Building Community Based Integrated and Climate Resilient Natural Resources Management and Enhancing Sustainable Livelihood in the South-Eastern Escarpments and Adjacent Coastal Areas of Eritrea

Part I: Project Information

GEF ID
10789

Project Type
FSP

Type of Trust Fund
MTF

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

Project Title
Building Community Based Integrated and Climate Resilient Natural Resources Management and Enhancing Sustainable Livelihood in the South-Eastern Escarpments and Adjacent Coastal Areas of Eritrea

Countries
Eritrea

Agency(ies)
FAO

Other Executing Partner(s) **Executing Partner Type**

Ministry of Land, Water and Environment | Government

GEF Focal Area
Multi Focal Area

Taxonomy
Biodiversity, Focal Areas, Land Degradation, Climate Change Adaptation, Climate Change, Stakeholders, Gender Equality, Capacity, Knowledge and Research, Adaptation Tech Transfer, Land Degradation Neutrality, Food Security, Sustainable Land Management, Mainstreaming, Sustainable Agriculture, Improved Soil and Water Management Techniques, Sustainable Forest, Drought Mitigation, Integrated and Cross-sectoral approach, Restoration and Rehabilitation of Degraded Lands, Community-Based Natural Resource Management, Income Generating Activities, Ecosystem Approach, Sustainable Livelihoods, Sustainable Pasture Management, Land Productivity, Land Cover and Land cover change, Carbon stocks above or below ground, Fisheries, Agriculture and agrobiodiversity, Ecosystem-based Adaptation, Community-based adaptation, Climate information, Least Developed Countries, Private sector, Innovation, Climate finance, Disaster risk management, Mainstreaming adaptation, Complementarity, Climate resilience, Livelihoods, Influencing models, Convene multi-stakeholder alliances, Transform policy and regulatory environments, Demonstrate innovative approache, Strengthen institutional capacity and decision-making, Beneficiaries, Communications, Education, Awareness Raising, Private Sector, Individuals/Entrepreneurs, SMEs, Local Communities, Civil Society, Academia, Community Based Organization, Type of Engagement, Information Dissemination, Participation, Consultation, Gender Mainstreaming, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Access to benefits and services, Capacity Development, Access and control over natural resources, Participation and leadership, Knowledge Generation and Exchange, Knowledge Exchange, Knowledge Generation, Learning, Species, Crop Wild Relatives, Livestock Wild Relatives, Threatened Species, Protected Areas and Landscapes, Productive Landscapes, Biomes, Desert, Grasslands, Coral Reefs, Forest, Forest and Landscape Restoration

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 1

Climate Change Adaptation
Climate Change Adaptation 2

Duration
82 In Months

Agency Fee($)
1,411,228.00

Submission Date
3/24/2021

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount($)	Co-Fin Amount($)
BD-1-1	GET	2,430,562.00	3,000,000.00
LD-1-1	GET	3,247,664.00	4,000,000.00
LD-2-5	GET	1,000,000.00	2,092,304.00
CCA-1	LDCF	7,002,082.00	8,000,000.00
CCA-2	LDCF	2,000,000.00	2,200,000.00
	Total Project Cost ($)	**15,680,308.00**	**19,292,304.00**

B. Indicative Project description summary

Project Objective

Enhance resilience of vulnerable agro-pastoralist and fishing communities along degraded landscapes/seascapes in the south-eastern escarpments and adjacent coastal areas of Eritrea through an integrated ecosystem-based and market-driven approach.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
1. Enhancing the enabling environment for CCA, SLM/SFM and BD conservation mainstreaming in priority sectors through integrated policies, planning and finance	Technical Assistance	1.1. Strengthened policy, planning and finance frameworks for CCA, SLM/SFM & BDC at national and community-level	1.1: Mechanisms for improved cross-sectorial coordination of policies, plans and finance/ investments in place at national and subnational level to support mainstreaming of CCA, SLM/SFM and BDC in relevant sectors.	GET	714,747.00	1,500,000.00
		Indicators: *CCA, SLM/SFM and BD conservation mainstreamed into # of policies, plans and finance frameworks.*	1.2: Capacity building programme for national and subnational institutions and stakeholders on CCA, SLM/SFM and BDC planning, financing and implementation in line with existing convention frameworks			
		Cross-sectoral coordination mechanism strengthened	1.3: Participatory climate/LD/BD risk and vulnerability assessments conducted in the targeted landscape/seascape and ecosystem-based approaches prioritized.			

		# of government staff trained on CCA, SLM/SFM and BDC awareness and action for priority areas. *# of vulnerability assessments conducted*	1.4: Value of ecosystem services in the targeted landscape/seascape assessed and used as evidence to improve policy/decision-making.			
Component 1. Enhancing the enabling environment for CCA, SLM/SFM and BD conservation mainstreaming in priority sectors through integrated policies, planning and finance	Technical Assistance			LDCF	1,035,253.00	1,500,000.00

1.1. Strengthened policy, planning and finance frameworks for CCA, SLM/SFM & BDC at national and community-level	1.1: Mechanisms for improved cross-sectorial coordination of policies, plans and finance/ investments in place at national and subnational level to support mainstreaming of CCA, SLM/SFM and BDC in relevant sectors.
Indicators: *CCA, SLM/SFM and BD conservation mainstreamed into # of policies, plans and finance frameworks.*	1.2: Capacity building programme for national and subnational institutions and stakeholders on CCA, SLM/SFM and BDC planning, financing and implementation in line with existing convention frameworks
Cross-sectoral coordination mechanism strengthened *# of government staff trained on CCA, SLM/SFM and BDC awareness and action for priority areas.* *# of vulnerability assessments conducted*	1.3: Participatory climate/LD/BD risk and vulnerability assessments conducted in the targeted landscape/seascape and ecosystem-based approaches prioritized. 1.4: Value of ecosystem services in the targeted landscape/seascape assessed and used as evidence to improve policy/decision-making.

Component 2: Promoting ecosystem-based SLM/SFM, CCA and BDC across the landscape and seascape for sustainable and resilient livelihoods	Investment	2.1 Increased sustainability, rehabilitation and resilience of the production landscape/seascape through participatory planning processes *Indicators:* *# of agro-pastoralists and fishers engaged in capacity-building trainings* *# of Community Development Plans on integrated SLM/SFM, CCA, BDC formulated/ updated* *# of ha of degraded area protected/ conserved*	2.1.1: Targeted capacity building for agro-pastoralist and fishing communities on land-use/spatial planning and implementation 2.1.2: Evidence-based and innovative SLM/SFM, CCA & BDC practices identified and assesses in a participatory manner. 2.1.3 District-level Community Development Plans on integrated SLM/SFM, CCA, BDC designed/updated in participatory manner. 2.1.4 Establishment of protected area to restore degraded forest land and support habitat corridors.	GET	5,330,721.00	5,500,000.00
		2.2 Effective advisory and supply services for				

up and out scaling of SLM/SFM, CCA and BDC in the targeted landscape/seascape	2.2.1: Training programme for strengthening Farmer field schools (FFS), extension services and field implementation support provided to farmers/pastoralists/fishers (targeting women and youth) to adopt ecosystem-based practices.
Indicators	
Landscape/seascape (# of ha) under sustainable and resilient management	2.2.2: Improved access and capacities for agro-meteorological services/climate information systems
#of households and communities adopting economically viable approaches for SLM/SFM, CCA and BDC	2.2.3: Capacity building programme for communities on soil and water conservation practices for land rehabilitation.
	2.2.4: Innovative water harvesting and irrigation systems (e.g. rainwater harvesting) introduced/improved, tested and promoted.
# of ha of degraded area protected/ conserved	
# of ha of degraded rangeland restored	2.2.5: Community seed banks (stress-tolerant/NUS varieties) and nurseries strengthened/established to support crop/tree diversification efforts on farm.

		# of Rain Water harvesting structures constructed				
Component 2: Promoting ecosystem-based SLM/SFM, CCA and BDC across the landscape and seascape for sustainable and resilient livelihoods	Investment	2.1 Increased sustainability, rehabilitation and resilience of the production landscape/seascape through participatory planning processes *Indicators:* *# of agro-pastoralists and fishers engaged in capacity-building trainings* *# of Community Development Plans on integrated SLM/SFM, CCA, BDC formulated/ updated*	2.1.1: Targeted capacity building for agro-pastoralist and fishing communities on land-use/spatial planning and implementation 2.1.2: Evidence-based and innovative SLM/SFM, CCA & BDC practices identified and assesses in a participatory manner. 2.1.3 District-level Community Development Plans on integrated SLM/SFM, CCA, BDC designed/updated in participatory manner. 2.1.4 Establishment of protected area to restore degraded forest land and support habitat corridors.	LDCF	1,969,279.00	1,500,000.00

# of ha of degraded area protected/ conserved	2.2.1: Training programme for strengthening Farmer field schools (FFS), extension services and field implementation support provided to farmers/pastoralists/fishers (targeting women and youth) to adopt ecosystem-based practices.
2.2 Effective advisory and supply services for up and out scaling of SLM/SFM, CCA and BDC in the targeted landscape/seascape	2.2.2: Improved access and capacities for agro-meteorological services/climate information systems
Indicators	2.2.3: Capacity building programme for communities on soil and water conservation practices for land rehabilitation.
Landscape/seascape (# of ha) under sustainable and resilient management	2.2.4: Innovative water harvesting and irrigation systems (e.g. rainwater harvesting) introduced/improved, tested and promoted.
#of households and communities adopting economically viable approaches for SLM/SFM, CCA and BDC	2.2.5: Community seed banks (stress-tolerant/NUS varieties) and nurseries strengthened/established to support crop/tree diversification efforts on farm.
# of ha of degraded area reforested	

# of ha of degr aded rangeland restored

# of Rain Water harvesting structures constructed

Component 3: Scaling up adaptation technologies and innovations in selected value chains (crop, livestock and fisheries), improving market access and resilience of supply systems	Investment	Climate and COVID resilient livelihoods through innovations and improved access to technologies, markets and distribution networks. *Indicators:* *# of technologies introduced and out scaled* *# of cooperatives trained in business management schemes* *# of Energy saving stoves distributed*	3.1: Supply chain networks established and priorities for strengthening resilience in selected value chains identified in a participatory process. 3.2: Targeted capacity building for agricultural cooperatives, MSMEs and agro-industries in identified priority areas. 3.3: Women and youth entrepreneurship strengthened for increased resilience of crop-pastoralist- fishing dependent livelihoods and access to credit and markets improved. 3.4: Climate-resilient storage facilities and RE/EE processing technologies (incl stoves) are introduced/ improved in targeted areas for preservation, value addition and to reduce food losses.	LDCF	5,133,627.00	5,100,000.00

Component 4: Monitoring & Evaluation, communication and knowledge transfer	Technical Assistance	Project monitored and evaluated, lessons learnt and assessment of SLM/SFM, CCA and BDC innovations are disseminated *Indicators:* *Project M&E and information systems in place* *Project communication and KM strategy developed*	4.1. Project M&E system and adaptive learning and management established and implemented. 4.2. Communication and knowledge management strategy developed and implemented. 4.3. Information, data and M&E systems to monitor and evaluate CCA, SLM/SFM and BDC aspects at national and subnational level enhanced. 4.4. National and international knowledge sharing fostered.	GET	314,747.00	1,500,000.00

Component 4: Monitoring & Evaluation, communication and knowledge transfer	Technical Assistance	Project monitored and evaluated, lessons learnt and assessment of SLM/SFM, CCA and BDC innovations are disseminated *Indicators:* *Project M&E and information systems in place* *Project communication and KM strategy developed*	4.1. Project M&E system and adaptive learning and management established and implemented. 4.2. Communication and knowledge management strategy developed and implemented. 4.3. Information, data and M&E systems to monitor and evaluate CCA, SLM/SFM and BDC aspects at national and subnational level enhanced. 4.4. National and international knowledge sharing fostered.	LDCF	435,253.00	1,500,000.00
				Sub Total ($)	**14,933,627.00**	**18,100,000.00**
Project Management Cost (PMC)						
				GET	318,011.00	592,304.00
				LDCF	428,670.00	600,000.00
				Sub Total($)	**746,681.00**	**1,192,304.00**
				Total Project Cost($)	**15,680,308.00**	**19,292,304.00**

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Government of Eritrea	In-kind	Recurrent expenditures	17,292,304.00
GEF Agency	FAO	Grant	Investment mobilized	2,000,000.00
			Total Project Cost($)	**19,292,304.00**

Describe how any "Investment Mobilized" was identified

The investment mobilized was identified from FAO's ongoing activities in Eritrea as detailed in section 1.2. In addition, FAO has initiated discussions with a number of key investments being initiated in the country and it is expected that some of these initiatives will augment the project's co-finance, including the investment mobilized. Additional co-finance will be further explored during PPG.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	LDCF	Eritrea	Climate Change	NA	9,002,082	810,187	9,812,269.00
FAO	GET	Eritrea	Biodiversity	BD STAR Allocation	2,430,562	218,751	2,649,313.00
FAO	GET	Eritrea	Land Degradation	LD STAR Allocation	4,247,664	382,290	4,629,954.00
				Total GEF Resources($)	**15,680,308.00**	**1,411,228.00**	**17,091,536.00**

E. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

300,000

PPG Agency Fee ($)

27,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	LDCF	Eritrea	Climate Change	NA	172,230	15,501	**187,731.00**
FAO	GET	Eritrea	Biodiversity	BD STAR Allocation	46,502	4,185	**50,687.00**
FAO	GET	Eritrea	Land Degradation	LD STAR Allocation	81,268	7,314	**88,582.00**
				Total Project Costs($)	**300,000.00**	**27,000.00**	**327,000.00**

Core Indicators

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
15,000.00	0.00	0.00	0.00

Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
15,000.00	0.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
			15,000.00			

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

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

Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
15000.00	0.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

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

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
15,000.00			

Indicator 3.3 Area of natural grass and shrublands restored

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

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

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

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
209000.00	0.00	0.00	0.00

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

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

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

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

Type/Name of Third Party Certification

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
209,000.00			

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

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

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

Title	Submitted

Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
1,000.00			

Indicator 5.1 Number of fisheries that meet national or international third party certification that incorporates biodiversity considerations

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

Type/name of the third-party certification

Indicator 5.2 Number of Large Marine Ecosystems (LMEs) with reduced pollutions and hypoxia

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (achieved at MTR)	Number (achieved at TE)
0	0	0	0

LME at PIF	LME at CEO Endorsement	LME at MTR	LME at TE

Indicator 5.3 Amount of Marine Litter Avoided

Metric Tons (expected at PIF)	Metric Tons (expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Part II. Project Justification

1a. Project Description

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

Country overview

The State of Eritrea is situated in the Horn of Africa and is bordered by Sudan in the north and west, Ethiopia in the south and Djibouti in the southeast. Eritrea has an extensive coastline along the Red Sea, stretching 1,900 km to east and northeast and its total land surface area is 124,320 (DOE,CBD 6th National Report, 2019). Although no population survey has been carried out, the population of Eritrea is estimated at 3.2 million, with the majority living in the central highlands (NDC, 2018). Administratively, the country is divided into six zobas (regions). These are Anseba, Debub, Debubawi Keih Bahri, Gash Barka, Maekel, and Semenawi Keih Bahri as shown in Figure 1.

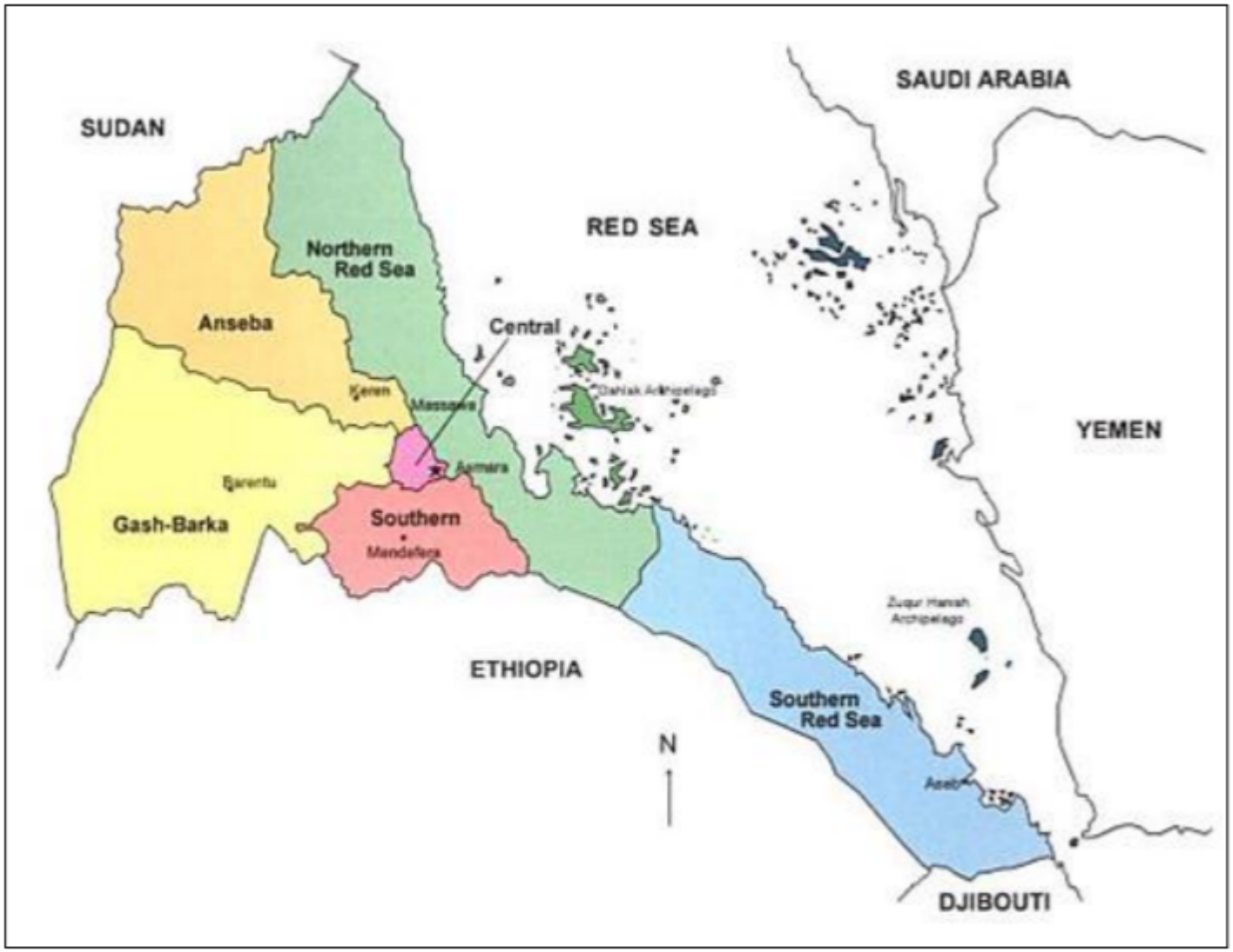


Figure 1: Regional Administrative regions of Eritrea

Topographically Eritrea is divided into three eco-geographic regions namely the eastern coastal zone, the highlands, and the western lowland zones. Out of the 20 major regional centres of endemism of the vegetation, 4 are well represented in Eritrea. These are the Sudanian, Somali-Masai, Afromontane, and Sahel region. The Sahara regional transitional zone is limited to an isolated area along the Red Sea coast of Eritrea. Within these four centres of endemism, nine vegetation types are identified. While no perennial rivers flow through Eritrea, water resources are available from seasonal rivers as well as underground.

Eritrea's climate regime is highly variable, being influenced by the expanding Sahel-Saharan desert, the proximity to the Red Sea and the land's physical features. Altitude and topography play major roles in determining climate in general and temperature in particular, with elevations ranging from below sea level to about 3000m. The climate ranges from hot and arid adjacent to the Red Sea to temperate type in the highlands and sub-humid in isolated micro-catchment area in the sub-humid on the eastern escarpment. Most parts of the country (70%) is hot to very hot with mean annual temperature of more than 27^0C; about (25%) as warm to mild with a mean temperature of about 22^0C, and the remaining parts (5%) as cool with a mean annual temperature of less than 19^0C.

There are two rainy seasons, one between June and September covering the greatest part of the country and the other from November to March covering the eastern and southern escarpment and the coastal zone. The total annual rainfall increases from the north to south; and it varies from less than 200 mm in the northwest lowlands to more than 700 mm in the south-western lowlands. Whilst the coastal lowlands are very dry, some areas on the eastern escarpment receive about 1000 mm. Looking at areas covered by the different rainfall regimes, about 50% of the country receives less than 300 mm, 40% between 300 and 600 mm and about 10% more than 600 mm of rain per annum. Hence, Eritrea is mostly arid climate with about 70% of its land area classified as hot and arid and receiving average annual rainfall of less than 350 mm (NDC, 2018). Figure 2 illustrates the agro-ecological zones and the proportion of land area under each classification.

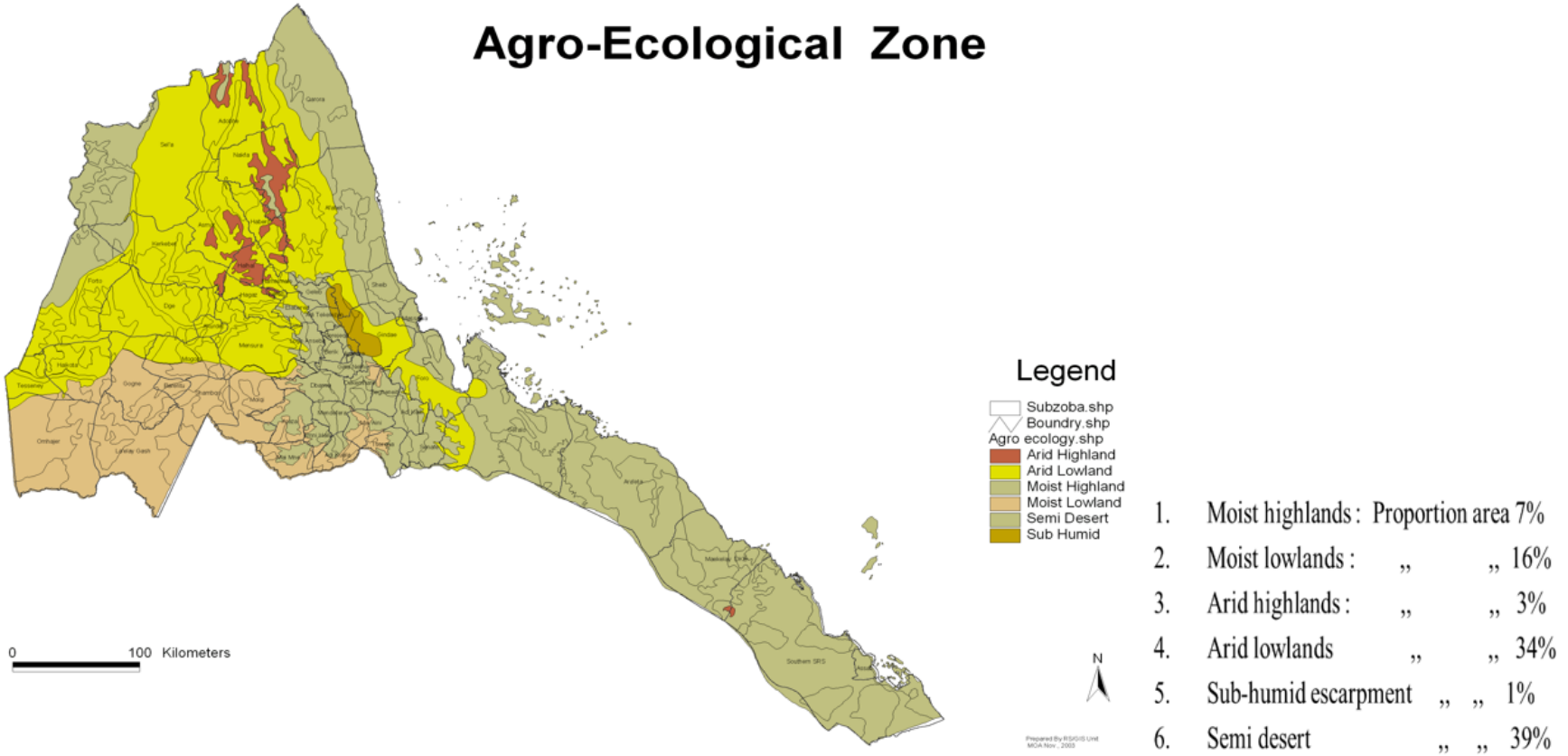


Figure 2. Agro-ecological zones of Eritrea and proportion of land area under each classification

Eritrea is a Least Developed Country (LDC). Its economy is based primarily on agriculture, followed by mining, fisheries, industry, tourism and service sector. The liberation war that lasted for three decades (1961-1991) destroyed Eritrea's major infrastructure and had tremendous effects on the environment at large and the economy in particular. However, with the signing of the peace agreement between Eritrea and Ethiopia in July 2018, Eritrea has been gradually moving towards development and resilience-building, but in a context in which it remains highly vulnerable to economic, climate and exogenous shocks, including fluctuating commodity prices for its raw material exports and regional peace and security concerns (CCA, 2021).

Food security is a consistently pressing issue in Eritrea, where, even in years with adequate rainfall, approximately half of the food that the country requires to meet its needs has to be imported. The reliance on food import has had a particularly detrimental impact on Eritrea's population during the COVID-19 pandemic, which has caused disruptions in food supply systems, emphasizing an even greater need for strengthening the country's food self-sufficiency. Poverty is closely linked to food security in Eritrea: rural households are the most severely affected by poverty because of the low productivity of crops, livestock and fisheries along with underdeveloped value chains, and almost two thirds of all households are vulnerable to food insecurity. Inadequate communications infrastructure provides a further barrier to development, including for value-adding and supply chain linkages. Furthermore, while progress has been made in power generation and energy infrastructure, an estimated 77.3% of total energy consumption in Eritrea is derived from biomass (SNC, 2012).

The greatest number of poor live in densely populated highlands where population pressure results in small and fragmented landholdings and about 47.2 percent of poor households are headed by women. On average, female employees earn less than half that of males and most of the poor women in the rural areas are engaged in low-paying manual labor, primarily in the agriculture sectors. Furthermore, female-headed households generally tend to have fewer assets including livestock compared to male-headed households (CCA, 2021).

Eritrea's agriculture, livestock and fisheries sectors

Agriculture including farming, pastoralism and fisheries are the main sources of livelihoods for more than 80% of the labour force. Eritrea's agricultural landscapes are characterized by two dominant farming systems: a) agro-pastoralism and pastoralism practiced in arid and semi-arid areas, mainly the east and west lowlands; and b) sedentary mixed crop-livestock farming practiced in the highlands and midlands. Since crop cultivation fully depends on animal traction, the rural population is predominantly agro-pastoral mixing crops with livestock. The agricultural sector mainly depends on rainfed production with less than 10% of the available arable land put under irrigation (MoA, 2002). Despite its importance, the agriculture sector remains underdeveloped and accounts for just one-fifth of the gross domestic product (GDP). This is largely due to weak rural infrastructure, low use of yield enhancing inputs and technologies, insufficient irrigation systems, inadequate post-harvest storage and processing facilities, lack of skills, and advisory services for support to farmers and MSMEs and inefficient land management systems. Particularly, the agriculture extension system faces various challenges, namely an unfavorable ratio of extension agents to farmers estimated at about 1:3500 (CCA, 2021). As a result, agricultural productivity remains low and these multiple factors continue to constraint the country's agricultural growth potential.

Eritrea also lies in a semi-arid zone with low and unreliable rainfall. Years of poor rainfall have led to severe droughts that have affected 60-70% of the country. These adverse climatic conditions render Eritrea very drought prone which in turn lead to low agricultural production and chronic food shortages. In good rainfall years, Eritrea produces only 60-80% of its total food needs and no more than 50% in poor years. On average, once every ten years the country is threatened with food insufficiency caused by severe drought. Irrigated crops are also adversely affected due to depletion and drying of water wells on which irrigation depends, as well as unusually heavy flooding during the rainy season. These circumstances are increasing the heavy toll on subsistence smallholders. Frequent pest and disease outbreaks also constitute an increasing threat to the country's food production, most recently with the desert locust upsurge, which could potentially provoke a humanitarian crisis across Eritrea and the Horn of Africa.

Traditional farm holdings are typically one to two hectares with one cropping season due to water scarcity, highly variable climatic conditions and environmental degradation. Crop production includes mainly barley, wheat, teff, sorghum and millet in the highlands, and millet and sorghum in the lowlands and sesame in Western lowlands (IFAD). Out of the crops grown in Eritrea, sorghum is the most important in terms of total area. Other cereals combined (barely, wheat, finger millet, and teff) account for about 18 percent. Pearl millet (12 percent) in the lowlands and barley (11 percent) in the highlands occupy large area. The leading commodities as far as consumption is concerned are wheat (41 percent), sorghum (14 percent) and other roots and tuber crops (11 percent). Sorghum is a staple food crop consumed in different forms. Most of the wheat consumed is imported and much remains to be done to produce sufficient maize for domestic consumption (MoA, 2003). Livestock is an important sub-sector given that 49 percent of the total land area is suitable for grazing whereas only 17 percent is suitable for cropping. Livestock includes camels, cattle, horse, dairy cows, small ruminants, poultry and beekeeping. Livestock productivity is generally low compared with its potential, which is partly attributable to low availability/access to veterinary inputs and services.

Along the Red Sea, coastal communities depend on fisheries both as employment and a source of supplementary subsistence to their livelihood. Efforts have been made to modernize the sector, including fishing fleets, landings, processing facilities as well as preservation infrastructure. However, the coastal zone remains underdeveloped though it provides a range of opportunities for a fishing industry, salt extraction as well as other raw material for various manufacturing industries. Nevertheless, commercial fishing on the rise and the government is encouraging the expansion of commercial fishing, including through support in the creation of community-based commercial fishing cooperatives. Many of these cooperatives are supplied with nets and outboard motors. The government is also creating fish landing stations, complete with refrigeration units and two such stations have been established along the Buri peninsula. However, if not managed properly, both commercial and subsistence fishing constitute very real and growing threats to the health of coastline and marine ecosystems.

Marketing and value addition remain substantially underdeveloped in rural areas. Often, farmers sell directly in the weekly market and merchants. Challenges faced by smallholders who are willing to sell their production surpluses include: high seasonal variability of farm-gate prices; wide price differentials between farm-gate and urban wholesale prices due to weak rural storage facilities and insufficient transport opportunities; inadequate infrastructure, storage and processing facilities and transport; as well as limited farmer organizational services to support the development of micro, small and medium-sized enterprises (MSMEs). Access to inputs for agriculture, livestock and fisheries relies mainly on revolving funds, managed by public services, as the private sector (commercial banks and microfinance institutions) often does not reach out to food producers.

In efforts to move from subsistence to market-oriented food production, the Government is increasingly promoting irrigated agriculture and horticulture along the rivers and downstream dams, combined with upstream watershed management and soil conservation. With access to irrigation (typically plots of 0.1 to 0.25 ha per household) farm holdings can increase with two to three cropping seasons, which provides for market opportunities of production surpluses. Furthermore, the Ministry of Agriculture is encouraging agribusiness approaches based on cooperative principles to link farmers to input and output markets. However, producer organizations and cooperatives need to upgrade and diversify their organizational and service delivery models in order to better provide services to their members and ensure their viability.

Eritrea's biodiversity

Eritrea is part of both the Eastern African Highlands and Horn of Africa global biodiversity hotspots and benefits from a highly diverse range of globally unique and significant terrestrial ecosystems. These include: East Sudanian savannah, Ethiopian/Eritrean highland forests, Ethiopian/Eritrean highland grasslands and woodlands, Ethiopian/Eritrean xeric grasslands and shrub, Somali Acacia-Commiphora bush and thickets, and Sahelian Acacia savannah. Historically, the country provided habitats to a wide range of wildlife such as the African elephant, hippopotamus, buffalo, giraffe, greater kudu, African wild ass, Nubian ibex, waterbuck, lion, leopard, cheetah, Colobus monkey and numerous other smaller species. At present, a few of these species and numerous avi-fauna species exist in Eritrea though these populations are small and under threat.

The biodiversity resources of Eritrea are not well studied and/or documented. Eritrea has recorded 126 mammal, 90 reptile and 19 amphibian species. Notable terrestrial species include the world's only viable population of free ranging African wild ass, a unique northern Africa elephant population, and remnant Juiperus-Olea forests. Large carnivores include leopard, hyena and jackal. In addition, Eritrea has 577 bird species out of which approximately 320 species are resident with the remaining being migratory. There are 12 species of birds of global conservation concern recorded in Eritrea and 13 species regarded as 'regional endemics' (Ethiopia and Eritrea). The Hawakil archipelago supports significant numbers of Crab Plover, a species with very few breeding sites outside Eritrea. Other summer breeding visitors include the Bridled tern, White-eyed Gull, Lesser-crested Tern and Green-backed Heron. The Bay of Bera'soli supports globally important numbers of White-eyed Gull, Brown noddy, Socotra cormorant and Brown booby.

Contemporary data on flora is limited through some experts suggest that there may be around 700 species of plants. In the late 1990's, FAO described the nation's vegetation types as 0.8% highland forest, 11.3% close, medium and open woodland; 63.8% grassland/wooded grassland/ and bushland; and, 1.6% riverine and mangrove forests.

From a biodiversity perspective, the agricultural sector has considerable importance both in global and local terms. The diversity of crop, forage, shrub and tree browse landraces found in Eritrea has global conservation significance because Eritrea is primary and secondary centre of diversity for a number of cultivated crops including sorghum, wheat and barley, pulses and vegetables. The inventory is incomplete, but 20 varieties of sorghum, 8 maize, 6 barley, 5 teff, 3 pearl millet, 3 finger millet, 3 sesame and 2 Niger (Nihug) have been described. More importantly, the genetic diversity of these and other crops and forages

in Eritrea plays an important role in the agricultural strategy of farmers, especially those practicing rain-fed agriculture. Cultivation of a range of different landraces provides on-farm conservation of the crops and securing total failure of crops and livestock under harsh conditions such as drought. Furthermore, landrace varieties possess a much wider genetic base than high yielding improved varieties. Therefore, the conservation of plant genetic resources (PGR) ensures primary source of gene variation useful for today and future production improvement through breeding and selection programs.

The country is also home to many pasture species of leguminous and grasses and the highlands of Eritrea are a rich source of leguminous and grass forage species. About 120 leguminous species have been reported to occur at elevations between 1500 and 2500 m above sea level. However, the pastures in the highlands are fragile and under continuous uncontrolled grazing regimes. The grazing area has been shrinking over the years as a result of overgrazing, extensive cultivation, improper utilization of water resources and deforestation. The removal of forest cover has depleted the resources of the browse layer. The most palatable species of herbage and browse are decreasing in quantity and leaving space for less palatable species.

Eritrea is endowed with vast marine resources and the region is considered as one of the world's most important repositories of marine biodiversity. The country has nearly 2,000 km of relatively pristine Red Sea coastline (1,000 mainland and 1,000 island) including thousands of kilometers of undeveloped and under-exploited coastal areas defined by diverse mangrove, coral reef, sea grass and intertidal habitats. The Red Sea is home to perhaps the world's highest-level of endemism and the highest species diversity west of Indonesia with over 1,100 fish species and 44 genera of hard corals being recorded. The reef features include abundant aquatic life, platforms, lagoons, and cylinders. It is also noteworthy that reefs in this region are showing surprising resilience to increasing sea temperatures/extreme events influenced by the El Niño southern oscillation, indicating that this marine environment can provide valuable lessons for how these important systems may or may not withstand the challenge of climate change.

The coastal zone provides migratory and breeding habitat for many globally significant bird species such as crab plovers (Dromas ardeola) and healthy populations of dugongs (Dugong dugon) inhabit the coastal areas. There are extensive groves of mangrove forest contributing to marine health while also acting as important carbon sinks and buffering the impacts of climate hazards. The globally endangered whale shark (Rhincodon typus) is observed on a regular basis within the waters of Eritrea and including sites covered by this proposed project. The islands of Hawakil to the east of Buri, host all of these attributes: rich mangrove habitats, corals and sea grass beds, diverse fish species, sea turtles and dugongs. The Bay of Bera'soli harbors breeding habitats for great numbers of bird species, including flamingos. The bay also hosts significant varieties of a globally endangered fish species such as Hump-head wrasse (Cheilinus undulatus).

Five of the seven sea turtle species known to exist globally are found in Eritrean waters: Green (Chelonia mydas), Hawksbill (Eretmochelys imbricata), Loggerhead (Caretta caretta), Olive ridley (Lepidochelys olivacea) and Leatherback (Dermochelys coriacea). There are many nesting sites, including the world's largest hawksbill turtle (Eretmochelys imbricate) breeding colony. At the Buri Peninsula, turtles nest on the outlying islands of Shumma and Delemi and to a lesser extent on Assarka Black and Assarka White. While in Hawakil archipelago, the main nesting site is Umm Namus and Dergamman Seghir. Hawksbill and Green turtles also nest at Umm Adjuz, Umel-Nayim (Saribo) and Ras Hawakil. Ras terma, an area close to the Bera'soli bay, is the only place in the Red Sea where Olive Ridley turtle (Lepidochelys imbricata) is recorded as attempting to nest.

Eritrea is increasingly exposed severe climate risks and hazards including recurrent drought, flash floods and sea level rise. Over the past 60 years, temperature has risen by approximately 1.7°C with tremendous impact on biodiversity losses, sea level rise and coral bleaching due to increase in sea temperature, decline in food production, loss of biodiversity and overall loss of resilience of the ecosystem (NDC, 2018). Relative to baseline conditions, there have been observed changes in mean, range and variability of temperature and precipitation throughout the country. The occurrences of dry spells, seasonal droughts and multi-year droughts are more frequent than in the past. There has been a perceived increase in episodes of torrential rainfall with heavy runoff and flooding.

Projected change under two emission scenarios (scenario with low GHG emissions (RCP2.6) and one scenario with very high GHG emissions (RCP8.5)[1]) indicates that under both scenarios, the average monthly temperature is expected to increase with a median value of more than 1 degree Celsius in a medium-term future (2040-2059), compared to the historical observed temperature (see figure 4, left). Figure 3 highlights the climate scenarios projected in 2040-2059 where under the RCP8.5 scenario, mean annual temperature is projected to rise by 2.05°C (1.24°C to 2.73°C).

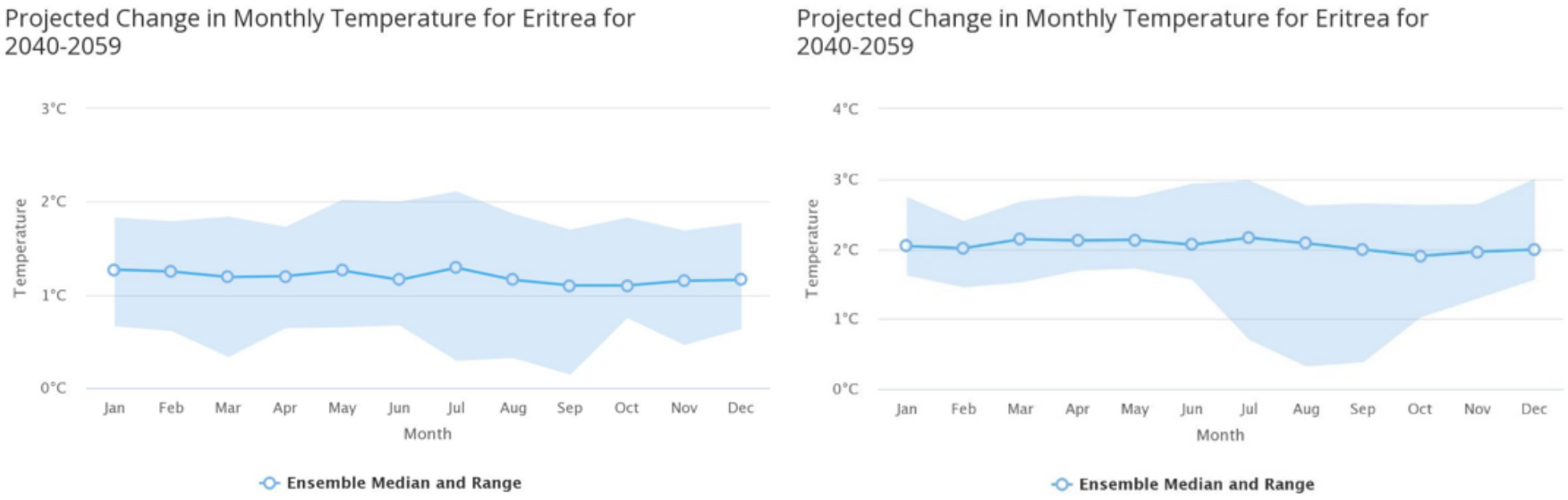


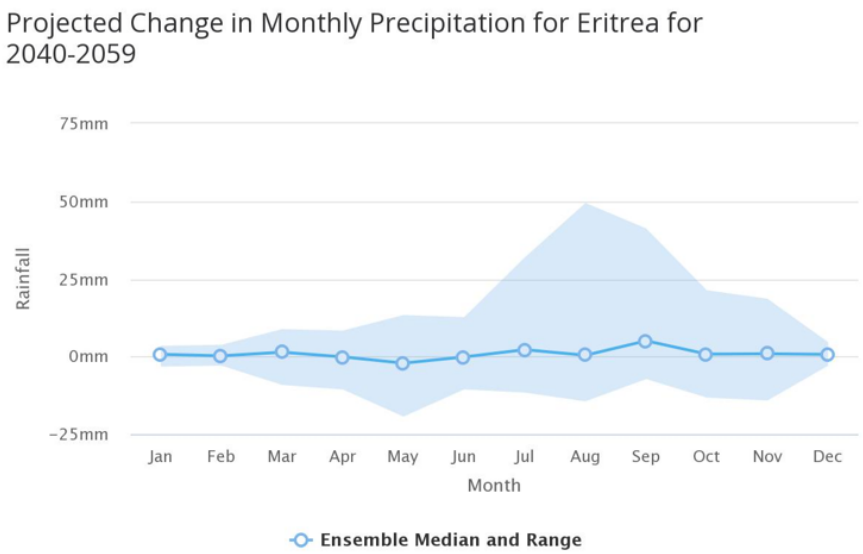
Figure 3. Projected change in monthly temperature under a medium term future scenario with low GHG emissions (RCP2.6) (left) and one scenario with very high GHG emissions (RCP8.5) (right).

Source: https://climateknowledgeportal.worldbank.org/country/eritrea/climate-data-projections.

Figure 4. Reference period (1985-2006) for observed monthly temperature (left) and observed monthly precipitation (right).

Source: https://climateknowledgeportal.worldbank.org/country/eritrea/climate-data-projections.

Projections of monthly precipitation under two emission scenarios indicates that compared to reference period (see Figure 4, right), the average monthly precipitation is expected to change under both under both scenarios (Figure 5) for the period of 2040-2059. Mean annual precipitation is projected to rise by 8.26mm (-111.32mm to 301.32mm) under the RCP8.5 scenario. The average monthly precipitation under the two scenarios projects slight changes around the rainy season, suggesting less precipitation during April-May, inducing a later onset and ending of the rainy season (taking into consideration the median values).



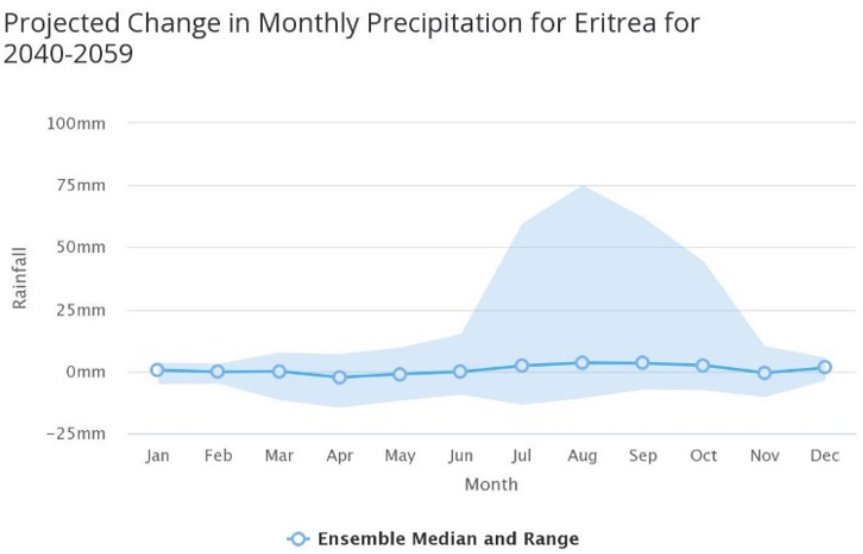


Figure 5. Projected change in monthly precipitation under a scenario with low GHG emissions (RCP2.6) (left) and one scenario with very high GHG emissions (RCP8.5) (right).

Source: https://climateknowledgeportal.worldbank.org/country/eritrea/climate-data-projections.

An increasing trend of higher temperatures combined with little precipitation variability are expected to increase the likelihood of drought conditions as highlighted in Figure 6. Under a high emissions scenario (RCP8.5), the likelihood of annual severe drought is projected to increase to a 50 percent chance in the last decades of this century (2080-2099).

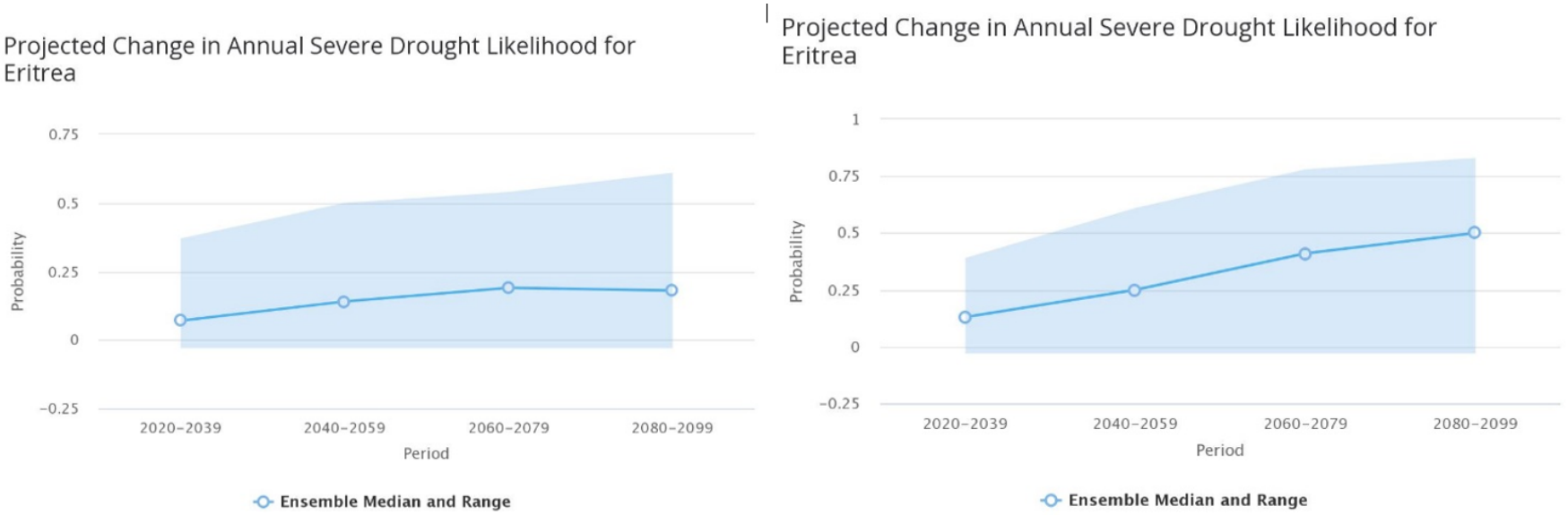


Figure 6. Projected change in the likelihood of annual severe drought under a scenario with low GHG emissions (RCP2.6) (left) and one scenario with very high GHG emissions (RCP8.5) (right).

Source: https://climateknowledgeportal.worldbank.org/country/eritrea/climate-data-projections.

Similarly, the sea level along the Eritrean coast is projected to rise under increased GHG emission scenarios. Figure 7 illustrates the sea level rise scenario close to the proposed project site (near Massawa) indicating the projected sea level rises under a low, medium and high emission scenario. Projections under a high GHG emission scenario suggest that by 2100, the sea level could rise with more than 55 cm.

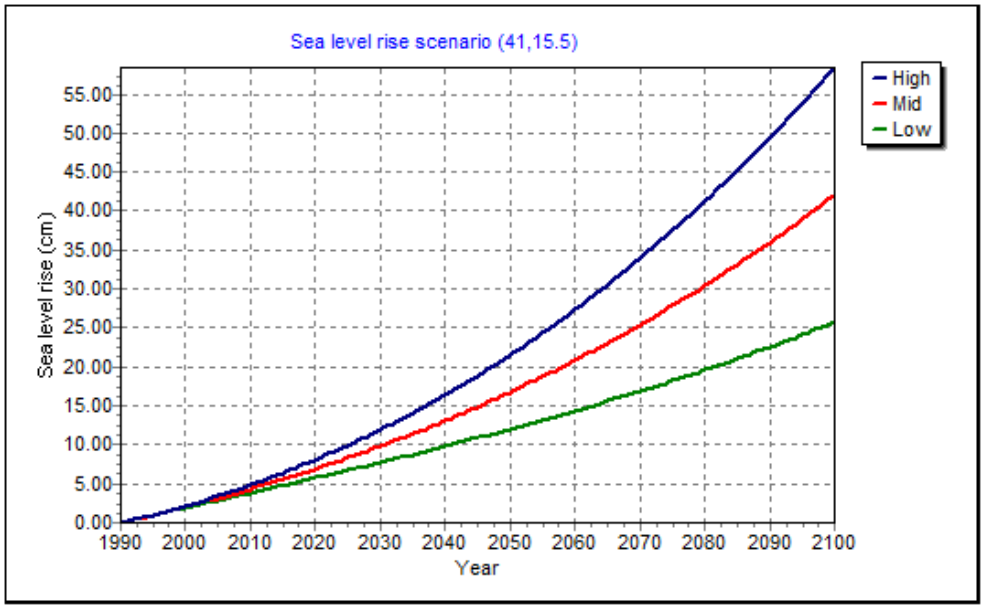


Figure 7. Sea level rise (median projection) from 1961-1990 (cm) near Massawa under a low, medium and high GHG emission scenario. Source: Seid Salih, 2010 (SNC,2012).

Both terrestrial and marine ecosystems are expected to be mostly negatively affected by climate change, and impacts are already being observed on water resources, agriculture, coastal environments, forestry, livestock and human health. Eritrea has an extensive river system with a seasonal flow pattern that sustains people, livestock and crop production across landscapes. However, recurrent drought, increasing temperatures and evaporation patterns are resulting in reduced stream flows, lower groundwater level, deterioration in water quality, and disappearance of base flows which are the sources of water supply for both urban and rural settlements, livestock and the country's industry. Moreover, the majority of Eritrea's rural villages are located in areas where water supplies are not easily available or accessible. It is likely that the predicted warmer temperatures and uncertainty in precipitation patterns will affect evaporation and humidity. These changes will affect rural water sources and result in: i) a decrease in stream flows; i) a drop in groundwater levels; iii) the drying up of springs; and iv) the disappearance of base flows.

Eritrea's land areas are characterized by sparse to medium coverage of shrubs with areas almost not covered with trees. Climate variability impacts soil moisture and adversely affects the growth of shrubs and trees. As temperature increases, increasing shortages of biomass both for energy and local house construction have been observed as well as declines in non-timber forest products (NTFPs) such as frankincense, gum arabic, doum palm leaves, wild fruit, wild medicine, bee forage and fodder.

Agricultural production is affected by a host of factors including high rainfall variability with recurrent and long drought periods, continuous degradation of the soil and frequent pest outbreaks, combined with very low coping capacities at various levels. Eritrea's rainfed farming communities, poor subsistence farmers in particular, are severely affected by climate variability and extreme climate events, which have manifested in spatial and temporal variability of rainfall patterns followed by subsequent droughts. Small rains that usually occurred during April/May have all but disappeared. In recent years, the main rainy season is becoming shorter, resulting in the disappearance of some wheat and millet varieties, as well as some native cultivars, due to recurring rain-fed crop failures. Figure 8 illustrates the projected national average crop decline due to climate change. New crop pests are appearing and particularly the desert locust is causing great concern due to its devastating impact on crops in the Horn of Africa. Irrigated crops are also adversely affected due to depletion and drying of water wells on which irrigation depends, as well as unusually heavy flooding during the rainy season. These circumstances are increasing the heavy toll on subsistence farmers and threatens to further exacerbate food insecurity and erosion of rural livelihoods.

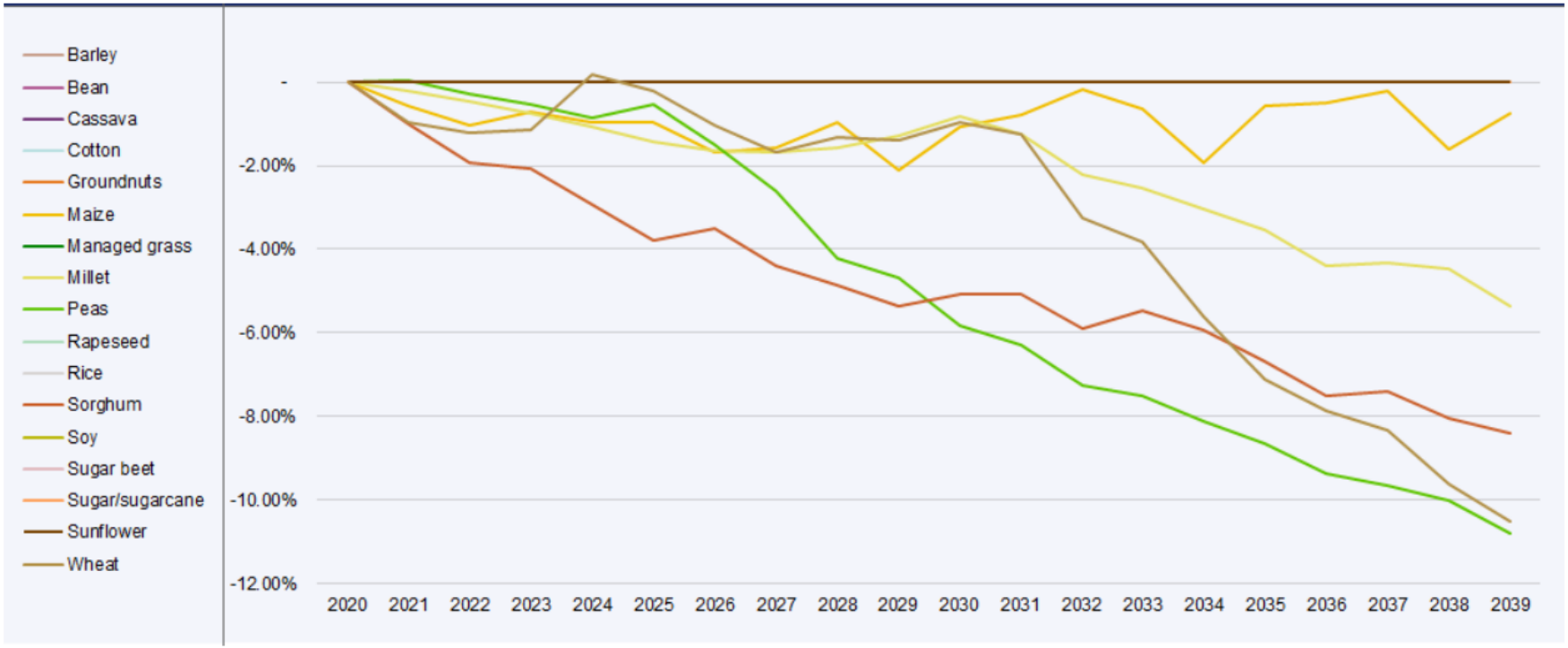


Figure 8: Projected national average crop yield decline due to climate change for the period 2020-2040, using IFADs CARD model (IFAD IADP, 2020).

Notwithstanding the current sources of uncertainty, there is consensus that droughts in Eritrea will likely increase under climate change. Increased rates of evaporation related to increased temperatures will negate any increases in rainfall that may be observed and lead to decreased soil moisture and reduced productivity. Recurring droughts and increasing rainfall variability are also affecting pastoralism through reduced feed and water availability, leading lower productivity as well as loss of livestock. In addition, thermal stress is increasingly exceeding thresholds that animals can tolerate, leading to decreased feed intake, interference with animal productive and reproductive functions, requiring a shortening of grazing hours and increasing exposure to pathogens.

Eritrea's coastal and marine environment is also increasingly impacted by climate change and variability. Bleaching responses and overall deterioration of coral reefs in the Red Sea, as a result of sea temperature increases, has had a devastating effect both on Eritrean fisheries as well as the reefs themselves. Temperature changes also affect through impacts on food and nutrient supply, growth, survival, reproduction, prey-predator dynamics and habitat. Similarly, temperature increase causes toxic algal blooms (such as red tide) that threaten the shellfish population through lethal and chronic impacts (NAPA 2007).

The human and financial costs to Eritrea in coping with extreme weather events, crop failures and other emergencies related to climate change and variability are growing higher. Climate-related risks and hazards are also exacerbating vulnerabilities of the ecological resource base by adding additional pressures, thereby contributing to increased deterioration and loss of soil fertility as well as loss of biodiversity, altogether threatening the overall carrying capacity of Eritrea's terrestrial and marine systems. As a result, Eritrea faces severe and acute vulnerability, a situation which has been further compounded by supply chain disruptions due to the COVID-19 pandemic repercussions.

Eritrea's ecological resources, drivers of degradation and biodiversity loss

Eritrea's ecological resource base is under severe pressure and further environmental degradation is threatening to erode the livelihood foundation, which the majority of the population depend on. Widespread land degradation is one of the most serious environmental concern in Eritrea, caused to a large extent by inappropriate land management, unsustainable agricultural practices, and overgrazing along with deforestation, resulting in clearing of vegetation cover and increased soil erosion. Figure 9 illustrates levels of land degradation across the country. The need to produce more food for the rapidly increasing population has led to a rapid expansion of agricultural land and shortening of fallow periods in traditional, extensive land-use systems, which have reduced the regeneration of soil fertility through natural processes. The annual rate of soil loss from cropland activities is estimated at 12–17 tons/ha while crop yield is declining at the rate of 0.5% per annum, owing to soil erosion. Furthermore, the overwhelming dependence on biomass (charcoal, firewood, agro-residues and cow dung) for domestic energy, especially in rural areas, contributes significantly to the clearing of forests and woodlands as well as soil nutrient depletion. Pressures on land resources are particularly of severe concern in the highlands where 50-60% of the population are residing, despite that they only account for 10% of the country's surface area (NDC, 2018). At the same time, there is currently limited protection for woodlands that contain 1-3% of Eritrea's terrestrial carbon stocks, which form an important source of fuel wood for rural households (LDN TSP, 2018).

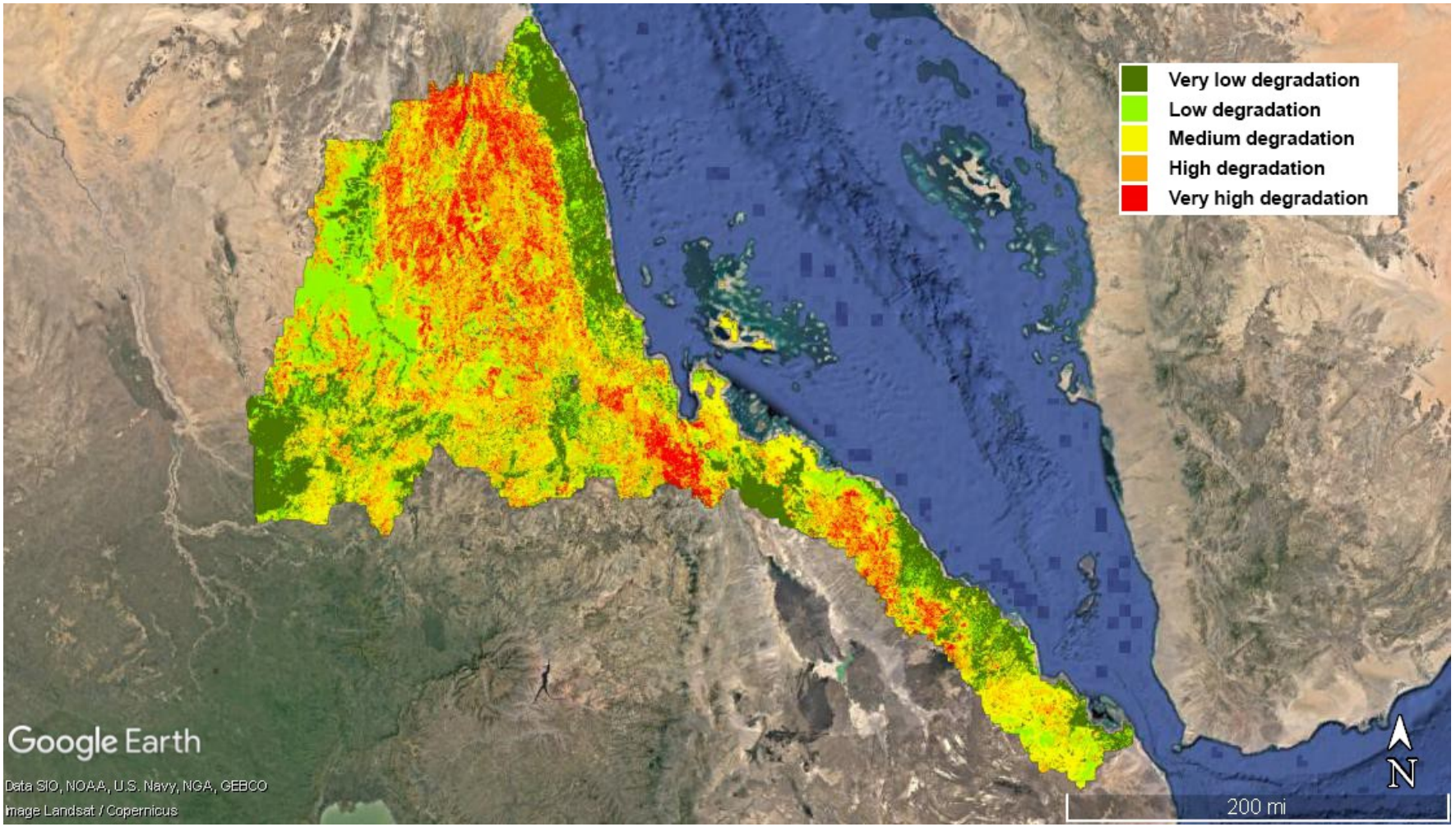


Figure 9. Land degradation in Eritrea.

Source: ICPAC 2017. Eritrea Actual Land Degradation Index (Dec 2015 - May 2016). In: UNDP GEF prodoc.

Loss of biodiversity, along with climate change and desertification have been identified as the greatest challenges to sustainable development in Eritrea, due to the country's high dependence on its ecological resources for socio-economic benefits. Undoubtedly, the single most important factor adversely affecting species in Eritrea is loss of habitat. Vast untransformed terrestrial habitats (mainly forest, woodlands and grazing lands) suffer from extensive removal of vegetation, exposure of soil, or soil loss while riverine habitats have been extensively degraded due to agricultural expansion and invasive exotic trees (Prosopis Juliflora). Furthermore, crop diversity is currently subject to serious genetic erosion and irreversible losses from severe crop failure are at risk, mainly due to drought. Other major causes of loss of PGR include pests and diseases (some landraces varieties are abandoned by farmers due to their susceptibility to pests), changes in land use as well as the introduction of high-yielding exotic crop varieties.

The desire to intensify agriculture is understandable in a country where food security is paramount and where livelihoods are so closely tied to the natural resource base. However, this region holds some of the last remnants of the great forests that once spread across the Ethiopian and Eritrean highlands. A century ago, 30% of the country was covered by forest but less than 1% of it remained by 1995. Deforestation has largely resulted from agriculture expansion, fuelwood extraction, insecure land tenure, the liberation war during which military forces cut trees for the construction of fortifications, and the construction of traditional houses. With an expanding agrarian population and diminished productivity to meet the country's food security requirements, demands for crop land are growing with farms expanding into increasingly marginal areas. Farmers often perceive forested areas as having higher rates of rainfall which result in the clearing of steep forested slopes that are highly vulnerable to erosion. In these areas, soil degradation is prevalent and rampant, and domestic livestock that decrease vegetation cover and stymie forest regeneration quickly follow abandoned agriculture. Concurrently, expanding agriculture causes both habitat loss and fragmentation.

Habitat loss is slightly different in the Red Sea plain. These lowlands are dominated by nomadic and semi-nomadic pastoralists as well as farm lands around areas where seasonal highland rivers meet the plain and create alluvial fans of high-nutrient soil. Limited spate irrigation has been introduced to small coastal settlements such as Menkailile, Menhaso and Engel. The seasonal wetland, Wengebo valley, was converted to agriculture in 2010 and displaced herds of wildlife that once relied upon the wetland during the dry season.

Traditional, oral agreements on rangeland use determined by local tribal leaders bind both Buri peninsula residents and migratory herders. As domestic herds increase, grazing territories and periods expand and climate-related impacts continues to weaken an already vulnerable system, while increased competition for water and graze between wild and domestic animals is becoming an increasingly serious issue. New water sources are also being distributed to locations where human prevalence was previously seasonal. Even the well-intentioned construction of watering points for wildlife by MoA has created potential conflicts and competition between domestic livestock and wildlife such as African wild ass. Where water is available, overgrazing is often the norm and invasive plants are colonizing over-grazed areas.

While Eritrea possesses one of the least ecologically disturbed parts of the Red Sea, the coastline is in increasing jeopardy. There is a potential risk of marine pollution and environmental degradation from rapidly expanding maritime activities. Coastal habitat is being converted for urban and industrial development, calling for proper conservation measures to be instituted before the advent of environmental pressures. The areas identified as potential hotspots are: i) The zones of the Buri-Peninsula, ii) Hawakil Archipelago iii) The bay of Bara'sole. These areas harbour some of the world's most important coastal and marine environments, with unique coastal (aquatic/terrestrial) ecosystems and their associated species are important repositories of marine biodiversity on a global scale.

Marine resources are also very vulnerable to over-fishing by both subsistence and commercial fishing enterprises. The fisheries system is monitored within the financial and capacity constraints of government. There are reports that local communities incidentally harvest sensitive species such as Dugong, and sharks, sea turtles and sea cucumbers are high value marine species targeted by both local and non-local collectors. In addition, feeding and nesting monitoring sites for sea turtle can be near coastal areas were poaching from fishermen is commonly observed.

Invasive species are degrading habitat, particularly for the marine environment where invasive species are entering principally through aquaculture, mariculture and ballast water. One endeavor has introduced at least four exotic species including *Distichlis stricta/spicata* (saltgrass or desert saltgrass), *Spartina alterniflora* (cordgrass), *Sesuvium spp*. (seapurslane) and *Rhizophora spp*. (mangrove). There are proposals to propagate the introduced species *Prosopis juliflora* or *P. chilensis* (mesquite) to provide shade for local villagers. The majority of these species, with the possible exception of the mangrove species, appear to have been selected because of their hardiness and ability to grow and spread rapidly, which are all criteria for invasive species.

In summary, Eritrea is highly impacted by environmental degradation and its' rich biological diversity has been severely degraded to the point that it now has some of the most fragile ecosystems and difficult agricultural conditions in the region. These vulnerable systems are further threatened by climate change and associated desertification, which altogether severely impact food production and livelihoods. A 2019 report by IOM noted that Eritrea is one of the countries with the highest vulnerability to natural hazards and among those least able to cope with climate-related risks and hazards, and associated migration of people. These conditions could further exacerbate already existing social, economic and gender inequalities, escalate climate-induced conflict over resources and drive climate induced migration (Eritrea CCA, 2021).

Project targeted areas

The proposed project will be situated in the south-eastern escarpments and adjacent coastal areas of Eritrea, which lie within Debub and Northern Red Sea Region (zoba Semenawi Keih Bahri). The project area stretches across four sub-zobas, Adi Keyh, Segeneyti, and Senafe in Debub and Foro sub-zoba in the Northern Red Sea (see Figure 10, left map). More specifically, the proposed project site is a catchment area of approximately 225,000 Ha covering three ecological zones, dominated by moist highlands but also spanning arid lowlands and semi-desert areas where the catchment drains into the Red Sea (see Figure 10, right map). The project area comprises more than 330 villages, with an estimated population of 218,915 people.

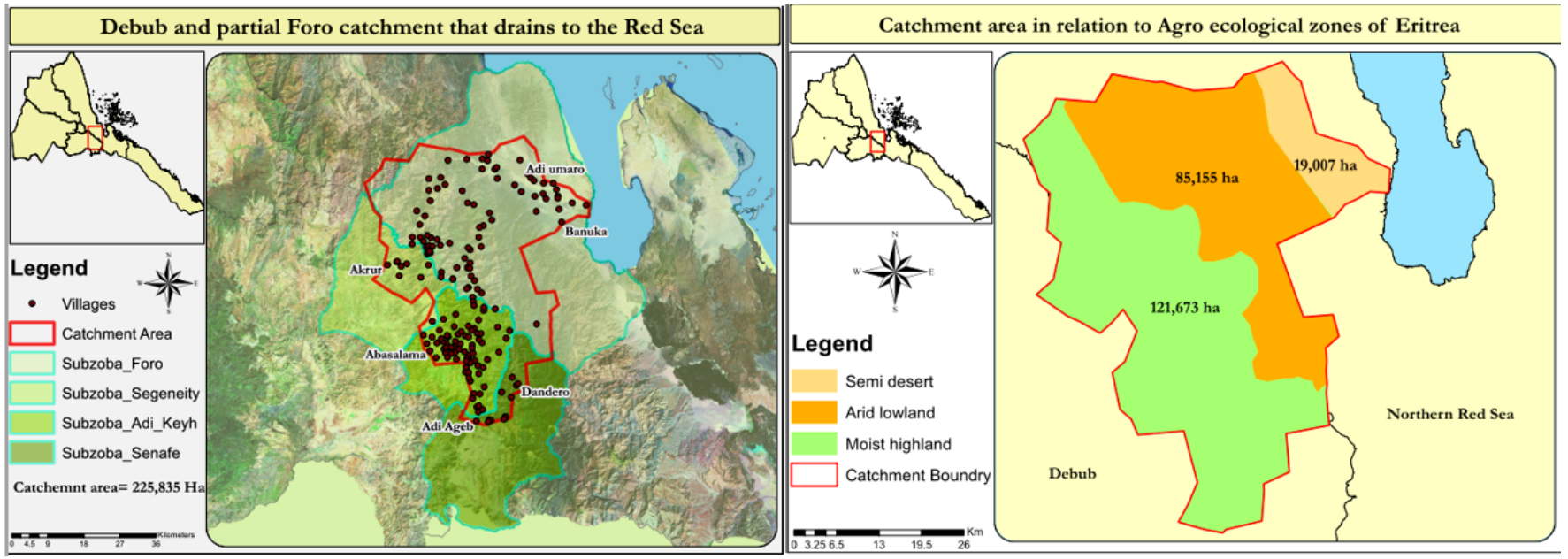


Figure 10. Project site area.

The South-eastern Escarpment of Eritrea is covered with limited forest cover within the Mirara/Semienawi Bahri Green Belt, grasslands as well as bare land due to erosion along the steep slopes of the escarpment. Figure 11 indicates the land degradation hotspots (including for the targeted project area) as well as the Land Productivity Dynamics which are declining or showing early signs of decline in the catchment area. The relevant LDN targets for the project site zobas include the following: LDN is achieved in Debub province by 2030 as compared to 2015 (no net loss) and an additional 27% of the province has improved (net gain); LDN is achieved in Northern Red Sea (NRS) province by 2030 as compared to 2015 (no net loss) and an additional 10% of the province has improved (net gain).

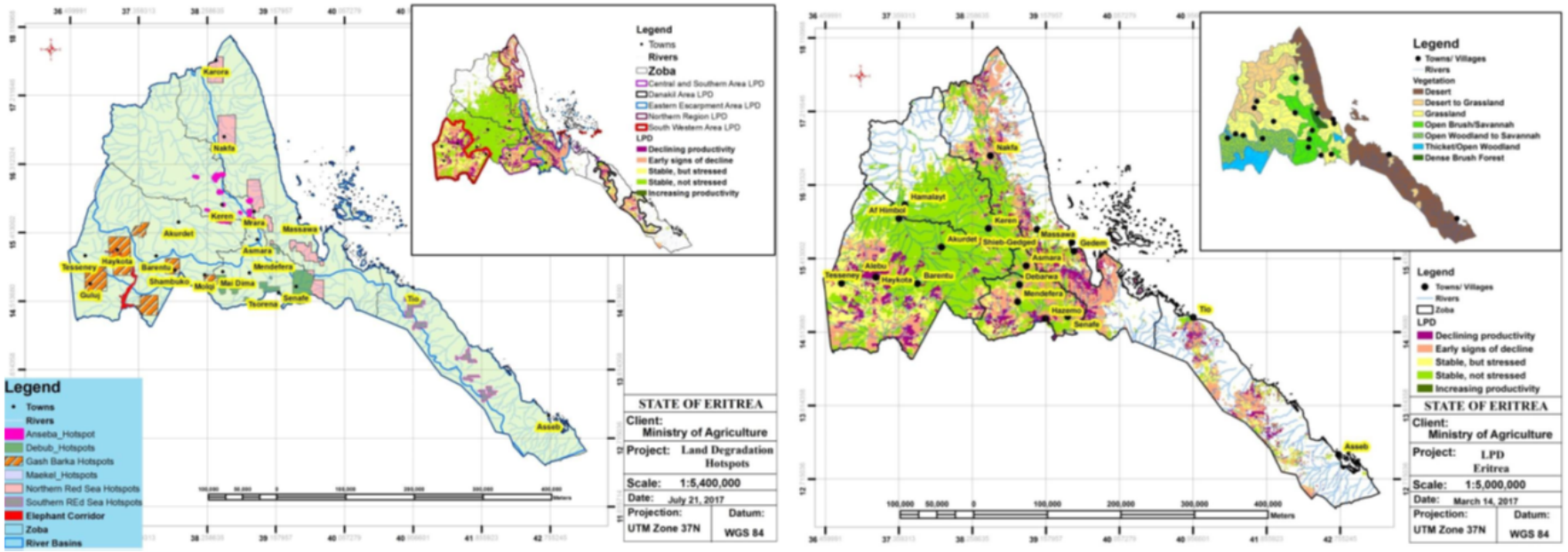


Figure 11. Land degradation hotspots (map 1) and land productivity dynamics (map 2).

Although land degradation is pervasive across Eritrea, the highlands are worst affected. The root causes of land degradation in the highland areas of the project site have been identified as high population densities, overgrazing, deforestation, recurrent droughts, steep gradients, torrential rainfall and long-term unsustainable traditional agricultural practices. Many of these problems are being exacerbated by climate change, with increasingly variable climatic conditions and more frequent droughts having a significant impact on natural resources and agricultural productivity in the region. The communities within the project area are characterized by subsistence livelihoods, facing a high degree of exposure and with very low adaptive capacities. Beyond agro-pastoralism, and fisheries in the coastal areas, the project areas offer very limited opportunities for livelihood diversification and the high dependence on the natural resource base therefore increases community vulnerability due to the increasing impacts from climate hazards and environmental degradation. Community vulnerability is compounded by a number of factors such as limited and insufficient access to technologies, credit, inputs, modern/reliable/sustainable energy sources, information, social protection mechanisms, etc, which all together constrain the abilities of community members to adapt their livelihoods towards more climate-resilient and sustainable practices and strategies.

The farming system in the escarpment comprises 3 distinct systems: i) rainfed crop systems using traditional methods with very low input levels, mainly in the central and southern highlands; ii) irrigated agriculture systems using mainly spate irrigation in the eastern lowlands; iii) agro-pastoralist and nomadic pastoralist systems, mainly in the lowlands and escarpment zone (agro-pastoralists derive their livelihoods from cattle, sheep and goats, while nomadic pastoralists often keep camels as well). The main rainfed crops are: cereals composed of sorghum, pearl millet, barley, wheat, teff and maize; pulses composed of chickpea, field pea and horse bean; and oilseeds composed of sesame, cottonseed and groundnuts. Artisanal fishing is practiced in the coastal areas of the project site and mainly as a supplement to cropping and/or pastoralism.

The areas house some of the last remaining tropical coniferous and broad-leaved (afro-montane) forest along the Horn of Africa with main tree species including *Juniperus Procera* and *Olea Africana*. The afro-montane forest within the project area is degraded but contains critically endangered endemic plant species such as *Aloe schoeleri* and threatened endemic species *Aloe neosteudneri,* which deserve conservation attention. Some 20 mammal species are also found within the project area, including greater kudu, klipspringer, bushbuck, Ethiopian and common genet, leopard, Hamadryas baboon, spotted and striped hyena. Furthermore, the project area is in proximity to the Buri Irrori, which is home to the globally endangered African wild ass. The region is an important bird area harboring 66 resident and migrant species including the White-cheeked turaco, found only in forested highlands of Eritrea, Ethiopia and Sudan. Finally, the project's coastal zone and waters of the Gulf of Zula provide habitats for a number of marine mammals (including the dugong as well as 15 species of cetaceans), five of the world's seven turtle species and a mangrove coastline which provides important nursery grounds for a number of marine species.

Barriers and root causes to be addressed

Barrier 1 – Limited capacity to mainstream CCA, SLM/SFM and BDC measures into sectoral planning and implementation at various levels. National and local governments require capacity and support to integrate climate change actions as well as sustainable land management and biodiversity conservation practices fully and effectively into budgets and workplans as well as to coordinate and integrate sector-related priorities (agriculture, financial services, industry and trade) into climate and environmental strategies, processes and planning. Institutions and local communities in the targeted areas need to have integrated adaptation, BDC and SLM/SFM options, planning measures and investments to adequately address climate change and environmental challenges while also building resilience to COVID-related impacts. However, current policy frameworks are insufficient to effectively support farmers, pastoralists, fishers and MSMEs to adopt CCA, BDC and SLM/SFM practices and technologies. Local government representation and extension services have very limited technical and financial capacity to provide the training and assistance required. The result is that national climate adaptation, SLM/SFM, BDC and agricultural/fisheries policies, planning, and investments do not adequately address on-the-ground adoption of CCA, BDC and SLM/SFM practices and technologies in the agricultural, marine and forestry sectors.

Barrier 2 - Low capacities to adopt and sustain CCA, BDC and SLM/SFM practices and technologies at community level.

Local traditional adaptation mechanisms and strategies are becoming inadequate in the face of increasing climate variability and extreme events such as droughts, while current land use and fishing practices further exacerbate environmental degradation and ecosystem erosion. Agro-pastoralist and fishing communities do not have enough access to the knowledge, tools/technologies and networks required to sustainably adopt CCA, BDC and SLM/SFM practices and innovations. Although agro-pastoralists and fishers are highly reliant upon extension services and technical skills, current support services are not organized or capacitated to assist food producers in adopting diversification practices and ecosystem-based solutions, promote sustainable intensification and adapt to climate change. Furthermore, insufficient access to inputs as well as safety net protections, land tenure issues and very limited access to modern energy at household level are all hindering factors for scaling up adaptation, biodiversity conservation and SLM/SFM in the targeted landscapes.

Barrier 3 - Inadequate access to post-harvest technology, and insufficient coordination among producer organizations and private sector actors such as input suppliers and processors. Smallholders and women-led households in particular, have limited access to post-harvest technologies, market information and agribusiness skills, and supply chain infrastructure remains fragmented. Producer organizations are not well coordinated and often face managerial and organizational challenges in supporting with market linkages and services, whereas marketing systems are often informal and quality tends to be of suboptimal standard. With limited access to post-harvest technologies and energy (particularly for processing and cooling), smallholders often struggle to preserve their harvest/catch or dairy until optimal market prices and profits are met. Furthermore, without access to adequate storage facilities, increased impacts from climate change (changes in precipitation, humidity patterns and temperature) can result in food contamination as well as outbreaks of pests and diseases, and also accelerate the overall spoilage process in perishable products, particularly for livestock and fishery products and other high value commodities such as horticulture. As a result, value-addition remains underdeveloped while post-harvest losses continue to negatively impact food security, nutrition and livelihoods. These barriers for value chain development have been further aggravated due to COVID-19 lockdowns, disrupting not only supply chains but also input distribution and the already limited advisory services.

Barrier 4 – Insufficient access to finance and an unfavorable investment climate. Smallholder agro-pastoralists and fisher-folks (women in particular) but also MSMEs in the targeted landscapes face significant barriers in accessing capital and other forms of finance as they often lack sufficient collateral, financial capacity and tend to be dispersed and disenfranchised. Agro-pastoralists in the targeted geographies are not well linked to markets, credit institutions or novel financing mechanisms, making it very challenging for them to financially sustain their production over time. Private sector investments in agro-pastoralist systems and artisanal fisheries therefore remain low, including for value-adding activities despite their potential for enhancing rural economies by transforming subsistence production into commercialization.

Barrier 5 - Inadequate information to inform and guide decision making on CCA, BDC and SLM/SFM. Government agencies, local private sector and farmers need dependable information to assess environmental and social vulnerabilities and determine what CCA, BDC and SLM/SFM practices and technologies to adopt. Knowledge management and information sharing on available data, tools and methodologies remains largely uncoordinated and inaccessible at both national and landscape-level. In addition, the targeted geographies do not have the technical and/or financial capacity to establish a cost-effective knowledge management system. Information management is currently not well integrated into decision making for production and marketing activities in the project areas nor at national level. Information is not collated and systematically transferred to MSME, smallholders and other end-users to build awareness, inform landscape-level decision-making, and provide an early warning of climate shocks and environmental hazards.

2) the baseline scenario and any associated baseline projects

To adopt climate-resilient, BDC and SLM/SFM practices in the relevant sectors that can withstand changes in climate and reverse land and ecosystem degradation, Eritrea will need to apply new technologies and approaches, modify existing ones, scale up innovations, revise relevant laws and policies to integrate and mainstream climate change, BDC and SLM/SFM, and enhance capacity to access and use finance, information and technologies.

In the baseline, a range of policy, legal and technical measures, and investments, are being undertaken to address the negative impact of climate change, landscape/seascape degradation and loss of biodiversity.

2.1 The policy and legal framework

The Government of State of Eritrea has put in place a comprehensive policy framework and ambitious macroeconomic roadmap to promote poverty reduction and economic growth while undertaking various efforts towards addressing climate change and environmental issues in accordance with the national context. The Macro Policy (1994) provides a background for the country's national economic growth strategy and states the guiding principles for a human centred, efficient, sustainable and equitable development. It recognizes the negative impacts of some traditional farming and fishing practices on productivity, as well as progressive environmental degradation attributed to increasing demands for fuel wood, and inadequate soil and water conservation measures. Furthermore, the document states the commitment required from the government to allocate financial resources to promote the rehabilitation, conservation, development and proper exploitation of natural resources. The goals for Eritrea's development trajectory are further framed in the country's National Indicative Development Plan (NIDP) 2014-2018, which places high priority on natural resources for sustainable socio-economic development and elevates national efforts to protect, restore and enhance Eritrea's environmental and natural assets.

As a follow up to the Eritrea's Interim Poverty Reduction Strategy Paper (2003), the National Development Planning Framework (2009) outlines that environmental issues should be mainstreamed in all development policies, plans, programs and projects and also to ensure adherence to strict environmental standards for protecting, restoring and enhancing the country's environment (land, water and air).

Eritrea's National Agriculture Development Policy and Strategy (2019) sets the direction for the development of the sector along with the Five-year Strategic Agricultural Development Plan 2019-2023. In line with this, the Small and Medium Commercial Farmers Strategy (SMCFS) aims to increase by 2023, the number of farm enterprises that engage in highly productive, profitable agriculture value chains linked to domestic and international markets.

In terms of its vision for Eritrea's environment, the National Environmental Management Plan (NEMP) constitute the overarching policy document for the country's environmental resources and lays out a strategy for action on conservation activities. The plan comprises four parts: environmental and developmental prospects for Eritrea; the major environmental and development issues; priority actions and responses for an integrated environmental and development planning process, requirements for implementation of the plan and its associated project activities, institutional prerequisites, and financial and human resources.

The Government is committed to achieving Land Degradation Neutrality (LDN) as it underpins the ecological functioning of terrestrial resources for the sustainable socio-economic development. As part the LDN Target Setting Process (LDN TSP), critical intervention areas to be addressed were identified and LDN targets have been defined for national and sub-national levels. Furthermore, in response to the UNCCD 10-Year strategic plan and framework (The

Strategy), Eritrea has developed its **National Action Program** (NAP, 2002) to Combat Desertification and Mitigate the Effects of Drought. The NAP identifies factors contributing to desertification and practical measures necessary to combat desertification and mitigate the effect of drought. The actions under NAP have entailed both policy and institutional measures to facilitate the establishment of an enabling environment at the national level for sustainable resource use, as well as local level development activities to preserve and/or restore the resource base and improve livelihood security of the affected populations. Furthermore, in relation to biodiversity conservation and sustainable use, NAP has identified key concerns and threats to flora and fauna; emphasized the need for creation of protected area system (in situ conservation) and identified four priority areas for conservation of biodiversity (The Semenawi Bahri, North of the river Setit, riverine habitat along the Gash and Barka Rivers and the Buri Peninsula); proposed actions that make effective enough the traditional practices and customary laws in conserving and sustainable use of the natural flora and fauna of Eritrea; and identified actions required to improve, conserve and use sustainably the agricultural, livestock, rangeland and forest resources of the country.

Eritrea's **National Biodiversity Strategic Action Plan (NBSAP) 2010-2020** provides a strategy for maintaining the global biodiversity conservation significance of Eritrea, including both its terrestrial and marine biodiversity, and as a primary and secondary center of diversity for a number of cultivated crops and their wild relatives. Protecting and ensuring the genetic diversity of these crops is directly linked to the landscape restoration objectives while also providing a key livelihood strategy for farmers, especially in the context of climate change adaptation.

In its' **Nationally Determined Contribution (NDC) 2018,** Eritrea outlines its priorities for climate action, including conditional and unconditional mitigation objectives for 2030 which are expected to be achieved through targeted measures for scaling up renewable energy and in the forestry sector. The NDC also covers goals for adapting to climate change, which focuses adaptation in the natural resources sectors along with strengthening the resilience of communities and their adaptive capacities. The NDC presents tangible actions and procedures that are required to realize the country's objectives for climate action. These comprise capacity building, technology transfer, financial support and building partnerships with relevant regional and international organization/institutions.

Eritrea's **National Adaptation Program of Action (NAPA)** identifies the highest priority actions/ projects (102 adaptation projects) that are urgently needed to adapt to climate change. Actions for strengthening adaptation in the crop and livestock sector ranks in the top and second, respectively but also covers priorities for water management as well as marine and coastal areas. Furthermore, Eritrea has taken initial steps in the process of formulating a **National Adaptation Plan (NAP)**.

The strategic **Action Plan for Integrated Water Resource Management (IWRM, 2009)** is aimed at enabling Eritrea to systematically address water management issues and contribute to the implementation of integrated water resources management in a sustainable manner. The Action Plan is aligned with government policies, laws and strategies and strives to enable the equitable, efficient and environmentally sustainable management of water resources.

Eritrean Water Proclamation No. 162/2010: The main objective is to ensure that the water resources of the country are utilized in a sustainable manner and for the best social and economic advantage of the Eritrean people through; promotion of integrated water resources management and development as well as judicious prioritization of allocation and use of the same and ensuring equity in the use, management and development of the resources.

Land Proclamation No.58/1994: The government of the state of Eritrea has proclaimed a comprehensive land reform proclamation, which bestows the government the right of ownership to all land of the state and eliminating the old village or family ownership systems. Under this proclamation the government being the ultimate owner of the land, retains the right, to distribute land to the villagers who by right are entitled to a piece of land with a usufruct right for lifetime. The land cannot be sold or transferred and cannot be mortgaged. Article 50 of the proclamation gives the Government the right to expropriate land from usufruct Aries, with appropriate compensation for a wide range of national reconstruction projects, amongst them, agricultural development, including all land, forestry and rangeland conservation projects.

The Proclamation for the Establishment of Local Governments No. 86/1996: This Proclamation is an important part of the Government's legislation with regard to regional decentralization of administration in the control and implementation of developmental policy and planning that imparts major implications in biodiversity conservation and sustainable use. This Proclamation contains responsibilities of environmental protection at the regional level and highlights the need to ensure any policy of biodiversity conservation and sustainable use.

The Renewable Energy Sub-Sector Policy (1997): The objective of national energy programs in the rural sector is to help increase the standard of living for the rural communities in Eritrea through the delivery of modern energy services while protecting the environment. Of the various intervention options being initiated by the Government for realizing this objective include: rural electrification through grid extension; improvement of biomass energy resources through various afforestation and reforestation programs; dissemination of improved stoves which is the aim of this project; and assessment of the potentials of renewable energy resources for eventual development. The objectives of the Renewable Energy Sub-Sector Policy (1997, MoME) include the promotion of sustainable biomass fuels and appropriate alternatives, and to exploit renewable energy potential. The household stove efficiency research has been performed as one part of an integrated national program of sustainable energy development.

The Fisheries Proclamation No. 104/1998 and the Fishery Product Proclamation No. 105/1998: The marine and coastal sector is covered by two proclamations and thirteen Legal Notices (Regulations), all promulgated in 1998 and 2003, and these are: The Foreign Fishing Vessel Regulation: Legal Notice No. 38/1998: (a) The National Fishing Vessel Regulation: Legal Notice No. 39/1998; (b) The Fishery Product Regulation: Legal Notice No. 40/1998; (c) The Fishery Product Hazard Analysis Critical Control Points Regulation: Legal Notice No. 41/1998; (d) The Potable Water Regulation: Legal Notice No. 42/1998; (e) The Aquaculture Products Regulation: Legal Notice No. 64/2003; (f) The Additives Regulations: Legal Notice No. 65/2003; (g) The Heavy Metals Regulations: Legal Notice No. 66/2003; (h) The Factory Vessel Regulations: Legal Notice No. 67/2003: (i) Potable Water Regulations in Fishery Product Activities: Legal Notice No.68/2003; (j) The Fishery Product Importation and Exportation Regulations: Legal Notice No 69/2003: (k) Regulations issued to amend the Foreign Fishing Vessels Regulations (Legal Notice No.38/1998): Legal Notice No. 70/2003; (l) Regulations issued to amend the Fishery Product Regulations (Legal Notice No.40/1998): Legal Notice No. 71/2003.

The National Coastal Policy (Draft 2006): The National Coastal Policy is formulated as a framework designed to direct the elaboration of: the preparation of a Proclamation detailing the National Coastal Area Management and Development Directives including the Institutional Structure necessary for its implementation; Eritrea's National Integrated Coastal Area Management Plan; and the requisite Regulatory framework necessary for the implementation of the Plan: the Coastal Management Proclamation. The objective is to provide for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities in appropriate designated areas.

The Forestry and Wildlife Conservation and Development Proclamation No 155/2006: seeks to limit the further degradation of forests and wildlife resources, and generate sustainable conservation and development. This proclamation – in association with the regulations for the issuance of forestry permits and wildlife permits – provides the framework for the conservation and development of forests and wildlife resources in Eritrea.

The Land Use Policy, (2007): Objective of the draft Land Use Policy, (2007) is to promote improved land stewardship by rural and urban land users by better defining and strengthening land and resource tenure rights. It also aims to provide a coordinated, national approach to sustainable land use and planning and to prepare national and local land-use plans to help guide land-use decisions in an environmentally sound, economically sustainable and socially acceptable way.

Zonal/Sub zonal strategies, planning and local legal situation Zonal MoA five years agricultural strategic plan (2013-2017): The Ministry of Agriculture has been exerting all possible efforts to restore the environment by developing the capacity of farmers and extension agents. In order to tackle this crucial problem the MoA has conducted a Rapid Agricultural Production Situation Assessment (RAPSA) which focuses on collecting basic data at Sub-Zoba levels and developed a 5 years sectoral strategic plan particularly useful at local levels.

Relevant baseline projects

It is foreseen that the project will receive co-financing from the Government of Eritrea in the form of an in-kind contribution totaling to approximately US$ 17 million. This information will be updated during the project preparation phase.

Other key baseline initiatives related to building sustainable and climate-resilient livelihoods and landscapes/seascapes are ongoing, and will be built upon and collaborated with to ensure complementary between the GEF-LDCF project and those initiatives. During the PPG phase, in-depth consultations will be undertaken to establish collaborations and practical modalities for capturing synergies and coordinating with the ongoing activities so that duplication is avoided and GEF-LDCF resources will build on the progress and achievements made to date through such programmes and initiatives. The most relevant initiatives are described in detail below.

The **Drought Resilience and Sustainable Livelihoods Program in the Horn of Africa Project II (DRSLP II)** (AfDB – Budget: U.A 12,475,000). This project is envisaged to improve the drought resilience of the pastoral and agro-pastoral communities of all six Zobas of the country. The project will support activities to rebuild existing livelihoods through investment in integrated management and also investment in agricultural and water infrastructure. The GEF-LDCF project will build on this initiative's effort to reduce vulnerability to drought and strengthen the resilience of agro-pastoralist communities in the regions targeted by both projects.

The **Drought Resilience and Sustainable Livelihoods Programme V (DRSLP-V)** (2019-2025: AfDB – Budget: U.A 17,488,000) aims to support the State of Eritrea in the implementation of its National Indicative Development Plan (NIDP) whose objectives are to: (i) accelerate economic growth, (ii) reduce rural poverty, (iii) improve food and nutrition security, and (iv) increase exports and decrease imports. The Project is therefore a direct response to GoSE's desire to enhance agricultural productivity and reduce climate vulnerability by promoting rainwater harvesting through construction of masonry dams and make the sector more dynamic through active participation in agribusiness for job creation. DRSLP V is designed in the form to be part and continuation of multinational Investment Projects, including DRSLP II and DRSLP IV with the main aim of supporting Agricultural infrastructure development (civil works) as an enabler of scaling up of high value crop production, provision of household portable water facilities, value chain development, skill development in Agribusiness, and capacity building activities. The programme is as an enabler and facilitator to address the problems of food and nutrition insecurity, post-harvest losses, high rate of unemployment and inadequate Micro, Small and Medium Enterprises (MSMEs) in the agricultural sector. Its implementation is structured around four components namely (i) Infrastructure Development & Integrated Natural Resources Management, (ii) Livelihood Diversification, Market Linkages, Agro Processing, and Value Additions (iii) Livestock & Plant Production and Health, and, (iv) Project Management and Institution Strengthening. The proposed GEF-LDCF project will coordinate and complement with DRSLP programme to strengthen synergies and project outcomes for more resilient and sustainable livelihoods.

The **National Agricultural Program (NAP)** (IFAD – Budget: US$ 29,600,000). The Programme goal is to contribute to rural household and national food security and poverty alleviation. The development objective is to raise agricultural production and productivity through Agricultural Water Resources and Infrastructure Development; Integrated Agricultural Production; and Programme Support Services. The GEF-LDCF project will build upon outcomes and lessons learnt from the NAP and integrate those into project activities.

The **Integrated Agriculture Development Project (IADP)** (2020-2026: IFAD – Budget: US$ 46,650,000) aims to enhance smallholder agricultural production and productivity in a sustainable and climate-resilient manner and to improve rural livelihoods. IADP will directly benefit some 60,000 rural households, i.e. more than 300,000 people, of which 40 percent will be women and 40 percent youth. Priority beneficiaries will include: rural small-scale farmers involved in subsistence agriculture; farmers and young people interested in establishing farmers' associations or cooperatives, or available to pilot micro enterprises; women; and youth (18–35 years), including demobilized soldiers. Consultations with the IADP have been initiated to ensure coordination between the two projects and to maximize synergies and complementarities, particularly on with activities under both Component 2 and 3.

The **Fisheries Resources Management Programme (FReMP)** (2017-2023: IFAD – Budget: US$ 37,710,000) aims to ensure that fisheries resources in Eritrea are utilized in a sustainable manner to improve the livelihoods of coastal communities. FReMP will support the establishment of infrastructure and technologies for production, post-harvest operations and marketing of both marine and inland fisheries. It will also promote the development and capacity building of cooperatives and other enterprises and ensure that they have access to the requisite tools to undertake economically viable and sustainable fish-related businesses. In addition, the programme is expected to transform Eritrea's small-scale fisheries sector from subsistence to a sustainable commercial fish industry.

Sustainable Job Creation and Growth for Increased Food Security and Resilience in Eritrea (2020-2024: EU/EDF (UNDP) – Budget: EUR 30,000,000). The project aims to support sustainable jobs and promote inclusive green growth in agriculture and agri-business in Eritrea. In doing so, it seeks to enhance food security and resilience of rural communities, with a special focus on youth and women. The project will contribute to the extension of irrigation infrastructure and facilities to the end users, development of the land for irrigation as well as soil and water conservation upstream. Inputs and services, including seeds and fertilizers, agricultural machinery and farm tools, are expected to contribute to increasing crop and livestock production. This will contribute to increase agricultural intensification and diversification for the targeted small and medium farmers. Moreover, access to credit is envisaged to support young and women entrepreneurs to start up and/or expand small and medium agri-businesses, thus generating employment opportunities, increasing value addition and purchasing products from the farmers in turn, thus strengthening linkages to markets.

Africa's Great Green Wall is a flagship initiative - **Great Green Wall Initiative (GGWI) –** that aims to build rural communities' prosperity and resilience in arid and semi-arid areas in over 20 countries around the Sahara. It is a creation of the African Union (AU) in 2007, to respond to the simultaneous challenges of deforestation, desertification, biodiversity loss, climate change, food insecurity, and poverty in Africa's drylands. The initiative aims to transform the lives of millions of people by creating a great mosaic of green and productive landscapes across North Africa, the Sahel and the Horn of Africa. In Eritrea, the entire country is within the GGW intervention area and the GGW Program seeks to promote soil and water conservation in catchment areas, farmland and along the rivers and streams. Community mobilization practices are key in the implementation of the GGW. To date, 128.8 million tree seedlings have been planted, 52,930 ha of degraded area have been terraced and afforested, 394,380 ha have been enclosed/assisted natural regeneration while 65,231 degraded farmlands have terraced across Eritrea through the GGW program. The GEF-LDCF project will complement the efforts of the GGWI and the delivery of mutual objectives and synergies.

Inclusive Green Financing for Climate Resilient and Low Emission Smallholder Agriculture (IGREENFIN) and GCF Umbrella Program for the Great Green Wall Initiative. Managed by IFAD, the objective of this regional initiative is to support the building and scaling up of the resilience and adaptive capacity of rural communities and farmers' organizations by allowing beneficiaries to access credit lines for green agricultural investments. The project preparation facility (PPF) for the IGREENFIN project has been approved by the GCF and the child projects, including Eritrea, are expected to be finalized the by end of 2021. The LDCF-GEF project will ensure close coordination with IFAD on related project activities to enhance synergies and complementarity, and avoid duplication of efforts.

Climate Change Adaptation Programme In Water and Agriculture In Anseba Region, Eritrea. Funded by the Adaptation Fund (US$ 6 million) and under implementation by UNDP, this 5 year project aims to promote increased food security in Eritrea through ecologically sustainable and climate-resilient improvements in agricultural production. The objective of the programme is to increase community resilience and adaptive capacity to climate change through an integrated water management and agricultural development approach in the sub-zobas of Hamelmalo and Habero in the Anseba Region. Specifically, the project aims to increase the availability of water through floodwater harvesting and groundwater recharge; promote a range of climate-resilient technologies for enhanced agricultural and livestock production; improve the dissemination of climate risk information among community, civil society and government stakeholders through a community-based early warning system; and capture and disseminate lessons learned through programme activities, and to influence policy through advocacy activities. The GEF-LDCF project will coordinate with this AF project to integrate lessons learnt and successful practices into the project design and implementation.

Strengthening Climate Information Systems for Climate Change Adaptation in the Greater Horn of Africa through regional cooperation. This GCF regional programme, currently at concept note stage, will be executed by the Intergovernmental Authority on Development (IGAD). The programme aims to strengthen the climate resilience of Eritrea and 7 other targeted countries (all members of IGAD) to the climate change impacts of extreme rainfall events, extreme droughts and floods that can be of transboundary nature and impact several countries at the same time. Through the establishment of improved early warning and climate information dissemination systems at the regional level and its integration with the already existing national climate information systems, the proposed programme will build climate resilience of the vulnerable communities in the Greater Horn of Africa region. The GEF-LDCF project will coordinate with UNDP to ensure GEF-GCF complementarity in Eritrea and identify priority areas for climate information services that can be further integrated into the project design of the proposed project.

Value chain development of Banana and Citrus in Eritrea (2019-2022 – FAO, budget: US$ 350,000). This project aims to address systemic constraints that hinder the increase in production and productivity and the marketing of selected products by strengthening the linkages between value chain actors and promoting value addition for food loss reduction and diversification in selected regions, including those targeted by the GEF-LDCF project. The project will test and evaluate different value adding technologies, equipment and practices for banana and citrus processing and develop a strategy for the fruit sector value chain and markets. The proposed project will build upon lessons learnt and integrate those under Component 3.

Similarly, the **Improving Grain Post-Harvest Handling and Storage for Smallholder Farmers in Eritrea** (2019-2021 – FAO, budget: US$ 200,000) is providing technical assistance to the Ministry of Agriculture with regard to grain post-harvest loss reduction initiative. The project aims to address challenges related to significant post-harvest losses (an estimated 30-40% of harvest) due to poor handling, drying and storage and the GEF-LDCF will use those lessons for the targeted technology interventions to be prioritized under Component 3.

A number of initiatives are currently ongoing with regards to the desert locust outbreak including the **Emergency Assistance for capacity Development in the Current Desert Locust Outbreak Control in Eritrea** (2020-2021 – FAO, budget: US$ 500,000), which aims to enhance the resilience of crop production system and support to the national effort, increase food security and poverty alleviation through the control of the desert locust. Furthermore, the **Desert locust response in Eritrea to mitigate impacts on food security and livelihoods** (2020-2021 – FAO, budget: US$ 450,000), which forms part of FAO's overall desert

locust response in the Greater Horn of Africa, is responding to the Government of Eritrea's request for urgent support to desert locust response. The project is providing technical and operational support to control efforts as well as to support the livelihoods of the most vulnerable. The GEF-LDCF project will coordinate with the Desert Locust response initiatives, considering that half of Eritrea's surface area is suitable for locust breeding, particularly the Red Sea coast and western lowlands, including sites under the proposed project.

The **Livelihood support to smallholder farmers of Northern Red Sea Region in boosting their productivity project** (2018-2021 – FAO, budget: US$ 600,000) aims to contribute to improved food security and livelihood of vulnerable populations affected by successive drought. The project will provide inputs and strengthen extension services to reduce the vulnerability of agro-pastoralist communities affected by below-average rains, which have negatively affected crop production in marginal agricultural areas on the highlands of the coastal Northern Red Sea Region and where drought conditions have resulted in widespread failure of staple crops and critical feed shortages. The GEF-LDCF project will built upon lessons learnt and success stories, particularly for strengthening resilience of female-headed households, and integrate those under Component 2.

The **Early Warning Tools for Increased Resilience of Livelihoods in IGAD Region** (2020-2021 – FAO, budget: US$ 3,649,000) aims to contribute to saving lives through saving livelihoods, alleviating human suffering (without adding burden to either men or women) and paving the way for evidence-based humanitarian early and long term development actions in the East Africa region. Recently, the FAO and IGAD developed an Animal Feeding Action Plan for East Africa, which addresses the livestock assessment challenges in its Priority Area 1: Establishing/ strengthening animal feeds data and information, reporting and communication systems. This project seeks to implement this Priority Area and improve the availability of animal feed-related data through the development, implementation, and institutionalization of three feed security assessment tools/methodologies. The GEF-LDCF project will integrate and build upon emerging lessons for strengthening resilience to droughts.

Improving food and nutrition security of vulnerable women through net making and traditional small fishing activities in Eritrea (2019-2021 – FAO, budget: US$ 500,000). This project targets women and women headed households (WHHs) of rural poor communities around the Red Sea, facing vulnerabilities related to frequent droughts and environmental degradation. The project is assisting these vulnerable WHHS to catalyse that gender issues are considered in any intervention, introduce production assets and scaling up of knowledge to empower the job creation and income generating activities and possibly linking women participation in programme activities and market. The GEF-LDCF project will build on emerging lessons and integrate them into activities under Component 2 and 3.

The **Boosting Restoration, Income, Development, Generating Ecosystem Services (BRIDGES)** project (2018-2022 – FAO, budget: US$ 3,000,000) will implement restoration activities to enhance resilience of livelihoods and combat desertification in Eritrea, Mauritania and Sudan. The aim of this restoration work is to provide village communities within the Great Green Wall core areas with restored productive lands for resilient small scale farming, generating income and ecosystem services for their sustainable livelihoods. The GEF-LDCF project will coordinate with BRIDGES and transfer lessons learnt from the Gash Barka region to the targeted areas.

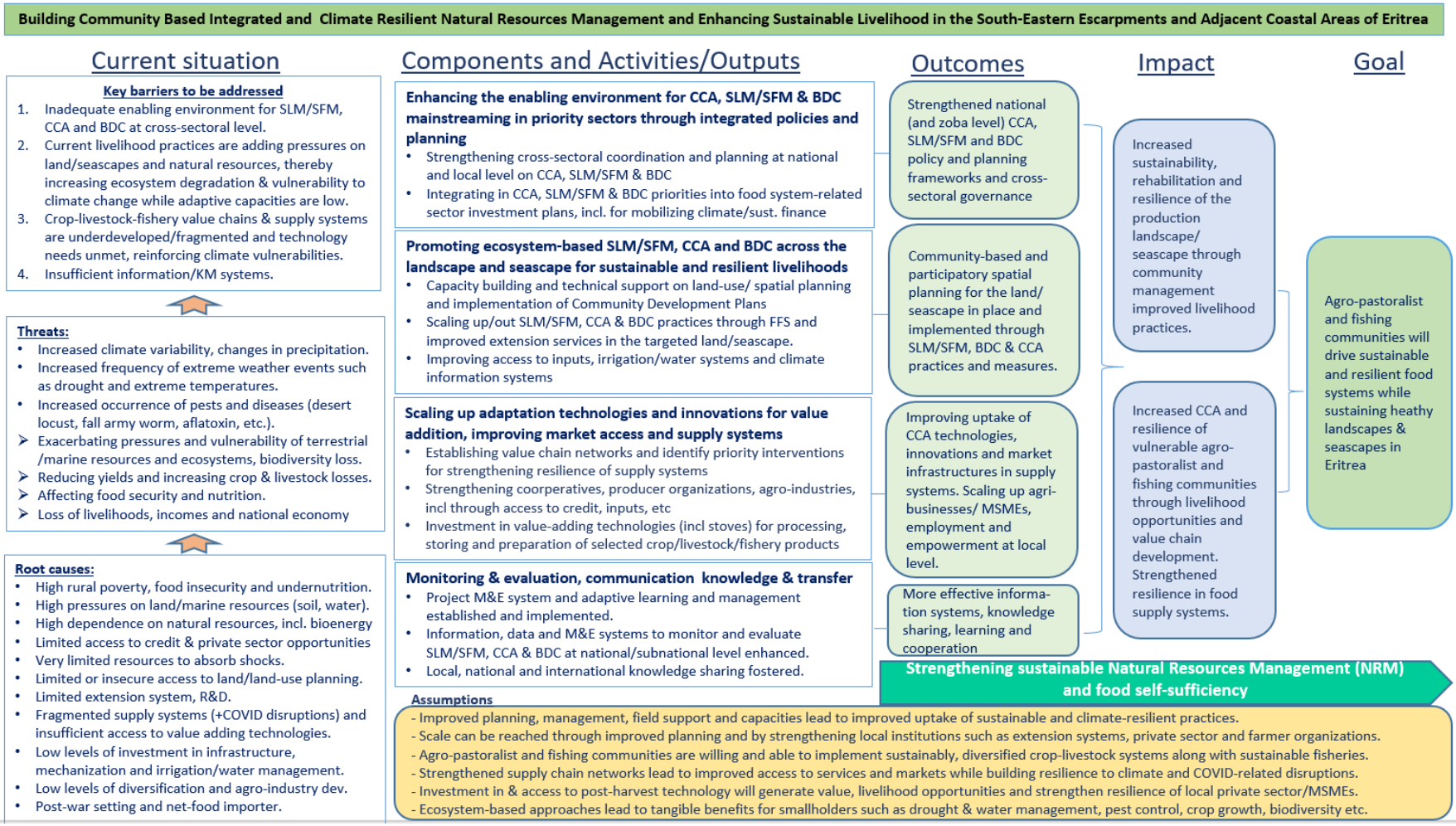
The **Minimum Integrated Household Agricultural Package (MIHAP)** is a national flagship programme, introduced in 2013, and includes the distribution of an integrated production starter packs (dairy cow/shoats, chicken, beekeeping, wood and fruit trees, improved stove, etc.) to communities with technical support and capacity building on good agriculture practices. This package has the potential to improve the living conditions of the family and satisfy their food and nutrition requirements for the respective family and four others; as well as providing extra money by selling surplus products.

The **Savings and Micro Credit Programme (SMCP)** under Ministry of National Development has been operating in all six regions since 1996 aiming at promoting micro-scale activities to create employment opportunities in poor communities. SMCP is a well-established public institution with rich experience and reputation, managing a revolving fund to support clients who have no access to formal financial services. It provides three loan categories: individual, group and unrestricted employees' loans. It also offers a particular product to farmers to purchase inputs ahead of the agricultural season.

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

The project's alternative scenario is to reduce landscape/seascape degradation and loss of biodiversity and increase resilience and adaptive capacities of vulnerable agro-pastoralist and fishing communities across three ecoregions in the Zoba Debub and Zoba Semienawi keih Bahri, by applying an ecosystem-based and market-driven approach. The project aims to reduce livelihood and land/seascape vulnerability through diversification, income-generating and value-adding activities by improving the enabling policy and institutional environment, mainstreaming CCA, BDC and SLM/SFM consideration practices, and improving the resilience, efficiency and profitability of small scale (crop-livestock-fisheries) value chains and their supply systems. The project will promote adaptation technologies and ecosystem-based solutions to strengthen rehabilitation, restoration and resilience in ecosystems and reduce environmental degradation and vulnerability to climate risks and hazards. Further, the project will promote a market-based approach to improve climate resilience through the engagement of local private sector and will enhance resilient livelihoods of the targeted agro-pastoralist and fisheries communities through supply system and small-scale enterprise development.

The project's Theory of Change outlines the scope of the project's intervention areas and objectives:



Project components and their related outputs are aligned to the priority interventions identified in the above-mentioned government programmes and plans, and address the outlined barriers to sustainable and climate-resilient development in the targeted ecoregions. They are described below.

Component 1: Enhancing the enabling environment for CCA, BDC & SLM/SFM mainstreaming in priority sectors through integrated policies, finance and planning

This component will seek to strengthen policy, finance and planning frameworks for CCA, SLM/SFM and BDC at national and subnational/community level (Outcome 1). The project will strengthen the capacity of national and sub-national institutions (including MoLWE, MoA and zoba administrations), to integrate CCA actions, SLM/SFM and BDC into their programming, finance and planning frameworks. Building on existing coordination platforms such as those set up as part of the LDN-TSP and NBSAP formulation, Output 1.1 will help to improve cross-ministerial and cross-sectoral coordination on cross-cutting priorities

(climate change actions, SLM/SFM, biodiversity conservation and sustainable use, and their intersection with objectives for food security, poverty alleviation, job creation, industry etc). This Output will also take stock of the National Adaptation Plan process to complement this effort for enhanced adaptation planning and mainstreaming. Capacity building programmes for national and subnational institutions will help to improve information and data systems while strengthening technical and financial capacities for informed decision-making at various levels (Output 1.2). This will also cover targeted capacity building for national and subnational governments on accessing, budgeting and managing climate finance and other forms of sustainable investments for implementing prioritized climate actions, SLM/SFM and BCD interventions. Close coordination with the IGREENFIN project will help to ensure complementarity on capacity building efforts for managing funds as well possible budgetary allocations for environmental and climate objectives.

Climate change, LD and BD vulnerability and risk assessments will be conducted to identify key issues related climate change impacts, land degradation, loss of biodiversity as well as livelihoods and natural resource use in the targeted landscape (Output 1.3). Similarly, an assessment of the value of ecosystem services in the targeted landscapes/seascapes will be undertaken (Output 1.4) to complement Output 1.3 in providing a baseline for prioritizing intervention areas The combined findings will also be integrated into the cross-sectoral coordination mechanism to support evidence-based decision making.

Component 2: Promoting ecosystem-based SLM/SFM, CCA and BDC across the landscape and seascape for sustainable and resilient livelihoods

This component will seek to increase the sustainability, rehabilitation/restoration and resilience of production systems and communities in the targeted landscape/seascape, with Outcome 2.1 being focused on integrated and participatory landscape and seascape planning. Output 2.1.1 will provide targeted capacity building at local level (zoba/subzoba, community level) in land use and spatial planning for the targeted landscape/seascape. This will include reviewing existing land-use and marine spatial plans and based on those, findings from Output 1.3 and 1.4 as well outcomes/lessons learnt from previous GEF and AF investments (see section 1.2 and 6), innovative and evidence-based SLM/SFM, BDC and CCA practices will be identified and assessed in a participatory manner (Output 2.1.2). These activities will feed into the design or updating of district/subzoba level Community Development Plans (Output 2.1.3) that fully integrate SLM/SFM (including subnational LDN targets), BDC and CCA considerations and objectives into subzoba/community development planning within the catchment area. As part of Output 2.1.3.and efforts to enhance community benefits from critical ecosystem services, Output 2.1.4 will provide support for identifying and establishing some 15,000 ha of protected area to restore degraded afro-montane forest and provide habitat corridors with the adjacent Semenawi and Debubawi Bahri Green Belts. Activities under this output are expected to include demarcation/PA zoning and assisted natural regeneration augmented by plantation/reforestation as needed.

Outcome 2.2 focuses on scaling up and out measures (as prioritized in the Community Development Plans) for improving productivity, resilience and ecosystem services in the targeted landscape/seascape. GEF and LDCF resources will be used to introduce and strengthen mechanisms for promoting innovations in ecosystem-based and adaptive approaches, including through farmer (incl. pastoralists and fisher folks) field schools (FFS) and improved extension services. In collaboration with IADP and building on the National Agriculture Programme (NAP) and Fisheries Resources Management Programme (FReMP), Output 2.2.1 will support further rollout of FFS by strengthening FFS implementation capacity through training programmes for Master Trainers and facilitators, training of extension agents, etc and with targeted inclusion of women and youth in the training. Revision and further integration of SLM/SFM, BDC and CCA considerations in training manuals and curricula of FFS and in advisory services will also be undertaken while gender equality and women's

empowerment will be fully integrated in those. Building on the findings of the climate risk and vulnerability assessment (Output 1.3) and in coordination with the GCF IGAD regional programme on climate information systems, capacities and access to agro-meteorological services and climate information systems will be explored and strengthened (Output 2.2.2), allowing for better-informed extension services as well as decision-making at various levels. Output 2.2.2 will also include the establishment of class one meteorological stations along with accompanying infrastructure and capacity. Through FFS and field-level advisory services, a capacity-building programme for communities on soil and water conservation practices will be rolled out (Output 2.2.3) which will be covering a range of approaches for landscape rehabilitation and restoration (e.g. crop rotation, agroforestry, fodder banks, community catchment treatment, terracing, vermi-composting, land levelling, etc). Output 2.2.3 will also incorporate on-farm diversification (particularly with the engagement of women and women-led households), which will be demonstrated and scaled up to improve landscape productivity, increase income and improve food security and nutrition. This may also include bee keeping activities in the buffer zones (related to Output 2.14) to enhance community benefits from improved ecosystems services arising from restoration. In the coastal areas, activities under this output will focus on sustainable fisheries/marine resources management. When selecting approaches to promote diversification, attention will be paid to synergies with production systems and the presence of market for relevant commodities as well as labour availability at farm level. In line with this and in close collaboration with the IADP, Output 2.2.4 will introduce (or improve) innovative water harvesting and irrigation systems (while also facilitating integrated water supply systems for livestock) such as check dams, rainwater harvesting techniques, etc. The identification and implementation of specific water/irrigation interventions in Output 2.2.4 will be guided by the participatory planning and prioritization process under Outcome 2.1.

The supply of improved seeds (stress-tolerant as well as neglected and under-used species (NUS) varieties) and adapted crop calendars will be facilitated by FFS and extension services (in collaboration with the National Agriculture Research Institute – NARI) through the establishment/strengthening of community seed banks and nurseries (Output 2.2.4). In this regard, the Output 2.2.4 will also pay close attention to gender equality by ensuring that women are participating equally or taking leading roles in community seed systems and small seed enterprises. This output will be closely linked to Output 2.2.3 and may also cover fodder banks, establishment of enclosures and wood lots, tree planting, etc.

Component 3: Scaling up adaptation technologies and innovations in selected value chains, improving market access and resilience of supply systems

This component will seek to enhance the adaptive capacity of local private sector through the transfer and deployment of adaptation technologies to improve value addition and supply chain infrastructure for agriculture, livestock and fishery commodities while also improving renewable energy/energy efficiency (RE/EE) measures for energy security. Outcome 3.1 focuses on introducing and upscaling post-harvest technologies to enhance the climate resilience of local supply chain infrastructure and promote innovations through value addition. LDCF resources will be used to climate proof the supply chain through technology interventions along key stages of the chain, including for food preparation (stoves). Efforts will be targeted at improving market access and developing marketing systems for diversification of activities to enhance the climate resilience of local MSMEs, agro-industries and agribusinesses involved in the processing and marketing of crops, livestock and fisheries products.

LDCF resources will be used to undertake a participatory supply and value chain network mapping, intervention planning and prioritization of adaptation technology (Output 3.1) using similar approaches as a number of FAO and IFAD led baseline projects outlined in section 1.2, which will guide activities in the following outputs. Output 3.2 will provide technical support and capacity building to strengthen producer organizations and cooperatives (including targeted efforts for engaging youth and women) for prioritized crop, livestock, fishery and NTFP products, including through training on post-harvest handling. Technical support and capacity building will also be provided to MSMEs, women and youth entrepreneurs and producer organization groups in the development of business plans and marketing strategies for selected products and commodities (Output 3.3). Specifically, these efforts will be targeted toward strengthening capacities of the Eritrean Women in Agribusiness Association (EWAA) as a means to enhance gender equality and women's empowerment through climate resilient enterprises. Furthermore, where possible these actors will be linked with micro-credit institutions and supported in increasing their access to domestic (and possibly export) markets and credit, through the project's engagement with relevant baseline initiatives such as IGREENFIN and the EU/EDF project. Attention will be paid to ensure stronger participation of female project beneficiaries in micro-credit schemes.

Climate-resilient storage facilities (including cooling) will be introduced to improve preservation and quality and reduce post-harvest losses (Output 3.4). For instance, solar-powered cold storage and solar drying systems could be established to preserve and ensure quality of highly perishable livestock, fisheries and horticulture products (taking into account the projected increase in ambient temperatures) or certain NTFPs while energy saving (biomass based) technologies for fish smoking or teff processing can deliver multiple benefits at landscape level. Processing technologies for selected commodities will be introduced and technology innovations for applications that integrate renewable energy/energy efficient measures, including off-grid solutions, will be sought where possible. As part of the efforts to improve energy security in rural areas, Output 3.4 will also support the production and dissemination of energy-saving technologies in the targeted landscape.

Component 4: Monitoring & Evaluation, communication and knowledge transfer

This component covers the project's Monitoring and Evaluation (M&E) activities, including reporting and the organization of the mid-term and end-of-project evaluations, and a project-specific communication strategy and plan developed to ensure common understanding of key project messages and activities, with project results and lessons captured and distilled and made available periodically (Output 4.1). This component also includes the promotion of the key project aims and messages to ensure all the stakeholders and partners have a common understanding of the project's aims and activities, set out in a project-specific communication plan (Output 4.2). Best practices and lessons learnt will be recorded for training and knowledge materials as well as guiding documents, and disseminated through workshops, seminars, and electronic and print media for the wider impact. Furthermore, information systems including the collection of information and data for monitoring purposes will be strengthened, particularly at national level (Output 4.3), and ministry-level capacities for analyzing and managing information will be enhanced. This will also include a monitoring programme to track progress towards achievement of LDN targets. Finally project resources will be strategically used for incubation and accelerator at national as well as regional level (e.g. within the Great Green Wall) through other GEF/LDCF projects, and particularly with regard to near-future GCF investments planned in the country (Output 4.4). This may also include the establishment of learning platform/forums, and development of mechanisms for inter-regional knowledge sharing (including in terms of best practices for catalyzing private sector investments), peer-to-peer learning, systematic long-term approaches to capacity building, and dissemination of useful information.

4) Alignment with the GEF focal areas and LDCF adaptation objectives

The proposed project is aligned with the **Biodiversity** Focal Area under the GEF-7 Programming Directions, and specifically with focal area Objective 1-1 on biodiversity mainstreaming in priority sectors. Under this objective, the project will mainstream biodiversity considerations within Eritrea's policies, strategies and practices. The project will assist both public and private actors – namely the targeted communities, to better conserve and benefit from terrestrial and marine biodiversity and associated ecosystem services, including through the sustainable use of agro-biodiversity. The project focuses upon terrestrial, agricultural and to some extent coastal ecosystems supporting ago-pastoralist and fishing systems in the south-eastern escarpments that extend to the coastal areas. The project has spatial and land-use planning in the forefront to ensure the optimization and sustainable use of terrestrial and marine resources without compromising biodiversity conservation efforts. The planning process will help to define all project activities and assist to generate parameters for terrestrial, agricultural and coastal ecosystem action to ensure support for biodiversity conservation values. Planning will also include efforts to better align agro-pastoralist and fishing practices to support adjacent protected area and habitat connectivity objectives. Technical capacity building and associated financial mechanisms will be structured to incentivize a shift towards more conservation, restoration and resilience-oriented agro-pastoralism and fisheries. Policy and regulatory frameworks will be improved to ensure that positive change is enduring beyond the project.

Specifically, the project will generate benefits for globally important biodiversity through activities within the targeted project areas while also supporting biodiversity corridors. The central part of the eastern escarpment contains about 106,000 ha of protected area (Semienawi and Debubawi Bahri) and have fauna species such as greater kudu, waterbuck, leopard and numerous avi-fauna. This area includes the last remaining but degraded afro-montane (*Juniperus procera* and *Olea africana*) forest, which is home for varieties of flora and fauna. Part of the proposed project area is covered by degraded afro-montane forest that contains critically endangered endemic plant species such as the *Aloe schoeleri* and threatened endemic species *Aloe neosteudneri* which deserve conservation attention. The project aims to create 15,000 ha of protected/conserved area to promote assisted natural regeneration of afro-montane forest and develop habitat connectivity between these biodiversity hot spot areas along the eastern escarpment, including as a means to enhance ecosystem services within the targeted area.

The proposed project area is also expected to serve as a buffer zone for the African Wild Ass (Equus africanus) range given the proximity to the Bure Irrori (adjacent to the Gulf of Zula), which is home to this critically endangered species. The African Wild Ass play a vital role in the health of the arid ecosystems, characterizing the eastern parts of the project area, and can serve as flagship species for the conservation and maintenance of these important landscapes. In addition, project activities in the coastal areas of the Gulf of Zula aims to benefit biodiversity and restoration of habitats currently under threat such as mangrove forests (mainly *Avicennia marina*), which provide important nursery grounds for a number of fish stocks. Project activities, particularly those pertaining to fisheries, will be designed to ensure that they contribute to the conservation and restoration of key marine habitats for a number of IUCN Red List of Endangered Species. These species include Dugong (*Dugon dugong*), 15 species of cetaceans (7 whales and 8 dolphins) as well as five of the world's seven turtle species, all which are threatened by global extinction. These are the Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Olive ridley (*Lepidochelys olivacea*), Loggerhead (*Caretta caretta*) and Leatherback (*Dermochelys coriacea*) turtles.

The project is also fully aligned with the Land Degradation Focal Area and its Objective 2 on creating an enabling environment to support voluntary LDN target implementation. The project focuses upon systems across three ecoregions where crop and livestock management practices define the livelihoods of poor rural Eritrean farmers and pastoralists. These landscapes are highly vulnerable to land degradation, climate change, and water stress along with increasing population pressure and persistent food insecurity. In the Eritrea context, this includes highlands that are highly degraded and areas that are extremely drought prone. Each of these are highlighted concerns for LD investment under GEF-7. The project takes a comprehensive land-use approach, supported by spatial planning covering agro-pastoralist landscapes. The project comprehensively addresses the cumulative impacts of land degradation, climate change, and biodiversity loss upon livelihoods (including in terms of food security) as well as the recent implications of the COVID pandemic. The project seeks to address agriculture and livestock practices that are currently driving land degradation. Through interventions such as improved policy frameworks and cross-sectoral coordination, technical capacity building and financial mechanisms, the project also targets local private sector including MSMEs to stimulate innovations within agriculture and livestock production systems.

The project fully integrates the concept of Land Degradation Neutrality (LDN) and will enhance food security and nutrition while promoting durable livelihood opportunities. The project aligns with each of the stated LDN objectives related to improve the sustainable delivery of ecosystems services, enhance food security, increase resilience of land and land dependent populations, reinforce responsible/inclusive governance, and synergize social, economic and environmental objectives.

The planning process, technical improvements, and policy advances will further integrate LDN and provide for effective monitoring of LDN achievement. LDN will be integrated within participatory land-use planning and promote good governance designed to improve the livelihoods of smallholders. These private sector actors will receive extension services specifically designed to enhance realization of LDN. The project will implement a monitoring programme to track progress towards achievement of LDN linked to spatial planning, technical capacities, and policy improvements. As noted, the project will promote practices designed to achieve measurable contributions to LDN including UNCCD identified LDN categories such as controlling soil erosion, grazing pressure management, and improved water management, and integrated soil fertility management. Because of the project's innovative approach to multiple and mixed land uses, the project will contribute to LDN and increased productivity for croplands, grazing lands, forests and mixed land uses and for targets set at national and subnational (Debub and Northern Red Sea Region) level. This includes the project's contribution (as a co-benefit) toward the achievement of the national-level LDN target for improved Adhanet stoves dissemination, through activities aimed to increase the dissemination and uptake of efficient stoves in the project area. Furthermore, project interventions in the targeted landscape have been designed to help delivering on several of the specific targets to avoid, minimize and reverse land degradation through its focus on SLM/SFM. For further details, please refer Annex D for the LDN checklist for the project, uploaded in the Roadmap section.

The proposed project is fully aligned with the goal of the LDCF/SCCF Programming Strategy 2018-2022, through its efforts to strengthen resilience and reduce vulnerability of Eritrea's agro-pastoralist and fisheries communities and ecosystems to adverse impacts of climate change. In response to the enhanced emphasis on private sector engagement in the LDCF strategy, the project is promoting an ecosystem-based and market-driven approach to build resilience in key ecosystems across three ecoregions and to strengthen the adaptive capacities of local private actors and MSMEs. The project's alignment with the first two objectives of the LDCF strategy and consequent adaptation benefits are outlined below.

LDCF Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation. LDCF resources will be used in a catalytic and complementary manner to enhance the resilience of the agriculture, forestry and fisheries sectors that contribute to the livelihoods of the targeted communities, women in particular, in a holistic manner. This will be achieved by introducing, testing and adapting selected appropriate technologies and innovative practices as well as associated knowledge, climate information systems and skills to increase the efficiency and profitability of relevant sectors while decreasing pressure and degradation of the landscape/ seascape and vital ecosystem services that communities depend upon. These innovative approaches will create incentives for agro-pastoralists/fishers and MSMEs to engage in climate-resilient practices and in terms of technology transfer, the project will promote a greater uptake of climate technologies which will improve climate resilience, including through energy security across food supply systems. More specifically, the project will reduce vulnerability and increase resilience of 119,000 people and 225,000 ha across the targeted ecoregions.

LDCF Objective 2: Mainstream climate change adaptation and resilience for systemic impact. The project will lead to the mainstreaming of climate resilience and adaptation into sectoral planning and programming in the targeted regions. At national level, the project will strengthen the capacity of national institutions to integrate climate change adaptation into their programming. At the regional and sub-zoba level, lessons learned from the project will be disseminated via communications material, encouraging uptake of successful practices in other projects. Furthermore, the project will seek to improve a number of enabling conditions for climate change adaptation in the agriculture, forestry and fisheries sectors, including nature/ecosystem-based solutions, and national and sub-national capacities in climate information systems, as well as through diversification strategies. Additionally, the LDCF project will coordinate closely with the planned IGREENFIN child project, which is part of regional GCF-GGW programme, to enhance LDCF-GCF complementarity and efforts on mainstreaming climate resilience for systemic impact.

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

Eritrea is among the least developed countries in the world. Subsistence agriculture and pastoralism together fisheries in coastal areas remain the backbone of the Eritrean economy and the main source of livelihood for the majority of the population living in rural areas. However, traditional subsistence practices along with wood fuel extraction are the main drivers of ecosystem degradation, including deforestation, soil erosion, resource overexploitation and loss of biodiversity, which have resulted in land and seascape degradation and ecological imbalance. The impacts of climate change is compounding this, which all together have severely impacted Eritrea's landscapes/seascapes, and the agro-pastoralist and fishing communities whose livelihoods depend on the natural resource base and supporting ecosystem services. Furthermore, food supply disruptions due the COVID-pandemic have exposed additional vulnerabilities of the Eritrean population who relies on food imports to meet about half of its food requirements. Necessary enforcement of lockdowns have resulted in disruptions of food supply networks, both to and from the targeted areas of the project. Given that food supply infrastructures, both physical as well as technologies/facilities, were already rudimentary and fragmented, the impacts of the pandemic are likely to further erode the country's sustainable development aspirations and exacerbate food insecurity, particularly in rural areas.

The risk of climate hazards, environmental degradation and loss of biodiversity along with COVID-related socio-economic consequences therefore pose increasingly severe threats to rural communities whose livelihood depends on the agro-pastoralist and fisheries systems, particularly in Eritrea's south-eastern escarpments and coastal areas. The increasing impacts and exposure of climate-sensitive sectors combined with ecosystem degradation, loss of biodiversity, persistent poverty and low capacities to adapt to climate change along with COVID-related challenges, all add to the precarious situation of vulnerable

communities in the targeted ecoregions. Moreover, unsustainable land-use and fishing practices, high dependence on woodfuel and natural resources in general, deforestation and loss of soil quality along with diminishing water resources are eroding the resilience of the land and seascape, leaving the ecosystem extremely vulnerable to climate change impacts.

In the absence of alternative livelihoods such as diversification, access to modern energy, markets and inputs, supply chain facilities and income sources and with limited availability of evidence-based knowledge, tools and skills to adopt sustainable and appropriate adaptation practices and technologies, communities are left with little means to implement resilient and sustainable livelihood strategies. Without the GEF-LDCF intervention, Eritrea's agro-pastoralist and fisheries systems and value chain networks will increasingly suffer under the impacts of climate change while environmental degradation will continue, making sustainable development very challenging under the current scenario. Food systems and livelihoods, particularly the majority of smallholders in rural highlands as well as lowlands and coastal areas, will remain impacted by a variety of climate hazards as well as loss of ecological functioning, impairing or prolonging a COVID recovery response.

Without targeted investments and technical inputs, this negative trend is likely to escalate further as climate change impacts continue to increase in intensity and frequency, and while the country grapples with the implications of the COVID pandemic. Moreover, given Eritrea's LDC status, there is limited public financing available to provide the support needed at community level. In terms of alternative sources of financing for the project, private investment to support smallholder producers and MSMEs in the forms of technology transfer, market linkages, etc. is currently unlikely due to limited private sector opportunities. Additionally, due to the socio-economic conditions in the south-eastern escarpment, smallholder producers and MSMEs do not have the financial resources nor access to credit to strengthen resilience or sustainability in their practices and supply chains without external support. The proposed project will therefore not take place without the involvement of the GEF and LDCF.

The proposed GEF-LDCF project builds on, and is complemented by the efforts of several ongoing baseline initiatives that operates within the targeted scope and regions (see section 1.2). The use of GEF-LDCF funds will target the margin between the current baseline investments and a sustainable and climate-resilient development scenario that promotes SLM/SFM and BDC practices, adaptation technologies, sustainable intensification and incorporates innovative approaches and measures to enhance community and landscape/seascape resilience and sustainability.

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

The proposed GEF-LDCF project will provide a range of environmental and adaptation benefits along with other socio-benefits such as improved food security and food self-sufficiency, job creation and gender equality. The table below outlines the specific benefits for biodiversity conservation, SLM/SFM as well as for climate change adaptation and resilience:

BDC Benefits
Ö 15,000 hectares of protected area to benefit biodiversity conservation and sustainable use. Ö 1,000 hectares of marine habitat under improved practices.
SLM/SFM Benefits
Ö 209,000 hectares of productive landscapes under improved practices for achieving NDN. Ö 15,000 hectares of degraded forest land restored and under improved management (within the PA as above).
Socio-economic Benefits
Ö 57,000 men and 62,000 women in rural areas benefitting directly from GEFTF investment.
CCA Benefits
Ö 225,000 hectares of land under climate resilient management (same landscape as mentioned above). Ö 57,000 men and 62,000 women in rural areas directly benefitting from climate change adaptation innovations and technologies.

7) Innovation, sustainability and potential for scaling up.

Innovativeness

The project provides an innovative approach to community-level climate change adaptation, sustainable land management, landscape restoration and biodiversity conservation in Eritrea, particularly through its focus on a systemic approach to enhance resilience and sustainability while reducing vulnerability and ecosystem degradation in production land/seascapes and along supply chains. The project's market-driven approach is innovative in terms of climate change adaptation, particularly the activities for identifying and introducing appropriate technologies and practices to support vulnerable communities in accessing market opportunities that they are currently excluded from and to overcome disruptions related to COVID lockdowns. The specific technology interventions are expected to generate innovations through value addition/commercialization while also reducing post-harvest losses, altogether increasing the sustainability and productive output of rural food systems and thereby more resilient and sustainable livelihoods in the targeted communities.

Sustainability

The proposed GEF-LDCF project aims to tackle various scales, sectors and stakeholders in a multi-governmental approach that involves national and zoba authorities, private sector and local communities and leaders. In terms of developing ownership for adaptation, BDC and SLM/SFM measures among the local communities, participatory approaches will be a key tool in the project planning process.

The intention is to facilitate the development of community-led innovation to adapt to climate change while reversing environmental degradation and enhancing ecosystem services through SLM/SFM and biodiversity conservation, bringing in local knowledge and devolving responsibility amongst agro-pastoralist and fishing communities in the targeted ecoregions. Moreover, sensitization and awareness at local level will be carried out through training programmes adopting a community-based approach, and with targeted inclusion of women and youth, as well as by producing and disseminating learning material. Information and education are essential components to empower smallholder producers, as they are central tools to adapt to climate change, conserve biodiversity and implement SLM/SFM. Specific training to foster MSME development and entrepreneurship on approaches and strategies will contribute to better resilience and sustainability of the project results.

Scaling up

The project will scale up SLM/SFM, biodiversity conservation and climate-resilient practices and technologies for agro-pastoralist and fisheries communities that are suited to wider dissemination and large-scale adoption in Eritrea. By illustrating that these interventions lead to diversified livelihood opportunities through increased incomes, improved value chain efficiency, food security and nutrition, the project will promote their uptake in other areas of Eritrea.

Two parallel strategies can further support the upscaling of adaptation approaches promoted by this project. One is the proliferation of private-sector links for farmer/pastoralist/fisher groups and MSMEs to integrate with markets and industries that support sustainable practices. The other is the integration of such practices and technologies within national development programmes implemented by government and other partners.

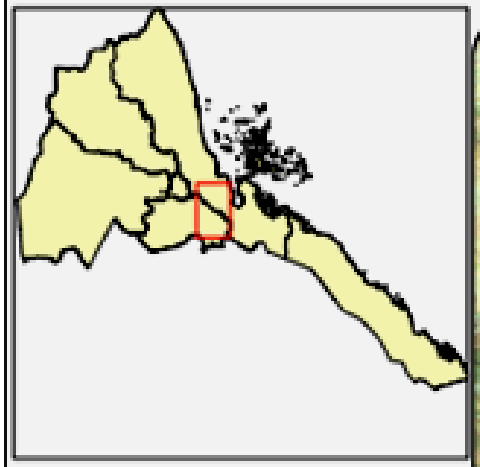
Furthermore, emerging lessons and successful pilots from the proposed GEF-LDCF project are expected to feed into the planned GCF GGW programme (IGREENFIN), thereby using this future investment as a launch pad for scaling up and out. In this regard, the proposed project will collaborate with partners of relevant programmes under development (IFAD, EU/EDF, AfDB, etc.) as well as the government's Savings and Micro-Credit Programme to scale up opportunities for business development and access to finance for nature-based solutions and climate resilient enterprises.

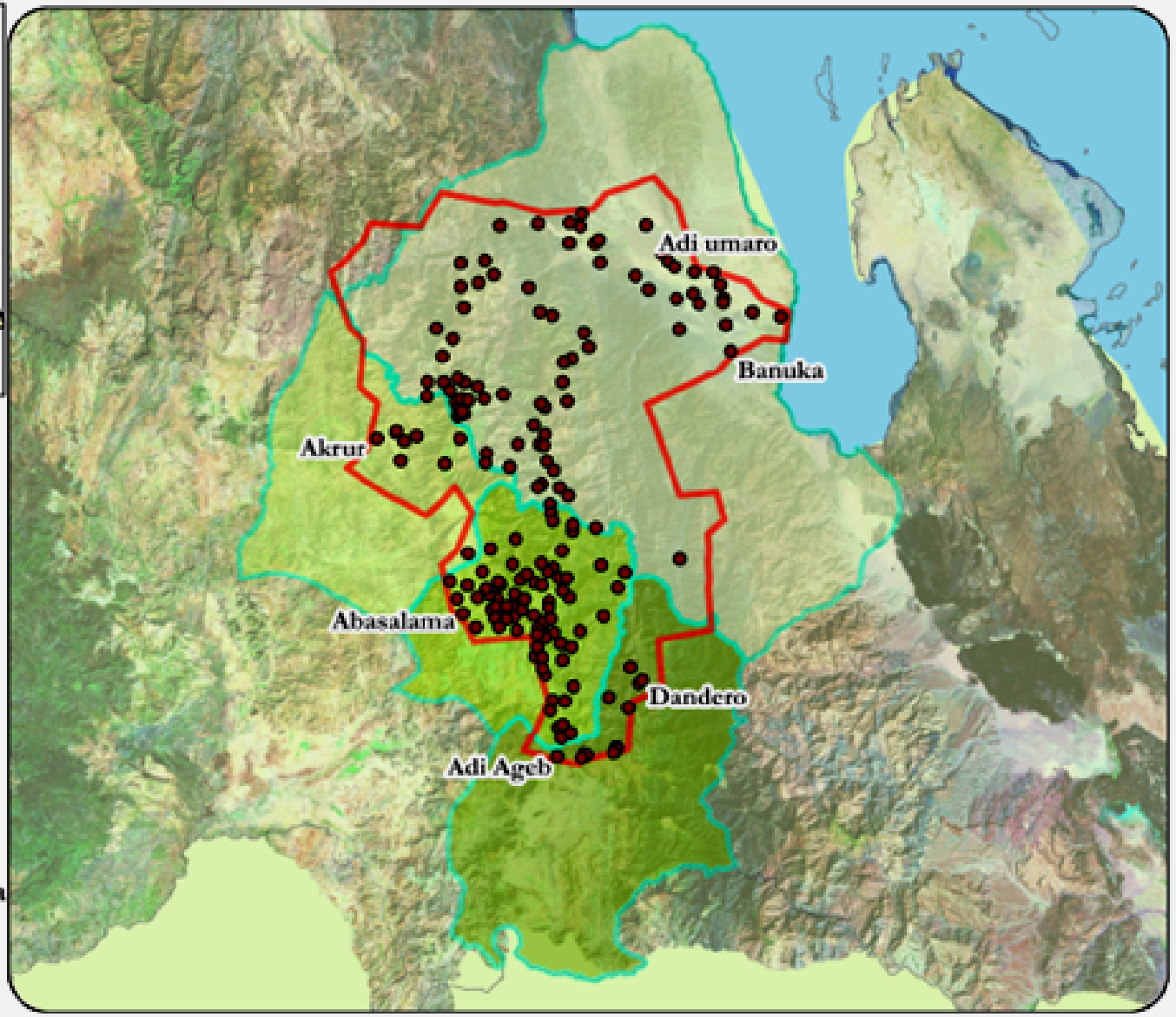
[1] The Representative Concentration Pathways (RCPs) describe four different 21st century pathways of GHG emissions and atmospheric concentrations, air pollutant emissions and land use. The RCPs include a stringent mitigation scenario or low GHG emissions (RCP2.6), two intermediate scenarios (RCP4.5 and RCP6.0) and one scenario with very high GHG emissions (RCP8.5).

1b. Project Map and Coordinates

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

Debub and partial Foro catchment that drains to the Red Sea





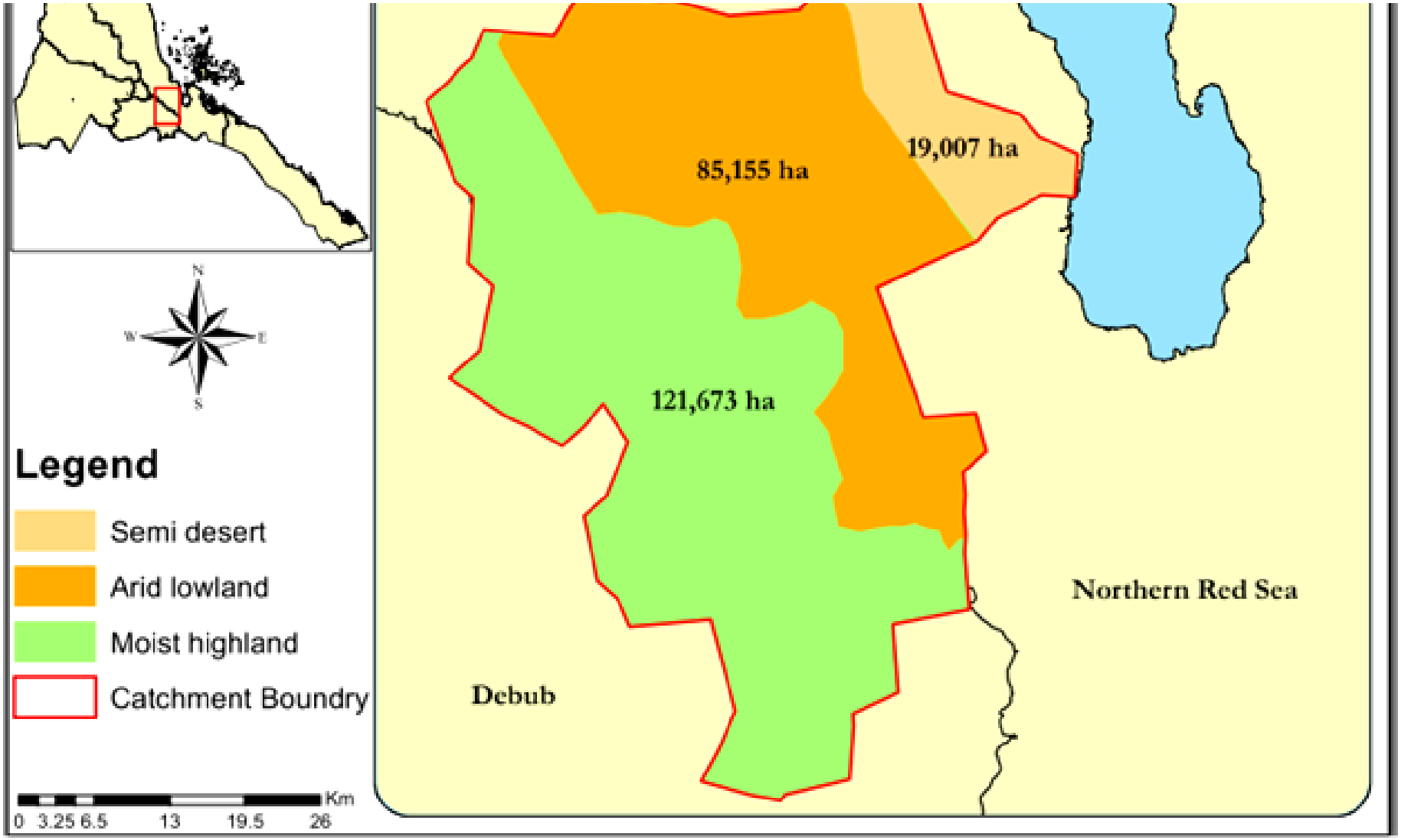
Legend

- Villages
- Catchment Area
- Subzoba_Foro
- Subzoba_Segeneity
- Subzoba_Adi_Keyh
- Subzoba_Senafe

Catchemnt area= 225,835 Ha

Kilometers
0 4.5 9 18 27 36

Catchment area in relation to Agro ecological zones of Eritrea


85,155 ha
19,007 ha
121,673 ha
Northern Red Sea
Debub
N
W
E
S
Legend
Semi desert
Arid lowland
Moist highland
Catchment Boundry
Km
0 3.25 6.5 13 19.5 26

2. Stakeholders

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

Indigenous Peoples and Local Communities

Civil Society Organizations No

Private Sector Entities No

If none of the above, please explain why: Yes

Stakeholder consultations during the project identification phase were constrained by COVID-related lockdown and restriction. However, in-depth consultations will be undertaken during PPG, including with a number of stakeholders as described in the below.

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

Consultations have been conducted with relevant central-level government ministries and their inputs have informed the design of the GEF-LDCF project. More specifically, three stakeholder consultation meetings (on 3rd, 11th and 13th January 2021) were organized with a total of eleven representatives from Ministry of Land, Water and Environment, Ministry of Local Government, Ministry of Agriculture and the Forestry and Wildlife Authority. As an outcome of the discussions, socio-economic and biophysical environmental baseline information on the proposed project was identified and fed into the preparation of the PIF. Consultations with IFAD have also commenced, particularly with regard to complementary efforts and investments.

While the current COVID-19 restrictions have prevented wider stakeholder consultations, particularly at Zoba/sub-Zoba and community-level, the project team have identified a number of relevant stakeholders, which are expected to be engaged throughout the project. In terms of Community Based organizations/Civil Society Organizations, the following stakeholders are expected to be involved in the project:

The National Union of Eritrean Women (NUEW) would be responsible in mobilizing women for participation in the project development planning and implementation. NUEW is one of the major players in mobilizing local communities (especially women), identifying and implementing of programmes and projects including resources management, afforestation, adaptation, SLM/SFM techniques, water development and use, promotion and dissemination of alternative energy sources, income generating activities including the participation in policy planning and monitoring. It is of prime concern to the women of Eritrea, especially in the rural areas, where they play a significant role in environmental issues.

The National Union of Eritrean Youth and Students (NUEYS) is one of the biggest national CBOs in Eritrea. NUEYS has wide networks that enable it to implement various developmental programmes and projects. NUEYS has rich experience in implementing projects related to conservation and development of biodiversity resources. Every year thousands of youth and students from all over Eritrea participate in activities such as planting seedlings, digging wells, terracing hillsides, and the well-being of the environment through NUEYS sponsorship in collaboration with the Ministry of Education.

Emerging associations and cooperatives' such as Dairy Development Associations, Horticultural Development Cooperatives, water users associations etc are also expected to be fully engaged as stakeholders throughout the project. Similarly, the involvement of research institutions as stakeholders is foreseen, including but not limited to the National Agricultural Research Systems (NARS), Hamelmalo Agricultural College (HAC), Eritrea Institute of Technology (Department of Biology) and Marine Science Technology (COMAT).

Community groups, including traditional leaders, will also be identified at an early stage, given that they are expected to form part of the targeted beneficiaries. The project recognizes that local communities bring unique indigenous knowledge on preservation of biodiversity resources and in adapting to climate and environmental stressors. Communities identify and prioritize their own particular problems and define development actions to address them. They are custodians and end users of all developmental interventions. Local communities will therefore actively participate in planning, management, identification, implementation, income generating activities and monitoring of the project.

3. Gender Equality and Women's Empowerment

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

The project will follow the guidance and recommendations of both the GEFs and FAOs Policy on Gender Equality and the GEF Gender Implementation Strategy, and will draw upon the following policies adopted by the Government of Eritrea: National Education Gender Policy and Strategy (2003), National Policy on Gender (2015) and National Gender Action Plan (2015-2019).

A gender analysis and assessment will be undertaken during the PPG phase to provide the basis for understanding gender roles and relations, identify existing structural and socio-cultural constraints as well as opportunities for meaningful participation in the project by women. To ensure that they get equal and priority access to project services and benefits, the GEF-LDCF project will adopt measures to increase women's participation and influence in (among others) community-based participatory planning, and a minimum level of approved activities must be a priority for women.

Gender-specific specific groups will be established to identify and support potential women entrepreneurs, in particular for post-harvest handling and market integration as well improve their access to credit and financial capacities. Efforts will also be undertaken to examine specific roles for women in value addition and specific opportunities for women to develop flexible supplementary sources of income. The choice and promotion of specific value chains will also be considered in the context of the different uses and practices of men and women in the targeted areas.

The project will engage with Eritrea's National Union of Eritrean Women (NUEW) as a key partner to ensure that gender equality and women's empowerment is integrated into project activities. The NUEW has a widespread presence at all administrative levels in the country including the targeted areas. In addition, the will also engage with the Eritrean Women in Agribusiness Association (EWAA), particularly for activities under Component 3. Given that almost a half of Eritrean households are headed by women (47.2 percent), strengthening gender equality is key for Eritrea's sustainable development trajectory as well as to strengthen household and community resilience in the context of climate and environmental degradation, which will be fully reflected in the project.

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

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

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

generating socio-economic benefits or services for women. Yes

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

TBD

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

As detailed in the project framework, the main beneficiaries and project stakeholders are represented by fisher folks, pastoralists and farmers. These private sector actors will be actively engaged in project activities, including implementation. Strengthening the adaptive capacities and sustainability of local private sector, including MSMEs through resilient value chains and agribusiness development is one of the key objectives of the project. The project will focus on introducing/strengthening producer organizations and private sector entities engaging in value chains of key commodities of livestock and fishery products, horticulture and other high value crops.

In particular, the project will focus on strengthening the agribusiness skills of women and youth and to engage them in value adding activities to create job opportunities, promote entrepreneurship and enterprise development in the local food system. However, the private sector in Eritrea is still at its infancy stage due infrastructure bottlenecks especially roads and energy, skills deficits and miss-match which constrain enterprise growth. At the same time, Eritrea has youthful population and about 70 percent of the population are under 35 years old. There is a large and growing population of Eritrean youth who require relevant job skills and training to match the labour market especially in the agriculture subsectors.

The need to build skills for youth is a priority both for the formal and informal sectors, including entrepreneurship skills to facilitate the start-up of small businesses and support women entrepreneurs. The project will engage with both National Union of Eritrean Youth and Students (NUEYS) and the National Union of Eritrean Women (NUEW) as active stakeholders in project to identify, pilot and upscale agribusiness and MSME opportunities in the targeted areas to support local private sector development. Furthermore, through activities under Component 2 and 3, the project will support the establishment and strengthening of producer associations and cooperatives, including by collaborating and complementing ongoing efforts such as with the IFAD-funded IADP and AfDBs DRSLP.

5. Risks to Achieving Project Objectives

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

Risk	Level	Mitigation measures
Natural resource constraints – including climate change, drought, and food security - impact project ability to achieve intended results.	Medium	The project is designed to address and alleviate the current exposure of rural Eritreans to natural resource risks, including those related to climate change, drought and food insecurity. Each of the project activities is directed to take an integrated approach to these issues, shifting current unsustainable management/production regimes to sustainable management/production. This includes enhancing the ability of highland producers to move away from current unsustainable crops to more integrated cropping patterns the provide cash and food security through farmstead diversification. This will directly alleviate impacts related to climate change and, particularly, water scarcity. Likewise, similar approaches will be applied to fisheries and livestock sectors. The project will assist producers to approach these sectors using practices designed to improve marine and land scape management and production to enhance CC resilience, reduce drought exposure, and improve long-term food security. In addition, the project's final results framework to be designed during the PPG will integrate these specific natural resource risks. This will include monitoring progress against improvements to CC resilience/ adaptation, exposure to drought risks, and improvements to food security and nutrition.
Limited cross-sectoral coordination among concerned ministries and local government authorities	Medium	Clear cross-sectoral arrangements for implementing project and pilot activities that specify the roles and responsibilities of the relevant organization will be maintained throughout the project. The project will further ensure effective inter-agency collaboration and coordination in the project activities.
Weak community engagement	Low	The second and third component of the project is designed to build resilience among agro-pastoralist and fishing communities and thus will require their full and active engagement. Activities outlined here have been decided upon by national and zoba representatives, based on examples of good practice and consistency with national objectives; but the target communities themselves will select the precise combination of activities in which they will engage during the PPG phase to ensure that interventions meet their needs and prior

		ities.
Community interest may decline if tangible benefits are not immediately forthcoming	Medium	It will be necessary for alternative livelihoods, and the necessary enabling environments, to be appropriately planned and thought through such that benefits accrue with minimum delay, so as to convince communities that there are viable alternatives. This risk will be minimized as the communities themselves will have selected the interventions and will be in the driving seat of the process.
Community commitment to being involved in monitoring may diminish	Medium	Effective participation of community on the sustainability of the project should be promoted through the process of design and implementation. Community are supposed to be central part in decision making on the proposed intervention through bottom up approach. During the PPG stage, community consultations and engagement will be conducted. This will lead to effective participation and ownership of the project by the community.
Extreme events during the project implementation period could undo environmental benefits and alternative climate-resilient livelihoods	Medium	The nature of the project is to ensure resilience under the projected future climate conditions, and thus all activities, should be sustainable given exposure to such conditions, and indeed the occurrence of droughts would be a good test of their climate resilience. However, extreme events may divert government attention (at the subzoba, zoba and national levels) to dealing with emergency situations and thus may risk the planned implementation of the project. This risk will be mitigated by a climate risk analysis, comprehensive institutional analysis and management structure, which will be scoped during the PPG phase.
SLM/SFM, BDC and Climate change adaptation priorities undermined by national emergencies	Medium	The project design phase, and the project management team, will keep abreast of national events and politics to plan contingency activities when/if necessary.
Project activities are delayed	Medium	Efforts will ensure engagements with the government to maintain its commitment to the proposed project and integrate the objectives of national development policy in decision-making throughout the project to maintain government commitment.
Limited technical capacity to conduct preliminary studies and design the implementation of activities.	Medium	The project will identify and develop human resource capacity as required and engage field officers to work closely with the project manager of the proposed project to ensure timely delivery of project outputs.

Limited uptake of climate and environmental vulnerability information by relevant stakeholders	Medium	The climate and environmental vulnerability information generated by the project will be designed through a consultative process to respond to the specific needs of the different stakeholders while also ensuring user-friendliness of the different outputs to the specific audience/stakeholders.
Lack of investment after project may reduce sustainability of project outcomes	Medium	The project will pay particular attention to the key factors of success in the dissemination and adoption of adaptation technologies elsewhere in the country. The project will assess potential for replication of best practices and lessons learned, develop an up-scaling strategy, a mainstreaming strategy, and a financing strategy that will consider all possible future sources. In this regard, it is expected that future investments into Eritrea's productive sectors as well as tourism will increase substantially from its current baseline, which provides a relatively optimistic investment outlook for post-project durability. In addition, given that there is a large, untapped potential for ecotourism development in Eritrea and particularly within the proposed project site, the project will also integrate ecotourism considerations as an opportunity for attracting post-project investment to sustain project activities. As part of the project's financing strategy, support will be provided to identify external investment opportunities as well as national budget allocations to ensure durability beyond project closure.
Limited capital available to commercialize and scale up SLM/SFM, BDC and adaptation solutions	Medium	The project will engage with a number of financial institutions (including IFAD and AfDB) to increase the availability of capital and other forms of finance needed to ensure the uptake of appropriate technologies for product commercialization, identified by the project.

COVID-related impacts

At the time of writing, Eritrea is currently experiencing a second wave of the COVID-19 pandemic, that is more aggressive and rapidly spreading across the country, increasing infection rate by 1.5 in about a month (from 754 cases and zero death from the first case until December 19, 2020 to 1,877 cases and 7 deaths by January 15, 2021). The disruption and socio-economic impacts resulting from prolonged containment measures are expected to negatively affect Eritrea's prospects and deepen vulnerabilities in the short term. In terms of the broad economic impact, however, the following, inter alia, appear to be paramount:

- Reduced economic activity in the country, decreased income and employment
- Disruption of essential production and supply chains;

- Interruption in movement of basic social services personnel;
- Reduced Government revenue and public spending; and
- Limited access to water, food/nutrition and energy for vulnerable women and children, refugees and the displaced, people living with chronic illnesses, distant communities and migrants.

The following table lists some of the COVID-related risks and measures specifically for the project.

Category	*Risks*	*Measures*
Implications at national level		
Short to medium term	· Reduced financial (co-financing) support from Government and development partners, due to limited overall funding availability resulting from the COVID-related economic downturn, and/or the reorientation of available funding to actions directly related to COVID · Government expenditure and prioritization of different programs and sectors, including agriculture, food security and natural resources might change.	· Thorough discussion with co-financiers (including government) during the PPG stage to seek alternative options for co-financing and ensure continuity of resource allocation to ongoing initiatives in project target areas. · It is anticipated that the project scope will help to support the Government's response to COVID-19 through its focus food security, increased productivity and agribusiness development for vulnerable communities in areas already impacted by environmental degradation and climate risks and hazards. However, project activities will be further discussed with the Government to ensure that emerging priorities and responses, as result of the pandemic's evolution, are well reflected in the project's target areas.
Implications during PPG roll-out		
Short to medium term	· Reduced involvement by Governments and other partnership actors in project activities during PPG stage · Reduced opportunities for face-to-face interactions with project beneficiaries, for consultation, participation, validation and representation, due to social distancing	· Review and potential adjustment of implementation and partnership arrangements in the short and medium term. · The ProDoc work plan will be adjusted to reflect the challenges related to COVID-19 as well as for interactions and/or changes to the media and methodologies used for the interactions (for example using remote communication where possible, and/or limiting number of physical participants – which may potentially require relying more on the participation of limited numbers of stakeholder leaders in representation of their constituencies). This will also include taking into consideration whether the effectiveness of the representation of certain stakeholder sectors (e.g. women, the poor, indigenous peoples) may be disproportionately affected by these changes.
Implications for project activities (on the ground)		

Short to medium term	· Continuous disruption of food system logistics is anticipated · Increased losses and spoilage in high value commodities /perishables (meat, fish, dairy, horticulture) · Disruption of markets, due to temporary lockdowns	· Provide advice to farmers and government to meet immediate food needs. · Conduct socio-economic impact assessment (as part of baseline assessment) to inform the project design and implementation. · Ensure close collaboration with private sector entities and logistic/bulking points to understand barriers and establish feasible options. · Support producer organizations in linking with new markets including online and export where feasible.

6. Coordination

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

FAOs Coordination Capacity

FAO is one of the most active and effective development agencies currently working in Eritrea. FAO has a full-time office in Asmara and has maintained a strong track record of project delivery. FAO enjoys very strong and on-going coordination efforts with all relevant agencies. This same coordination approach will be applied to the implementation of this project.

The project will actively coordinate with relevant Government Ministries, Departments and Agencies, UN Agencies, and other development partners as well as CBOs, private enterprises and research institutions to facilitate synergies and avoid duplication of efforts. Coordination will take place through established mechanisms including Project Steering Committee, sharing of reports and ad hoc meetings. This will be supported by a technically strong management unit. During the PPG phase, further in-depth consultations will be undertaken to establish/strengthen partnerships and practical modalities for linking and collaborating with relevant ongoing and planned interventions.

FAO will be responsible for ensuring coordination with other internationally supported initiatives, including those financed by GEF. Final implementation arrangements will be identified during the PPG based upon best available information and practices.

Ministry of Land, Water and Environment (MoLWE) Coordination Capacity

During the PPG process, an operational capacity assessment will be conducted of the Ministry of Land, Water and Environment (MoLWE) along Ministry of Agriculture (MoA) with the intention of MoLWE and MoA being the main executing partners for the project. Other likely national executing partners include the Ministry of Local Governmen, Ministry of Marine Resources, Ministry of National Development as well as other relevant agencies.

Project Steering Committee and Project Implementation Unit

To ensure satisfactory delivery, monitoring and reporting of project outputs, a Project Steering Committee (PSC) and a Project Implementation Unit (PIU) will be established within the first six months of the project. The PSC will provide policy and strategic advice for project implementation, and communicate project outcomes with other ministries. It will comprise representatives from the Ministry of Land, Water and Environment, Ministry of Agriculture, Ministry of Local Government, Ministry of Finance, Ministry of National Development, Ministry of Marine Resources, Ministry of Forestry and Wildlife and Eritrean National Chamber of Commerce, as well as representatives of the regional administrations in targeted zobas, leaders of agricultural cooperatives, and civil society stakeholders.

Responsibilities of the PIU will include project implementation planning, budgeting, preparation of bidding documents for all services to be procured, awarding contracts, engaging consultants, assuring quality assurance for all project-financed activities, disbursement of funds, assuring compliance with due diligence, liaising with relevant ministries and their provincial agencies, establishing project performance and financial management systems, and assuring regular progress reporting to provincial and national authorities as well as financing institutions. The PIU will appoint incremental staff to assist in day-to-day project management activities. The PIU will be supported by project management and implementation consultants.

Coordination and Alignment with GEF Financed Projects

The project will coordinate with relevant agencies and projects (described above and in the section on associated baseline projects) to avoid overlap and double-spending of resources. Synergies and areas for collaboration with these other initiatives will be mapped during the PPG phase, with agreement on common activities and cost-sharing explored and agreed. Close coordination with GCF-funded regional initiatives covering Eritrea will also help to establish GCF-GEF complementarity efforts, thereby laying ground for enhanced coordination with future planned GCF investments in the country.

Preparation of the project implementation plan and schedule will be completed within the first six months of the project. It will involve all the key stakeholders at ministerial, provincial, district and commune levels, with PIU taking the lead. The project reporting system will be based on the monitoring and evaluation system, and will include quarterly, annual, mid-term and final reports. During the first year of the project, a baseline survey will be completed to ensure that project progress can be properly assessed.

The GEF-LDCF project will also build on and align with GEF-7 framework by upscaling best practices of GEF projects and adaptation initiatives in the country. Further to that, the proposed project will draw on the existing and planned investments in food systems in the targeted areas. Close coordination with these initiatives will ensure the projects' impact at scale while avoiding potential duplication of effort.

The proposed project will leverage on projects funded by GEF and LDCF as a baseline and build upon good lessons and practices in the targeted areas. Such projects include;

Restoring Degraded Forest Landscapes and Promoting Community-based, Sustainable and Integrated Natural Resource Management in the Rora Habab Plateau, Nakfa Sub-zoba, Northern Red Sea Region of Eritrea funded by the GEF (GEF-6) and implemented by UNDP. This project aims to promote landscape restoration and mainstream sustainable land management, forestry and biodiversity conservation into land-use planning and agricultural production practices in the Rora Habab Plateau in Eritrea. It will strengthen institutional capacity and enabling framework for integrated landscape management in over 80,000 ha in the Nakfa sub-zoba and support implementation of on-the-ground interventions to reduce land degradation and pressure on forests and increase agricultural productivity.

Mainstreaming Climate Risk Considerations in Food Security and IWRM in Tsilima Plains and Upper Catchment Area funded by the LDCF (GEF-6) and implemented by UNDP. This project currently under implementation aims to integrate adaptation measures into ecosystem restoration and agricultural production systems to address climate change in Eritrea and secure the benefits of the National Food Security Strategy and IWRM Action Plan. Activities are focusing on putting incentives in place leading to adoption of long-term measures for watershed rehabilitation, groundwater recharge, climate smart agricultural and livestock production practices.

Integrated Semenawi and Debubawi Bahri-Buri-Irrori- Hawakil Protected Area System for Conservation of Biodiversity and Mitigation of Land Degradation funded by the GEF (GEF-5) and implemented by UNDP. This project currently under implementation is creating policy and institutional conditions for the operationalization of the Protected Area System in Eritrea. The project is establishing a National PA system in Eritrea and aims to enhance management effectiveness within a sample of restricted use system of protected areas (IUCN category I, II and IVPAs), operating under co-management agreements with local communities and the private sector. The project is applying SLM practices to reduce threats to a managed resource use PA (IUCN Category VI) with capacity for effective co-management with communities.

SIP PROGRAM: Strategic Investment Program for SLM in Sub-Saharan Africa (SIP) funded by the GEF (GEF-4) and implemented by IFAD (Catchments and Landscape Management) and UNDP (Sustainable Land Management Pilot Project). These country-level projects focused on the promotion of the SLM approach at national, regional and local levels as well as to develop and apply the SLM model to reduce land degradation.

GEF SGP 7th Operational Phase - Strategic Implementation using STAR Resources mainly in LDCs and SIDS (Part 3) funded by the GEF (GEF-7) and implemented by UNDP. The Small Grants Programme (SGP) aims to promote and support innovative and scalable initiatives, and foster multistakeholder partnerships at the local level to tackle global environmental issues in priority landscapes and seascapes. The SGP covers activities to be implemented in Eritrea.

In addition to the GEF and LDCF projects described in the above, the project will also ensure close coordination with following initiatives to be funded by the GCF:

IGREENFIN project and GCF Umbrella Program for the Great Green Wall Initiative. Inclusive Green Financing for Climate Resilient and Low Emission Smallholder Agriculture (IGREENFIN) and the umbrella program for the GGWI provide a regional approach to enable a market for investments on adaptation, mitigation practices and climate technologies by removing the financial and technical barriers faced by Local Public Development Banks (LPDBs) particularly agricultural banks. This initiative will support the establishment of green lines of credit and the capacity building of both supply (banks) and demand (small holder farmers) and their alignment on the Nationally Determined Contributions (NDCs). The program will be rolled out into two phases with Eritrea covered under the IGREENFIN phase 2.

Strengthening Climate Information Systems for Climate Change Adaptation in the Greater Horn of Africa through regional cooperation. This GCF regional programme, currently at concept note stage, will be executed by the Intergovernmental Authority on Development (IGAD) and implemented by UNDP. The programme aims to strengthen the climate resilience of Eritrea and 7 other targeted countries (all members of IGAD) to the climate change impacts of extreme rainfall events, extreme droughts and floods that can be of transboundary nature and impact several countries at the same time. Through the establishment of improved early warning and climate information dissemination systems at the regional level and its integration with the already existing national climate information systems, the proposed programme will build climate resilience of the vulnerable communities in the Greater Horn of Africa region.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assesments under relevant conventions?

Yes

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

Eritrea's development agenda is guided by the country's **National Indicative Development Plan** (NIDP) 2014-2018, which outlines the overarching goals for economic growth and poverty reduction which is partly driven through the development of a modern irrigation-based commercial agriculture. The GEF-LDCF project is aligned with this and is directly contributing to one of the three strategic pillars of the NIPD, which focuses on food security and the development of cash crops.

At the sectoral level, the project will contribute towards the implementation of priority areas specified in Eritrea's **National Agriculture Development Policy and Strategy** (2019) as well as the **Five-year Strategic Agricultural Development Plan** 2019-2023. Furthermore, project activities will help to obtain the objectives under the **Small and Medium Commercial Farmers Strategy** (SMCFS) which aims to create farm enterprises that are engaged in productive, profitable agriculture value chains, linked to domestic and international markets.

The project is fully aligned with Eritrea's **National Environmental Management Plan** (NEMP, 1995), which constitute the overarching policy document for the country's environmental resources and forms the basis for action on conservation activities. The NEMP aims to ensure that human activities in both terrestrial and marine areas would result in long-lasting global environmental benefits and recognizes the loss of biodiversity, climate change and desertification, along with degradation of farmlands, deforestation and overgrazing as fundamental environmental challenges in Eritrea. The GEF-LDCF project is therefore designed to respond to those challenges and help deliver on the NEMP's objectives for Eritrea's environmental well-being.

The project is also in alignment with Eritrea's submissions under the UNFCCC. Its' **Nationally Determined Contribution (NDC)** submitted in 2018, outlines in the increasing impacts from climate change on Eritrea's food production systems and rural agrarian populations and prioritizes adaptation actions in the agriculture, forestry, water, land-use marine sectors. This project will contribute toward the achievement of adaptation goals for 2030 outlined in the NDC, including targets for Climate Smart Agriculture, rehabilitation of degraded agricultural lands, SLM as well as livestock, fisheries and crop productivity increases.

Eritrea has submitted both its **Initial and Second National Communication (INC, SNC)** to the UNFCCC in 2001 and 2012, respectively, highlighting how elevated climate risks and hazards, namely droughts and desertification are increasing ecosystem and livelihood vulnerability and outlines adaptation measures for two priority sectors: Agriculture and water. The project is in line with adaptation options and measures outlined in the INC and SNC to reduce vulnerability and increase resilience of food production under a changing climate.

The project responds directly to the Eritrea's **National Adaptation Programme of Action** (NAPA, 2012), which identifies the priority adaptation activities for building climate-resilient livelihoods among vulnerable communities. More specifically, the NAPA process, which was linked to the government's strategies to reduce poverty, prioritizes a range of adaptation projects across four top ranking sectors (1. Agriculture; 2. Livestock; 3. Forestry; 4. Water resources). This project will contribute directly to a number of those key adaptation needs/activities such as 'breeding drought and disease resistant crops", "introducing community based pilot rangeland improvement and management in selected agro-ecological areas", "conservation and management of highland forest ecosystem", "introduction and expansion of irrigated agriculture" etc.

The GEF-LDCF project is also aligned with the priority sectors and adaptation technologies identified as part of Eritrea's **Technology Needs Assessment (TNA)** process, which is currently ongoing.

The project is in full alignment with the Eritrea's commitments under the UNCCD. Through the **Land Degradation Neutrality (LDN) Target Setting Programme**, Eritrea has set its LDN targets and the Government is committed to achieving LDN by 2030 as it underpins the ecological functioning of land-based natural resources for the sustainable socio-economic development. The GEF-LDCF project will directly contribute towards achieving the LDN targets, both at national level and specifically those targets set for the zobas where project interventions are planned. Furthermore, the project is expected to contribute to the areas outlined in the *Final Country Report of the LDN Target Setting Programme in Eritrea* under the most important long-term action concepts: 1. Land classification/land distribution, 2. Renewable Energy, 3. Promotion of dry land products through sustainable land management and enhanced market access and trade, 4. Role of Private Sector, 5. Community Empowerment and Capacity Building, and 6. Financial Sustainability.

In response to the UNCCD 10-Year strategic plan and framework (The Strategy), Eritrea has developed its **National Action Program (NAP) 2008-2018** to combat desertification, land degradation and mitigate the effects of drought, along with an implementation strategy to integrate LDN in the selected national policies and commitment. The **NAP Action Plan** recognized five important steps or priority actions. These are: the improvement of the knowledge base on land degradation; empowering people to take action, initially coping with drought and desertification and eventually in taking measures to arrest land degradation; take concerted action to address the concerns of vulnerable groups affected by land degradation, particularly women and pastoralists; the reduction of poverty through income generating activities; and activities related to arresting land degradation particularly degradation of productive agricultural land. The activities of GEF-LDCF project will directly address each of these five priority actions

The project is expected to contribute to the objectives and priority areas set forth in Eritrea's **Five Year Action Plan for the Great Green Wall Initiative** (2011-2015) (Draft). Formulated by MoLWE, the five year action plan focuses on activities that help in mitigating land degradation, reducing desertification, adapting climate change, increasing agricultural products so as to improve the livelihood of the people. This action plan includes implementation of sustainable natural resources management (land, water, forest and wildlife) in the six zones (Maekel, Debub, Anseba, Gash-Barka, NRS & SRS) through afforestation, soil and water conservation, establishment and management of enclosures as well as promotion and establishment of nursery sites. The action plan also included the establishment of protected areas such as; Semenawi and Debubawi Bahri (129,000 ha), Buri-Irrori-Hawakil Islands (867,000 ha), Bara'soli (13,600 ha), including Riverine habitat along Gash and Barka Rivers (195,024 ha), and Nakfa Reserves (16,390 ha).

The project will be aligned to the Eritrea's **Action Plan for Integrated Water Resources Management (IWRM)** (2009-2016), which covers a range of management actions that are important to establish knowledge on effective control of the country's water resources management and development. The action plan elaborate the approaches and set out specific objectives, strategies, actions and activities that would be taken to support IWRM for the sustainable economic development of Eritrea, all of which will be considered and integrated into project activities.

Finally, project is in full alignment with the **National Biodiversity Strategy and Action Plan (NBSAP)** for Eritrea (2014-2020) and its strategic objectives for maintaining the global biodiversity conservation significance of Eritrea as a primary and secondary center of diversity for a number of cultivated crops. Protecting and ensuring the genetic diversity of these crops is directly linked to the landscape restoration objectives while also providing a key livelihood strategy for farmers, especially in the context of climate change adaptation. The project activities are designed to be aligned with the overall objectives of terrestrial, marine and agricultural biodiversity and to contribute to specific Aichi targets defined in Eritrea's NBSAP as outlined below.

Aichi Targets

The project will support Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society and each of the associated targets.

Target	Anticipated Contributions
Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	The project will assist rural communities of Eritrea to come to a much greater understanding of biodiversity value through awareness building, including mainstreaming of biodiversity concerns within relevant sectors through participatory spatial planning.
Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	The project will pay particular attention to mainstreaming biodiversity concerns with sectoral planning and policies related to development and poverty reduction.
Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impa	

cts, and positive incentives for the conservation and sus tainable use of biodiversity are developed and applied, c onsistent and in harmony with the Convention and other relevant international obligations, taking into account na tional socio economic conditions.	This project is designed to deliver GEF-7 mainstreamin g objectives, including elimination of incentives for bio diversity negative actions.
Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achiev e or have implemented plans for sustainable production and consumption and have kept the impacts of use of n atural resources well within safe ecological limits.	The project's efforts with regards to spatial planning, c apacity building, and policy improvements will result in contributions to this target.
Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible br ought close to zero, and degradation and fragmentation is significantly reduced.	Project effort is designed to reduce loss of natural habi tats, including globally significant forests currently und er threat from unsustainable practices.
Target 6: By 2020 all fish and invertebrate stocks and aq uatic plants are managed and harvested sustainably, leg ally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no signifi cant adverse impacts on threatened species and vulnera ble ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limit s.	The project will contribute to the realization of more su stainable fisheries management, including improveme nts related to reducing overfishing and conservation of depleted stocks.
Target 7: By 2020 areas under agriculture, aquaculture a nd forestry are managed sustainably, ensuring conserva tion of biodiversity.	Efforts are designed specifically to incentivize sustaina ble management of agriculture to ensure biodiversity c onservation.

8. Knowledge Management

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

Knowledge management is an integral part of this proposed project. The project will develop and record lessons learned, elaborate cutting-edge training modules to train relevant government and civil society organizations, private sector, farmers/pastoralists, and other partner organizations and local community and user groups, to use and transfer resilient livelihood, technology, and innovative practices, to develop "how-to" guidelines for use by farmers and to monitor and record project results.

The project will also take initiatives to disseminate best practices and lessons learned, training, and knowledge materials and guiding document through workshop, seminar, conference, and electronic and print media for the wider impact. Institutional and human capacity building through comprehensive training will be an important part of this project's components which will foster knowledge-based development and vulnerability reduction in the targeted areas. Learning platform/forums will be established. The platforms will be used for sharing of CCA, SLM and biodiversity conservation evidence based knowledge. The best practices will be scaled out, disseminated, and replicated to other areas within and outside Eritrea.

Finally, the project will enable stakeholders at the national, regional and local level to have access to improved knowledge and data through development of mechanisms for inter-regional knowledge sharing (including in terms of best practices for catalyzing private sector investments), peer-to-peer learning, systematic long-term approaches to capacity building, and dissemination of useful information.

9. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Low			

Measures to address identified risks and impacts

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

The project has been screened against Environmental and Social risks, in line with FAO's Environmental and Social Safeguards, and rated as low risk (see certification in Roadmap section) . No FAO Safeguards were triggered in the preliminary screening, however the risk level will be further re-confirmed at PPG stage in line with FAO's safeguards and stakeholder engagement processes. The Agency will make sure that all mitigation measures vis a vis any potential adverse impact are duly considered in the CEO endorsement package. Special attention will have to be given to potential conflicts over land use and access to natural resources and to the conflict resolution mechanisms to mitigate those risks.

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
FAO ES Screening Checklist_Eritrea	
Risk certification GEFTF	
Risk certification LDCF	

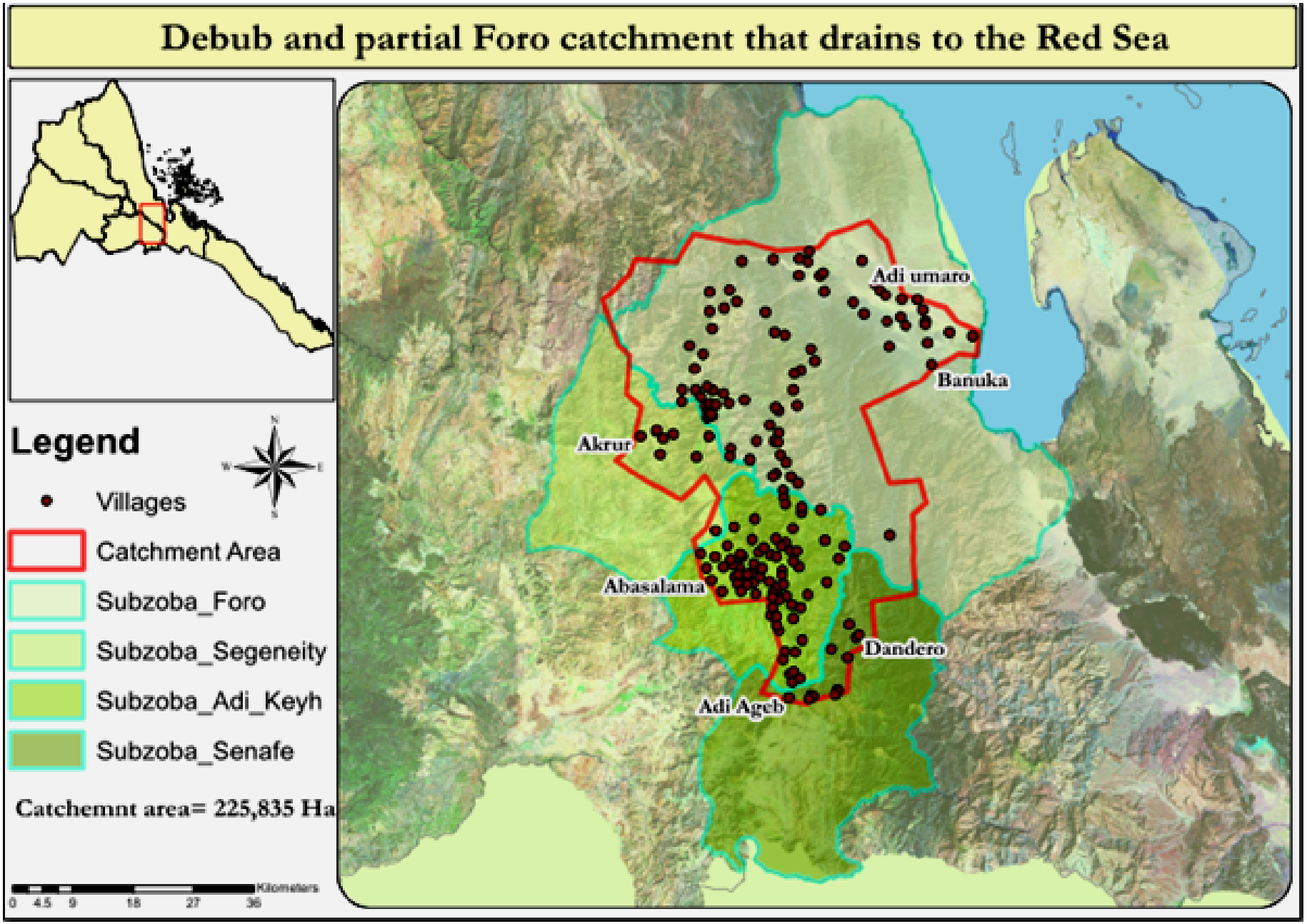
Part III: Approval/Endorsement By GEF Operational Focal Point(S) And GEF Agency(ies)

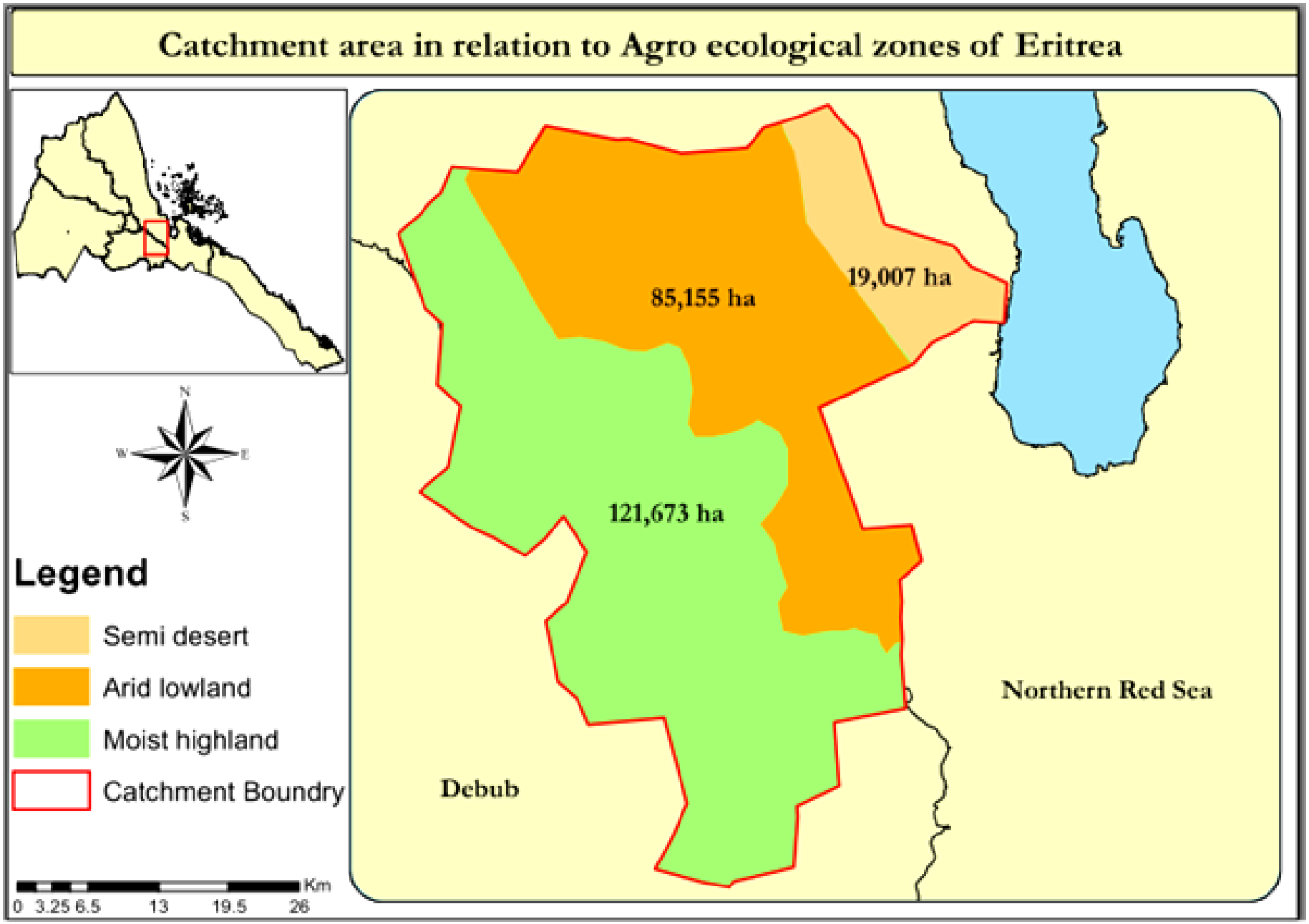
A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Kibrom Asmerom Weldegebriel	GEF Operational Focal Point	Ministry of Land, Water and Environment	3/22/2021

ANNEX A: Project Map and Geographic Coordinates

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




Catchment area in relation to Agro ecological zones of Eritrea
N
W
E
S
Legend
Semi desert
Arid lowland
Moist highland
Catchment Boundry
Km
0 3.25 6.5 13 19.5 26
85,155 ha
19,007 ha
121,673 ha
Northern Red Sea
Debub