaya, bananas, as well as attend to household chores.

The project will engage all ethnic groups and communities at project sites in the LDN dialogue and provide culturally-sensitive training and learning events that consider ancestral practices and natural resource uses (land, forest, water) while promoting sustainable land and forest management mechanisms. In compliance with UNDP's Social and Environmental Safeguards policy, a comprehensive stakeholder analysis and engagement plan will be developed during PPG to ensure that all ethnic groups at project sites are consulted and included in project design, and in implementation of actions on the ground that do not compromise their subsistence needs. While the UNDP definition of indigenous peoples is not applied in Benin, ethnic groups who fit with the criteria for 'indigenous peoples' as described in the UNDP SES Policy do occur in Benin. As required, an Ethnic Groups Management Plan will be developed in line with guidance mandated under Standard 6. Key project stakeholders include traditional leaders and authorities, through whom/which decision making and participatory planning for integrating climate resilient agricultural practices, SLM and SFM will be coordinated.

The preliminary stakeholders identified include the following: Family farmers and large farms comprise the most productive investors in capital and labour for implementation of project activities. Agricultural practices in Benin have been enhanced and improved and the national strategic plan for development of the agriculture sector has been designed specifically with community engagement in mind. Representatives of the private sector are also key stakeholders and are involved in a varied range of activities for production and productivity of the industry, including: (i) strengthening the availability and accessibility of quality seeds and plants (both for plant, animal and fishery production), (ii) enhancing access to various types of agricultural inputs, (iii) mechanization of agricultural activities, (iv) improving access to professional and technological innovations; and (v) installation and management of hydro-agricultural, pastoral and aquaculture facilities and access infrastructure (PDSA 2025). With regard to value chain promotion, the private sector in Benin is involved in the construction and rehabilitation of storage, processing, and marketing infrastructure for agricultural products. It also supports training and capacity building regarding market analysis and the development of commercial and business strategies, as well as assisting organisational capacity to develop public-private partnerships.

Civil Society Organisations (CSOs) are also active in the target areas and their collaboration and input have been critical to the development of project activities based on real needs on the ground for the effective strengthening of the agriculture sector to achieve Benin's LDN targets. The CSOs are also key players to assist with professionalization of family-type farms and the promotion of agricultural entrepreneurship for women and the youth. The stakeholder partnerships with donor agencies were not developed to the degree anticipated as this Concept Note was prepared at the outbreak and during the Covid-19 pandemic; accordingly, detailed consultations with stakeholders, particularly with the donor agency community, were not possible, but they will be identified and consulted during project development under the PPG. The project will also partner with research institutions and agricultural extension agencies such as DDAEP and the ATDAs in the target areas, together with the University of Abomey and the National Research Institute and laboratories.

Table 2. Preliminary list of project stakeholders and their roles in the project

Stakeholder	Role in the Project
Government agencies	
Cabinet of MCVDD	Will be responsible for project implementation and provide link with other sectoral Ministries and agencies
Directorate General of Water Forests and Hunting (DGEFC)	As National Project Director, will assume leadership in project development and implementation at project sites, as well as monitoring and evaluation of all activities
GEF Operational Focal Point	Coordination and Implementation of GEF projects in Benin. Key participant in project development and final endorsement of Project Document
Focal Point Combating Desertification	Will contribute to development and implementation of the project, as well as monitoring implementation of Land Degradation Management and LDN norms. Will produce report for the Project Board/Secretariat on integration of SLM into project activities
Climate Change Focal Point	Will contribute to development and implementation of the project, and contribute to information and advocacy campaigns on key project issues
REDD Focal Point	Implementation of GDF and the MRV mechanism
Biodiversity Focal Point	Implementation of GDF and the MRV mechanism
Director of Programming and Forecasting DPP at MCVDD	Will be responsible for monitoring and evaluation of the project. Will also provide guidance on collation and application of knowledge and lessons learned, and set up a database showcasing project achievement
Directorate General of the National Fund for Environment and Climate (DG/FNEC)	The Directorate General will provide small grant funding for NGOs working on conservation of environment and climate (for example, the projects being implemented by PJUD). The Fund is accredited with the Adaptation Fund and GCF and will facilitate the application of SLM and SFM mechanisms at project sites.
Directorate General for Environment and Climate (DGEC)	Will be responsible for implementation of the project, particularly with regard to operationalising land degradation mitigation activities and applying LDN norms
- Planning and Monitoring and Evaluation Department (DPSE) - National Fund for Forest Development (NFDF) - Forest Research Center (CERF) - Directorate of Reforestation and Forest Management (DRAF) - Forest Inspectors	Will all contribute to monitoring and evaluation, particularly monitoring sectoral indicators and project results
National Mapping Institute (formerly the National Center for Remote Sensing, CENATEL)	As the national centre for remote sensing and monitoring of ecological systems, the National Mapping Institute will be a main partner and beneficiary of training to enhance capacity to manage national reforestation, forest resource protection, creation and dissemination of data, and monitoring the effects of climate change
Thematic Group: Sustainable Land Management Thematic Group	Will monitor implementation of the project and application of SLM norms under the project
Ministry of Agriculture, Livestock and Fisheries: - Plant Production Department Ministry of Agriculture, Livestock and Fisheries, DPV-MAEP - Territorial Agency for Agricultural Development Ministry of Agriculture, Livestock and Fisheries, ATDA-MAEP - Directorate of Rural Engineering Ministry of Agriculture, Livestock and Fisheries, DGR-MAEP - Quality, Information and Entrepreneurial Training Department DQIFE-MAEP	Will all provide technical advice for the adoption of SLM measures by agricultural producers and monitoring inputs made by CSOs
Ministry of the Interior and Public Security / National Agency for Civil Protection, MISP-ANPC	Monitoring of measures relating to the prevention of risks linked to climate change and the taking of mitigation measures
Department of Programming and Forecasting Ministry of Decentralization and Regional Planning, DPP-MDAT	Will provide guidance on implementation of capacity building and training of beneficiary communities on spatial and natural resource management
Mayors and Leaders within Municipalities/Communes/Departments concerned	Will contribute to development and implementation of project in their areas of jurisdiction

National Association of Municipalities of Benin, ANCB	Will contribute to capacity building for beneficiary municipalities on governance and the application of spatial management and natural resource management tools
National Association of Municipalities, ACZ National Association of Municipalities of Niger Valley, Atacora, and Zou	Will be involved in capacity building activities, monitoring of activities for producers; revitalization of professional actors and conflict management committees; monitoring the implementation of GDT and CES measures in their localities
Prefects at the targets sites in PDAs 1, 2, and 5	Will contribute to development of the project and benefit from application of lessons learned following monitoring of project activities
Association for the Promotion of Inter-Communality in the Department of Alibori (APIDA)[79] and the Association for Commune Development, ADECOM[80]	Will participate in technical implementation of project activities, application of GDT, GDT and CES measures, evaluation of results, capitalization of lessons learned and good practices, and scaling-up of project achievements.
National Associations	
Interprofessional Cotton Association, AIC	The AIC will provide the interface between cotton producers and the various steps and actors involved in the transformation of cotton along the value chain.
Producer Unions in the targeted communes and villages	Will be involved in technical implementation of project activities, application of SLM, SFM and SWC measures, evaluation of results, capitalization of lessons learned and good practices, and scaling-up of project achievements
Universities and Research Institutions	
- University of Abomey Calavi, UAC - Laboratory of Applied Ecology (LEA/UAC) - Faculty of Agronomy Science (UAC and Parakou) - Biogeography and Environmental Expertise Laboratory (LABEE) - Agricultural and Forestry Research Center of Kétou, University of Kétou	Situation analysis, search for innovative solutions and measures to restore land to water and forests; monitoring of GDT, GDF indicators and standards
National Institute for Agricultural Research, INRAB[81]	Will provide support to the project and produce resilient seeds for distribution to producer farmers. Will also carry out situation analyses, search for innovative solutions and measures to restore land, water and forests, and monitor GDT, GDF indicators and standards
Producer / Marketing Associations and Agencies	
Communal Approach for the Agricultural Market (ACMA)	Will be key partners for the development of markets for agricultural and forest-friendly produce within Benin and the region.
Investment and Export Promotion Agency (APIEX)	Will help to facilitate any export of agricultural or NTFP produce from Benin, as well as facilitate access to markets
Global API Service	Will assist the project to develop markets for products arising from apiculture

3. Gender Equality and Women's Empowerment. Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? yes ☒; If possible, indicate in which results area(s) the project is expected to contribute to gender equality: ☒ closing gender gaps in access to and control over natural resources; ☒ improving women's participation and decision-making; and ☒ generating socio-economic benefits or services for women. Will the project's results framework or logical framework include gender-sensitive indicators? Yes ☒

During project development under the PPG, a gender specialist will be engaged to prepare a gender strategy and action plan that will be used to guide all project activities and ensure the involvement and active participation of women and youth in the project. Whilst gender issues have improved markedly since the Personal and Family Code of 2004 was ratified (Law No. 2002-07 of 24 August 2004 on the Code of Persons and the Family), although inequality and discrimination persist with polygamy and forced marriage still taking place under traditional and local customs (Freedom House 2019).[82] Laws against female genital mutilation are rarely enforced, women play subordinate roles in rural areas, face difficulties securing credit and, when widowed, do not have the right to manage their property not to access to production resources such as land, forest and bodies of water. The Republic of Benin has ratified the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) and the Optional Protocol. The country has not completed its CEDAW Update Report (2017 report submission remains

[79] APIDA : *Association pour la Promotion de l'Intercommunalité dans le Département de l'Alibori*
[80] ADECOM : *Association de Développement des Communes*
[81] https://inrab.org/
[82] https://freedomhouse.org/country/benin/freedom-world/2019

pending). The National Gender Policy was completed in 2008. The Directorate General for Family and Social Affairs under the Ministry of Social Affairs and Microfinance carried out an in-depth national review of implementation of the Beijing Action Plan in Benin (The Beijing Platform +25 report, 2019) and notes the various laws that have been passed relating to gender in Benin, ie: Law No 2011-26 on Prevention of Violence against Women, Law 2003-03 banning the practice of Female Genital Mutilation, Law 2003-04 on Sexual Health and Reproduction. Inequalities prevail in Benin, but efforts are underway to address these. The project will support the Government of Benin to respect its national and international commitments through: (i) empowering women and youth by involving them in the national programmes on agricultural progress, ie on policy development, policy and legislation review, planning processes for forest conservation, establishment and management of land degradation neutrality mechanisms, capacity building activities and development of enhanced agricultural production and processing across the components of the project; (ii) ensuring that gender and youth-focused NGOs and CBOs are invited to participate at meetings, seminars, workshops and discussion groups that address agricultural and sustainable land management issues at the macro-level; (iii) encouraging gender and youth-focused NGOs and CBOs at target sites to build their own commissions or forums to collaborate and share experiences on issues regarding LDN, SLM and forest protection; (iv) ensure that public information dissemination campaigns and awareness raising activities specifically target women and youth (through collaboration with gender and youth-focused NGOs and CBOs); (v) involve gender and youth-focused NGOs and CBOs in project implementation and capacity development at national and local levels. When the project is further developed during the project development phase under the PPG, activities will be designed to address any gender gaps regarding access to and control over natural resources, as well as strengthen the participation of women in decision-making processes and enhance their income-generating potential. The gender strategy will ensure an inclusive approach throughout the project and the results framework will include indicators and set targets that reflect balanced social and economic benefits. The M&E plan to be developed will also ensure adherence to gender-sensitive indicators.

4. Private sector engagement. Will there be private sector engagement in the project? (yes ☒ /no ☐)
The private sector will be involved in the project at national and site-level in several ways, primarily to facilitate access to local, regional and international markets. The strengthening of organic cotton production in Benin and development of fruit orchards are both key national agricultural development objectives. Specific opportunities for private sector engagement will be developed in more detail during project development under the PPG, at which time it is anticipated that co-financing commitments will be secured. Completion of private sector partnership due diligence and the UNDP Private Sector Risk Assessment Tool will also be carried out during project development.

5. Risks
There are a number of diverse risks that could impede the implementation and success of the project. While agriculture is the main form of economic activity in Benin, it is also the main driver of forest degradation and land clearance. Changes in land use patterns in west Africa have reportedly been the cause of conflict between agriculturalists and pastoralists,[83] and the rising rates of deforestation have been attributed to agricultural practices and 'land-seeking' activities', animal husbandry, excessive logging and bushfires, as well as internal migrations, transhumance, poor soils and overgrazing. The overall risk rating for this project is **moderate**. The preliminary UNDP Social and Environment Screening report has been completed and is attached to this PIF as an Annex. Because of travel and meeting restrictions associated with the COVID-19 situation, on-the-ground consultations in the project sites have of necessity been limited during PIF preparation and will be extended during the project preparation phase. At that time, all stakeholders will be consulted, not limited to, but with a focus on, those stakeholders identified in the table below, who are proposed to play specific roles in the project, and records of all consultations will be made available. This includes national and regional government agencies, traditional authorities and local government, community-based organizations in the target landscapes, universities and research institutes, as well as small-scale domestic private sector actors. During the project preparation phase, steps will be put in place to ensure that ethnic and marginalised groups are fully involved in design and implementation of the project.

Additional risks that could impact on implementation of the National Agricultural Investment and Food Security and Nutrition Plan (PNIASAN), are those associated with climate change. Longer periods of flood and drought periodically cause significant crop losses. The risk mitigation mechanisms indicated in Table 4 will require the mobilization of human and financial resources. The climate risk mitigation mechanisms listed under Axis 3 of the PNIASAN will manage water access and availability, and limit the effects of climatic hazards. In addition, the promotion of climate-smart farming practices will assist in mitigating the negative impacts of climate change and

[83] https://www.reuters.com/article/us-nigeria-security-insight/nomads-and-farmers-in-fight-for-nigerias-heartland-idUSKBN1OI13X

significantly improve the resilience of rural households. Risks associated with climate change are most evident in that they manifest themselves continuously through floods and periods of drought which periodically cause significant crop losses. Consequences of climate change are already being experienced in Benin, with a decrease in the number of days without rainfall in the north of Benin (which leads to reduced length of the rainy season), and delayed start to the rainy season in the south of the country. Temperatures have been increasing across the country, with a mean annual temperature increase of 1°C since 1995 (changes are most noticeable in the north of the country), and increased frequency of extreme rainfall with more frequent flooding witnessed between 1985 and 2010. Flooding has led to loss of life and damage to infrastructure and crops. Droughts have also become more frequent, particularly in the north of the country with an associated decline in crop yields. Wildfires could become more severe with increasing temperatures and drought, although the management and reduction of the use of fire is a specific objective of this project. In the south, the bi-modal rainfall regime has been increasingly affected by drought pockets[84] during the rainy season, with associated crop losses.

The ongoing COVID crisis has added new risks to this, despite the fact that Benin and especially its rural areas have not so far been severely affected by this virus, with confirmed case numbers in September 2020 being still in the lower 2000s, partly presumably through insufficient testing but also due to the relative remoteness of the rural areas of Benin. Highest case numbers have been reported from the capital and the frontier to Nigeria. While there is the risk of case numbers increasing before effective vaccins become available in the rural areas of Benin, currently the predominant COVID risks are related to the economic impacts of the global pandemic on the country of Benin including its public sector and private companies, as well as in rural areas restrictions on travelling, market activity and meetings that are currently in place and/or may be instated in the future in response to an increase of COVID incidence in the country. While the project is aware of those risks, it also takes into account the opportunities that arise from the increased awareness globally of the need for environmentally sustainable development pathways to reduce the risk of future pandemics such as COVID. Risks and opportunities related to the COVID crisis are summarized at the end of the section.

Table 4 . Risk analysis and mitigation measures

Risks	Risk Rating	Risk Mitigation Measures
Climate change risks		
Uncoordinated incorporation of climate change and disaster risk issues into project design	Low	Project is designed specifically with climate change mitigation measures as a fundamental approach to project activities. Coordination will take place with ministries and agencies responsible for the project and SLM and SFM. The project builds on Benin's national LDN targets and will coordinate with the projects taking place to integrate adaptation and mitigation measures to climate change in management of the WAP cross-border complex. The project will draw on the expertise of the National Commission to Combat Desertification (NCCD), which comprises representatives from a number of national Ministries and international institutions working on environmental issues
Uncontrolled expansion of agricultural parcels engulfs forest areas leading to the emergence of climate risks	Moderate	Advocacy for effective implementation of spatial planning and management tools as well as for the application of NDT/GDT standards
Social Risks		
Transhumance[85] : conflicts over land access arising from transhumance that could compromise project achievements (SLM and SFM)	High	Transhumance committees at the local levels will be 'energised' to ensure their involvement in project implementation and incorporation of transhumant livestock producers into SLM efforts. Joint committees of herders, farmers, forest management units, local managers, etc will be created to manage any conflicts that may arise
The project's activities to restore land, forest areas, and natural ecosystems could raise excessive expectations of landowners	Moderate	Establishing a joint committee of producers, forest management units, local managers to manage conflicts Ensuring that smallholder farmers secure land access is a key consideration for the project

[84] A drought pocket is an abrupt stop in precipitation during the rainfall season.
[85] Transhumant pastoralism in Benin appears to be changing as livestock breeders settle, create new villages, cultivate cereals for subsistence purposes and occasionally grow cotton ("The Future of Livestock in the Sahel and West Africa: Potentials and Challenges for Strengthening the Regional Market", available on SWAC website: www.oecd.org/sah.

Ethnic tensions	Low	The project will develop a detailed SESP and include considerations of ethnic tensions that may arise. A grievance mechanism will be designed to provide systems and resources for the project to receive and address concerns about its impact on the relevant stakeholders. This will be done in line with UNDP guidelines on Grievances Response Mechanisms.
Land tenure insecurity : the lack of long-term guarantees for land use could be a risk to adoption of LDN measures by producers and farmer communities	Moderate	The project will assist target communities to secure customary land use certificates and help to promote long-term contracts between land owners (landlords) and borrowers (farmers and communities)
Insufficient political commitment at the central government agencies to ensure uptake and appropriation of project outcomes	Moderate	The project was developed in response to the Government of Benin's concept and has been further developed in a participatory manner. A detailed stakeholder engagement plan will be prepared during project development, with regular meetings convened to ensure coordination between the Project Steering Committee, the Project Board and other Government stakeholders. The project will also be designed to include an accountability mechanism at specific target focal points.
Possible reinstatement of COVID19 containment measures with negative impacts on the implementation of project activities	Moderate	A plan to manage the impacts of different containment measure scenarios on project implementation will be developed during PPG phase. Specifically, protection and prevention actions must be integrated into project design during project development under the PPG, and must be carried out in the target areas during implementation. This strategy will be aligned with national COVID19 Response and Recovery Plans, and with UNDP's anticipated support to the Government.
Increasing poverty and limited ability of rural population to manage natural resources sustainably	Moderate	The project is specifically designed to strengthen the capacity of producers and farmer communities to adopt sustainable land management protocols for improved agricultural production, thereby addressing issues of poverty at the target sites. The project will also introduce support mechanisms for small-scale producers to assist with implementation of SLM and SFM. Targeted value chain analyses will be carried out at the start of the project implementation phase in order to identify the promising markets for agricultural and NTFP produce that can be produced at project sites.
Environmental Risks		
Promoting cotton cultivation damages soil fertility and adversely affects human health due to inappropriate use of pesticides	High	The project will establish direct collaboration with cotton producer associations and forums in order to advocate for and provide technical assistance to cultivate organic cotton. Benin has experience with organic cotton production and the skills are available in-country to provide guidance and training at project sites to convert from conventional to organic cotton production. Through the cotton producer platforms, efforts will also focus on integration of SLM and SFM strategies into cotton production.

Summary analysis and project implications/opportunities for COVID-19

Risk category	Potential Risk	Risk level	Mitigations and Plans
Availability of technical expertise and capacity and changes in timelines	Continued or renewed efforts in COVID-19 containment are likely over the course of project development and possibly into implementation	Medium	The project development work plan and team will be built with this in mind, for example, maximizing experts in country. However, if the number of COVID19 cases increases beyond the currently low numbers and is not effectively contained, project start-up and implementation could be delayed. Methods for biosecure implementation will be needed, such as increased use of remote communication, use of PPE, etc.

	Limited capacity for remote work and interactions in Benin	Medium	The rural areas of Benin are not well equipped for remote work, in terms of wifi availability. The project will attempt to hold consultations in halls or open spaces, while observing government and UNDP safety protocols.
			Availability of international personnel on-site will depend on working in a post-pandemic scenario. However, if the pandemic persists, experience in Benin and elsewhere to date indicates that remote training and consultation methods can be developed and that planning work can be accommodated in this manner at halls and offices where wifi is available.
Difficulties of implementing community engagement activities	Depending on the development of the pandemic in-country, it may be difficult to do community-level consultations	Medium	Local level consultation will comply with government guidelines and UNDP-CO guidelines. For example, it is likely that teams for field visits and consultations will be small, and they will likely meet and consult with small group sizes (under 50 people or per local guidelines). Additionally, COVID protocol will be developed and followed, such as testing, and supply of sanitizer and masks. In any case where either party is not comfortable to engage in discussions, it will not proceed. As much as possible, remote connections will be sought, for example via local government offices visiting communities.
Stakeholder engagement process	Government may be too occupied with COVID issues to deal with regular business	Low	At the national level, Government has its protocols in place for staff, and is requiring a full normal workload. Meetings are being conducted in small groups and via video. Unless there is a major increase in the pandemic, the risk is considered low.
Enabling environment	Impacts on co-financing could result	Medium	The availability of co-financing could be affected by changes in government fiscal priorities and exchange rates. Methods for safe implementation will be needed, such as increased use of remote communication, use of PPE, limited meetings. Government is, however, fully supportive of the project.

Opportunity Category	**Potential**	**Project Plans**
Can the project do more to protect and restore natural systems and their ecological functionality?	High	The project has been designed to ensure the long-term integrity, conservation and sustainable use of its target landscape and its ecosystem functions. Reducing encroachment of human land uses and fragmentation of ecosystems will also contribute to reducing the risk of future zoonoses.
Can the project regulate the consumption and trade of wildlife?	High	Hunting is not a major activity in the area. However, the project will attempt to reduce unregulated hunting and trade of wildlife / wild meat in the target area by strengthening the management of protected areas and promoting alternatives to hunting, such as small livestock.
Can the project include a focus on production landscapes and land use practices within them to decrease the risk of human/nature conflicts?	High	The project focuses on the rural landscape of Benin as a mosaic of protected areas and the adjacent production landscape. Its objective is to ensure the sustainable management of both protected and agricultural areas. A key objective is to reduce or prevent the encroachment of human land uses (agriculture, pastoralism) into protected areas and remnant forests which results in their fragmentation and increased risk of human-wildlife conflicts with increased risk of disease exposure.
Can the project promote circular solutions to reduce unsustainable resource extraction and environmental degradation?	High	The project will ensure sustainable procurement, careful waste management, avoidance of contribution to POPs (eg by reducing the use of pesticides including unauthorized ones in cotton production) and GHG emissions (through forest conservation and restoration). Landscape planning will contribute to recovery of the natural vegetation and enhanced landscape connectivity and carbon storage in vegetation and soil.
Short-term opportunity to support Covid economic recovery	High	The promotion of sustainable agriculture, agroforestry and use of non-timber forest products in and around the target landscapes, as well as sustainable tourism in the protected areas, will all contribute to income generation and the recovery of the local

		economy. All alternative livelihoods activities are intended towards green growth models and a circular economy by focusing on business models and land uses that incorporate climate, biodiversity and sustainability.
Can the project innovate in climate change mitigation and engaging with the private sector?	High	A large part of the project involves working with local communities to mainstream climate mitigation and adaptation into their land uses. Under the agroforestry and forest regeneration aspects, increased carbon sequestration on formerly degraded lands will increase climate mitigation.

6. Coordination.
The project will be implemented by the Ministry of the Living Environment and Sustainable Development (MCVDD), as the lead implementing agency, in close partnership with the Ministry of Agriculture, Livestock and Fisheries (MAEP). Benin has developed robust agricultural and environmental policies and strategies that have resulted in considerable funding being secured to assist with national goals and objectives (see Partnerships section above). As a result, it is anticipated that a well-staffed and equipped Project Management Unit will be established within the Ministries under a shared arrangement that will be determined during project development. This will ensure that effective strategic and technical coordination of this project with other activities taking place across Benin's portfolio of Government-led and internationally-funded support. The Project Management Unit will establish specific linkages with other UNDP-implemented projects in the country, as well as with the relevant projects listed in Table 1, but specifically the: (i) World Bank/International Development Association (IDA) project (US$ 75 million) to support the government of Benin's efforts to improve the management of forests, increase access to fuelwood in the main cities, and to strengthen non-timber forest product value chains for forest-dependent communities; and (ii) IFAD project on "Agricultural Development and Market Access Support" (PADAAM)[86] to support Benin with value chain growth for improved economic and food security in the country. A Project Steering Committee will be established to provide guidance and assist with decision-making. It will comprise representatives from the MAEP, MCVEDD, the Territorial Agricultural Development Agencies (ATDA), and the relevant Decentralised Departments for Agriculture, Livestock and Fisheries (DDAEP), as well as UNDP. A Harmonised Approach to Cash Transfers (HACT) Micro Assessment will be carried out before project development commences in order to determine the government's capacity rating to handle cash transfers from UN entities. Based on findings of the HACT Assessment, the means through with payments and implementation of activities takes place will be decided during project development. Options for augmenting government capacity, including the identification of a third-party service provider, will be further explored during project development. No DPC will be included in this project.

7. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes ☒ /no ☐).
The project is consistent with and contributes to a number of national policies, strategies, plans and reports focused on the integrated approaches to restoration of degraded land and achieving land degradation neutrality for improved agricultural productivity and forest management. The project is in line with various national legislation and legal texts to support implementation of the UNCCD in Benin, as well as with its political commitment to achieve LDN through its Nationally Determined Contributions. The project will contribute to implementation of the UNCCD 2018-2030 Strategic Framework, particularly Strategic Objective 1, to improve the condition of affected ecosystems, combat desertification/land degradation, promote sustainable land management and contribute to land degradation neutrality. Benin aims to achieve LDN by 2030, and specifically to restore at least 50% of degraded lands (1.2 million ha) and limit the loss of non-degraded land to 5% (398,200 ha). The project will contribute to achieving these national targets through its facilitation of sustainable land management on 14,000 ha of degraded land and restoration o 6,500 ha of forest ecosystems. The project contributes to achieving the National Strategic Plan for Development of the Agricultural Sector, PSDSA, 2025, which aims to position Benin as a viable regional competitor as it strengthens its agricultural production. Through focusing project activities in 3 of Benin's 7 agricutural areas, and working directly with the Territorial Agricultural Development Agencies (ATDAs) to improve sustainable management of land and forest ecosystems, the project is in line with national commitment to implement national agricultural reforms and provide for human development. The project is further consistent with the National Forestry Policy with a focus on forest protection; the National Environmental Action Plan that defines environmental policy and strategy for improved natural resource management; and the National Action Plan for the Fight against Desertification, which

[86] The Total project cost is US$ 97.61m; IFAD financing is US$ 31.04m with co-funding from OPEC Fund for International Development (US$10m), Swiss Agency for Development and Cooperation (US$ 1.5m), and private sector in Benin (US$ 5.6m). Further information is available at https://www.ifad.org/en/web/operations/project/id/2000001073

aims to identify factors contributing to desertification and measures needed to combat desertification and mitigate the effects of droughts. Benin's National Plan for Agricultural Investments and Food and Nutritional Security (PNIASAN), addresses trade, nutrition, resilience, climate-smart agriculture, risk management, and cross-cutting issues such as gender and youth empowerment. The project is consistent with two of the PNIASAN objectives, namely: i) transformation of agriculture for sustainable growth; and (ii) strengthened systemic capacity. The climate risk mitigation mechanisms listed under Axis 3 of the PNIASAN will manage water access and availability, and limit the effects of climatic hazards. The project will also support Benin's contribution towards achieving the following Sustainable Development Goals: 1 (No Poverty), 2 (Zero Hunger), 5 (Gender Equality), 6 (Clean Water & Sanitation), 8 (Decent Work & Economic Growth), 13 (Climate Action), and 15 (Terrestrial Ecosystems). In addition, Benin has ratified several international conventions and Multilateral Environmental Agreements including: Convention on Climatic Change, Desertification, CITES, Bonn (migratory species), UNESCO World Heritage, Ramsar Humid Zones, Convention on Biological Diversity, African Convention on the Conservation of Nature and Natural Resources (Organisation of African Unity), Hazardous Wastes, Law of the Sea, Ozone Layer Protection and Ship Pollution.

8. Knowledge Management. As part of the project's strategy on knowledge sharing and strategic communication and information management, activities will be carried out under Component 4 to capture, analyse and share lessons learned for improved land use, land restoration, and forest protection. The project will facilitate a lessons learning process as part of the day-to-day work of the project team. The lessons will feed into an adaptive management process guided by the Project Manager and will be shared with stakeholders on a continuous basis. Knowledge management will include documentation of best practices and impact stories that describe the theory of change. Information will be produced and packaged for targeted stakeholders, including local government officials and producer associations and forums. The capacity training events will require knowledge materials and these will be updated throughout the project period as information is derived from project activities. The media and local means of information sharing will be targeted under the project and project results and lessons learned will be shared through printed and online media, as well as radio and television. The project will carry out regular participatory monitoring and evaluation of project activities, which will be documented as part of the project's reporting requirements (such as UNDP Annual Reports and GEF Project Implementation Reports). To broaden the range of dissemination of lessons learned, the project will explore opportunities for meaningful participation at specific events where UNDP could support participation at symposia and other events where sustainable land management and land degradation neutrality are debated.

Monitoring and Evaluation. The following M&E plan is proposed for this project:

	M&E activities and costs	
	M&E activities (project budget)	**M&E support (UNDP)**
Inception workshop	M&E plan consultations: US$2,000	Participation, review and oversight
Inception report	M&E Plan (including gender, ESS, stakeholder consultations): US$10,000	Review and oversight
Monitoring of core GEB indicators and project indicators	Field monitoring; data collection; data collation; data presentation US$30,000	Review, oversight and reporting through GEFSEC
Project Implementation Report (PIR)	Annual reporting: US$5,000	Oversight, review and reporting through GEFSEC
Supervision missions	Host supervision missions of technical experts: US$5,000	Oversight, review and reporting through GEFSEC
Learning missions/site visits	Hosting learning missions/ site visits: US$10,000	Planning and organising learning missions/site visits
Monitoring of ESS plans and gender action plans	Monitoring and reporting on the implementation of plans: US$25,000	Oversight, review and reporting through GEFSEC
GEF tracking tool (MTR and TE)	Updating GEF tracking tools: US$10,000	Oversight, review and reporting through GEFSEC
Mid-term review	Outsource MTR; technical and logistical support: US$40,000	Oversight, review and reporting through GEFSEC
Independent Terminal Evaluation	Outsource TE; technical and logistical support: US$45,000	Oversight, review and submission to GEFSEC

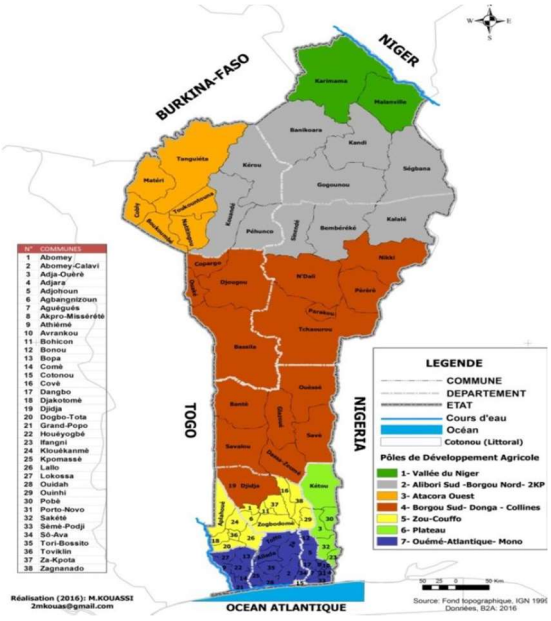
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

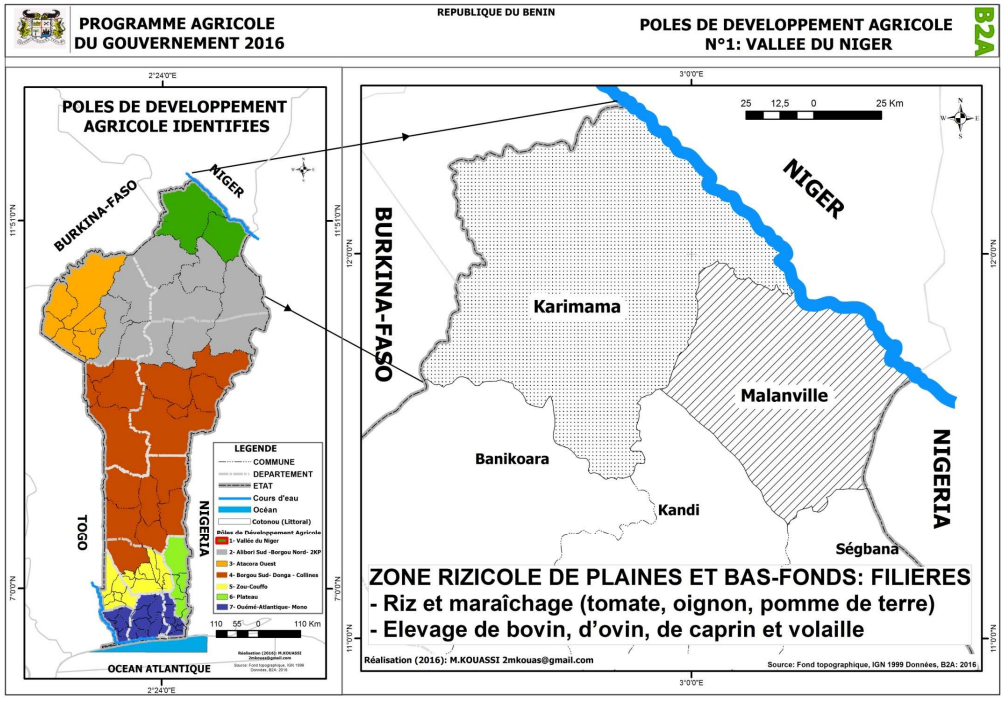
NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Mr. Delphin AIDJI	Director of Planning and Foresight	**MINISTRY OF LIVING ENVIRONMENT AND SUSTAINABLE DEVELOPMENT**	**10/27/2020**

Annex A: Project Map and Geographic Coordinates

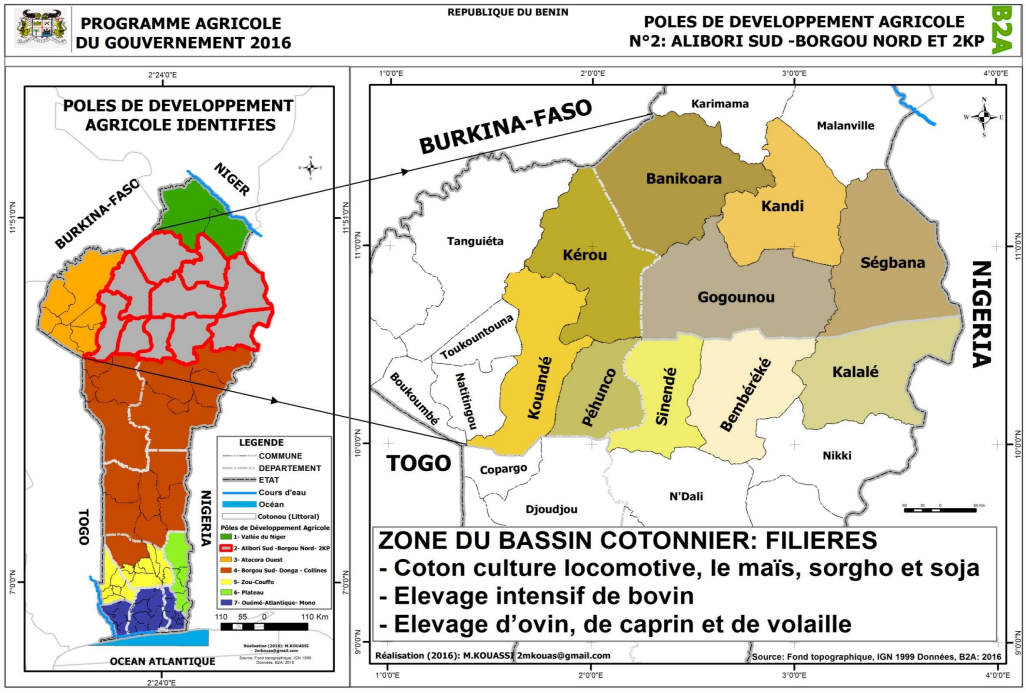
Map 1: Map highlighting the seven Agricultural Development Areas
[Note - Project sites can be found at: a) Karimama is in the **Niger Valley** (green); b) Kouandé, Gogounou and Ségbana in **Alibori Sud-Borgou Nord-2KP** (grey); and c) Za-Kpota, Covè, Klouékanmè and Aplahoué in the north of **Zou-Couffo** (yellow)]



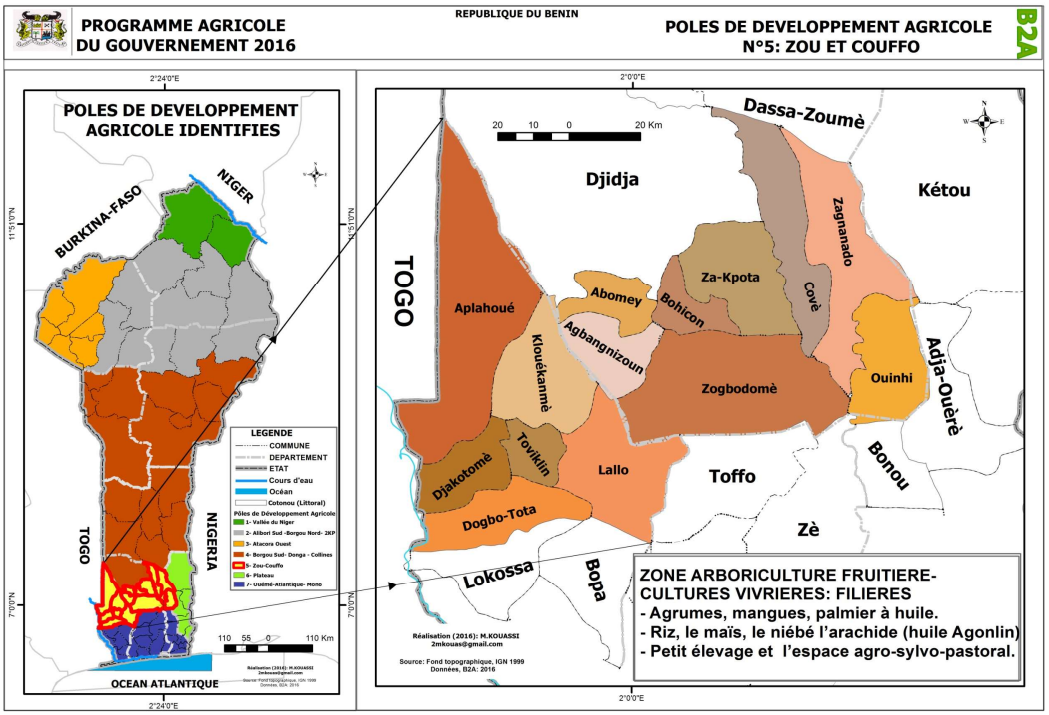
Map 2: Map showing the location of project sites in PDA 1 (Niger Valley: Karimama)



Map 3: Map showing the location of project sites at PDA 2 (Alibori Sud-Borgou Nord-2KP: Kouandé, Gogounou, Ségbana)



Map 4: Map showing the location of project sites in PDA5 (Zou-Couffo: Za-Kpota, Covè, Klouékanmè, Aplahoué)



Annex B: GEF 7 Core Indicator Worksheet

Core Indicator 3	**Area of land restored**					***(Hectares)***
			Hectares (3.1+3.2+3.3+3.4)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			15,000			
Indicator 3.2	Area of forest and forest land restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Niger Valley	***1000***			
		Karimama	*1000*			
		Alibori Sud-Borgou Nord	***10,000***			
		Kouandé	*4000*			
		Gogounou	*3000*			
		Ségbana	*3000*			
		Zou-Couffo	***4000***			
		Za-Kpota	*1000*			
		Covè	*1000*			
		Klouékanmé	*1000*			
		Aplahoué	*1000*			
Core Indicator 4	**Area of landscapes under improved practices (hectares; excluding protected areas)**					***(Hectares)***
			Hectares (4.1+4.2+4.3+4.4)			
			Expected		Expected	
			PIF stage	Endorsement	MTR	TE
			15,000			
Indicator 4.3	Area of landscapes under sustainable land management in production systems					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Niger Valley	***1500***			
		Karimama	*1500*			
		Alibori Sud-Borgou Nord	***9000***			
		Kouandé	*3000*			
		Gogounou	*3000*			
		Ségbana	*3000*			
		Zou-Couffo	***4500***			
		Za-Kpota	*1000*			
		Covè	*1000*			
		Klouékanmé	*1000*			
		Aplahoué	*1500*			
Core Indicator 6	**Greenhouse gas emission mitigated**					***(Metric tons of CO_2e)***
			Expected metric tons of CO_2e (6.1+6.2)			
			PIF stage	Endorsement	MTR	TE
		Expected CO2e (direct)	5,233,610			
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector					
			Expected metric tons of CO_2e			
			PIF stage	Endorsement	MTR	TE
		Expected CO2e (direct)	5,233,610			
		Anticipated start year of accounting	*2021*			
		Duration of accounting	*20 years*			
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					***(Number)***
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	*7,000*			
		Male	*7,000*			
		Youth	*10,000*			
		Total	*24,000*			

Annex C: Project Taxonomy Worksheet

Level 1	Level 2	Level 3	Level 4
☒ **Influencing models**			
	☐ **Transform policy and regulatory environments**		
	☒ **Strengthen institutional capacity and decision-making**		
	☒ **Convene multi-stakeholder alliances**		
	☐ **Demonstrate innovative approaches**		
	☒ **Deploy innovative financial instruments**		
☒ **Stakeholders**			
	☒ **Indigenous Peoples**		
	☒ **Private Sector**		
		☐ Capital providers	
		☐ Financial intermediaries and market facilitators	
		☐ Large corporations	
		☒ SMEs	
		☒ Individuals/Entrepreneurs	
		☐ Non-Grant Pilot	
		☐ Project Reflow	
	☒ **Beneficiaries**		
	☒ **Local Communities**		
	☒ **Civil Society**		
		☒ Community Based Organization	
		☒ Non-Governmental Organization	
		☒ Academia	
		☐ Trade Unions and Workers Unions	
	☒ **Type of Engagement**		
		☐ Information Dissemination	
		☐ Partnership	
		☐ Consultation	
		☒ Participation	
	☒ **Communications**		
		☒ Awareness Raising	
		☐ Education	
		☒ Public Campaigns	
		☒ Behavior Change	
☒ **Capacity, Knowledge and Research**			
	☐ **Enabling Activities**		
	☒ **Capacity Development**		
	☒ **Knowledge Generation and Exchange**		
	☐ **Targeted Research**		
	☒ **Learning**		
		☒ Theory of Change	
		☒ Adaptive Management	
		☒ Indicators to Measure Change	
	☐ **Innovation**		
	☒ **Knowledge and Learning**		
		☒ Knowledge Management	
		☐ Innovation	
		☒ Capacity Development	
		☒ Learning	
	☒ **Stakeholder Engagement Plan**		
☒ **Gender Equality**			
	☒ **Gender Mainstreaming**		

		☒Beneficiaries	
		☒Women groups	
		☒Sex-disaggregated indicators	
		☒Gender-sensitive indicators	
	☒**Gender results areas**		
		☒Access and control over natural resources	
		☒Participation and leadership	
		☐Access to benefits and services	
		☒Capacity development	
		☒Awareness raising	
		☐Knowledge generation	
☒**Focal Areas/Theme**			
	☐**Integrated Programs**		
		☐Commodity Supply Chains ([87]Good Growth Partnership)	
			☐Sustainable Commodities Production
			☐Deforestation-free Sourcing
			☐Financial Screening Tools
			☐High Conservation Value Forests
			☐High Carbon Stocks Forests
			☐Soybean Supply Chain
			☐Oil Palm Supply Chain
			☐Beef Supply Chain
			☐Smallholder Farmers
			☐Adaptive Management
		☐Food Security in Sub-Sahara Africa	
			☐Resilience (climate and shocks)
			☐Sustainable Production Systems
			☐Agroecosystems
			☐Land and Soil Health
			☐Diversified Farming
			☐Integrated Land and Water Management
			☐Smallholder Farming
			☐Small and Medium Enterprises
			☐Crop Genetic Diversity
			☐Food Value Chains
			☐Gender Dimensions
			☐Multi-stakeholder Platforms
		☐Food Systems, Land Use and Restoration	
			☐Sustainable Food Systems
			☐Landscape Restoration
			☐Sustainable Commodity Production
			☐Comprehensive Land Use Planning
			☐Integrated Landscapes
			☐Food Value Chains
			☐Deforestation-free Sourcing
			☐Smallholder Farmers
		☐Sustainable Cities	
			☐Integrated urban planning
			☐Urban sustainability framework
			☐Transport and Mobility
			☐Buildings
			☐Municipal waste management
			☐Green space
			☐Urban Biodiversity
			☐Urban Food Systems
			☐Energy efficiency

87

			☐Municipal Financing
			☐Global Platform for Sustainable Cities
			☐Urban Resilience
	☐**Biodiversity**		
		☐Protected Areas and Landscapes	
			☐Terrestrial Protected Areas
			☐Coastal and Marine Protected Areas
			☐Productive Landscapes
			☐Productive Seascapes
			☐Community Based Natural Resource Management
		☐Mainstreaming	
			☐Extractive Industries (oil, gas, mining)
			☐Forestry (Including HCVF and REDD+)
			☐Tourism
			☐Agriculture & agrobiodiversity
			☐Fisheries
			☐Infrastructure
			☐Certification (National Standards)
			☐Certification (International Standards)
		☐Species	
			☐Illegal Wildlife Trade
			☐Threatened Species
			☐Wildlife for Sustainable Development
			☐Crop Wild Relatives
			☐Plant Genetic Resources
			☐Animal Genetic Resources
			☐Livestock Wild Relatives
			☐Invasive Alien Species (IAS)
		☐Biomes	
			☐Mangroves
			☐Coral Reefs
			☐Sea Grasses
			☐Wetlands
			☐Rivers
			☐Lakes
			☐Tropical Rain Forests
			☐Tropical Dry Forests
			☐Temperate Forests
			☐Grasslands
			☐Paramo
			☐Desert
		☐Financial and Accounting	
			☐Payment for Ecosystem Services
			☐Natural Capital Assessment and Accounting
			☐Conservation Trust Funds
			☐Conservation Finance
		☐Supplementary Protocol to the CBD	
			☐Biosafety
			☐Access to Genetic Resources Benefit Sharing
	☐**Forests**		
		☐Forest and Landscape Restoration	
			☐REDD/REDD+
		☐Forest	
			☐Amazon
			☐Congo
			☐Drylands
	☒**Land Degradation**		

		☒Sustainable Land Management	
			☒Restoration and Rehabilitation of Degraded Lands
			☐Ecosystem Approach
			☐Integrated and Cross-sectoral approach
			☐Community-Based NRM
			☒Sustainable Livelihoods
			☒Income Generating Activities
			☐Sustainable Agriculture
			☐Sustainable Pasture Management
			☒Sustainable Forest/Woodland Management
			☒Improved Soil and Water Management Techniques
			☐Sustainable Fire Management
			☐Drought Mitigation/Early Warning
		☒Land Degradation Neutrality	
			☒Land Productivity
			☒Land Cover and Land cover change
			☒Carbon stocks above or below ground
		☐Food Security	
	☐**International Waters**		
		☐Ship	
		☐Coastal	
		☐Freshwater	
			☐Aquifer
			☐River Basin
			☐Lake Basin
		☐Learning	
		☐Fisheries	
		☐Persistent toxic substances	
		☐SIDS : Small Island Dev States	
		☐Targeted Research	
		☐Pollution	
			☐Persistent toxic substances
			☐Plastics
			☐Nutrient pollution from all sectors except wastewater
			☐Nutrient pollution from Wastewater
		☐Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		☐Strategic Action Plan Implementation	
		☐Areas Beyond National Jurisdiction	
		☐Large Marine Ecosystems	
		☐Private Sector	
		☐Aquaculture	
		☐Marine Protected Area	
		☐Biomes	
			☐Mangrove
			☐Coral Reefs
			☐Seagrasses
			☐Polar Ecosystems
			☐Constructed Wetlands
	☐**Chemicals and Waste**		
		☐Mercury	
		☐Artisanal and Scale Gold Mining	
		☐Coal Fired Power Plants	
		☐Coal Fired Industrial Boilers	
		☐Cement	

		☐Non-Ferrous Metals Production	
		☐Ozone	
		☐Persistent Organic Pollutants	
		☐Unintentional Persistent Organic Pollutants	
		☐Sound Management of chemicals and Waste	
		☐Waste Management	
			☐Hazardous Waste Management
			☐Industrial Waste
			☐e-Waste
		☐Emissions	
		☐Disposal	
		☐New Persistent Organic Pollutants	
		☐Polychlorinated Biphenyls	
		☐Plastics	
		☐Eco-Efficiency	
		☐Pesticides	
		☐DDT - Vector Management	
		☐DDT - Other	
		☐Industrial Emissions	
		☐Open Burning	
		☐Best Available Technology / Best Environmental Practices	
		☐Green Chemistry	
	☒**Climate Change**		
		☒**Climate Change Adaptation**	
			☐Climate Finance
			☒Least Developed Countries
			☐Small Island Developing States
			☐Disaster Risk Management
			☐Sea-level rise
			☒Climate Resilience
			☐Climate information
			☒Ecosystem-based Adaptation
			☐Adaptation Tech Transfer
			☐National Adaptation Programme of Action
			☐National Adaptation Plan
			☐Mainstreaming Adaptation
			☐Private Sector
			☐Innovation
			☐Complementarity
			☒Community-based Adaptation
			☐Livelihoods
		☒**Climate Change Mitigation**	
			☒Agriculture, Forestry, and other Land Use
			☐Energy Efficiency
			☐Sustainable Urban Systems and Transport
			☐Technology Transfer
			☐Renewable Energy
			☐Financing
			☒Enabling Activities
		☐**Technology Transfer**	
			☐Poznan Strategic Programme on Technology Transfer
			☐Climate Technology Centre & Network (CTCN)
			☐Endogenous technology
			☐Technology Needs Assessment
			☐Adaptation Tech Transfer
		☐**United Nations Framework on Climate Change**	
			☐Nationally Determined Contribution