



GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: FULL-SIZED PROJECT Full-sized Project

TYPE OF TRUST FUND: GEF TRUST FUND GEF Trust Fund

PART I: PROJECT INFORMATION

Project Title:	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		
Country(ies):	Eritrea	GEF Project ID: ¹	9266
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5519
Other Executing Partner(s):	Ministry of Land, Water and Environment; Northern Red Sea Administration Regional Office – Department of Land and Agriculture Development	Submission Date: Resubmission Date:	13 January 2016 1 March 2016 28 March 2016 20 July 2016
GEF Focal Area(s):	Climate Change Mitigation, Biodiversity, Land Degradation and Sustainable Forest Management	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/> Corporate Program: SGP <input type="checkbox"/>		
Name of parent program:	[if applicable]	Agency Fee (\$)	784,758

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
BD 4 Program 9 – Managing the Human-Biodiversity Interface	GEFTF	1,508,624	3,500,000
CCM 2 Program 4 – Promote conservation and enhancement of carbon stocks in forest and other land use, and support climate smart agriculture	GEFTF	2,210,761	5,500,000
LD 3 Program 4 – Scaling up sustainable land management through the Landscape Approach	GEFTF	2,881,101	7,000,000
SFM 3– Restored Forest Ecosystems: Reverse the loss of ecosystem services within degraded forest landscapes	GEFTF	1,660,121	7,500,000
Total Project Cost		8,260,607	23,500,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: 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, Nakfa Sub-Zoba of the Northern Red Sea Region of Eritrea						
Project Component	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
Component 1: Institutional	TA	Outcome 1.1: Review and revision of	<u>Output 1.1.1:</u> Technical review	GEFTF	795,088	3,200,000

¹ Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

² When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETE, LDCF and SCCF](#).

³ Financing type can be either investment or technical assistance.

<p>capacity and enabling framework for integrated landscape management in over 80,000 ha in the Nakfa sub-zoba</p>		<p>national-level policy frameworks for integrated landscape restoration</p> <p><i>Indicators:</i> <i>Number of land-use and restoration plans developed</i></p> <p><i>Baseline: 0</i></p> <p><i>Target: 5</i></p>	<p>and updates of existing legal instruments conducted to promote/incorporate sustainable use and conservation of forest and wildlife species into landscape restoration planning and implementation</p> <p>Output 1.1.2 Integrated landscape restoration plans developed (including for watershed rehabilitation, reforestation and rangeland management) for each of the 5 administrative kebabis in the Nakfa sub-zoba.⁴</p> <p><u>Output 1.1.3:</u> Technical support provided for establishment and strengthening of community-level institutions for natural resource management (e.g. Water User Associations, Farmers' Associations and Village Committees) to champion improved land and water management</p>			
	TA	<p>Outcome 1.2: Integrated decision-support tools to enable multi-stakeholder participation in landscape and ecosystem restoration planning,</p>	<p><u>Output 1.2.1:</u> Biodiversity mapping (flora and fauna surveys) conducted to determine status of key species (in particular African</p>	GEFTF	880,500	1,100,000

⁴ The 5 target kebabis are: Bacla/Bakla, Laba, Endlal, Mo'o and Mariet. The estimated total population of these 5 kebabis is 19,687 people.

		<p>implementation and monitoring.</p> <p><i>Indicator:</i> <i>No of individuals (gender-disaggregated) receiving direct employment or livelihood benefits arising from landscape and ecosystem restoration</i></p> <p><i>Baseline: to be determined at PPG</i></p> <p><i>Target: to be determined at PPG</i></p>	<p>Olive, Juniper and Nubian Ibex) in the Nakfa sub-zoba</p> <p><u>Output 1.2.2:</u> Revision of existing community by-laws to integrate biodiversity species protection/conservation into the use and management of landscapes (e.g. through land use planning)</p> <p><u>Output 1.2.3:</u> An integrated system developed to monitor the impacts and benefits of landscape restoration on biodiversity and ecosystems</p> <p><u>Output 1.2.4:</u> Technical guidelines developed to support informed decision-making on appropriate restoration interventions to promote ecosystem integrity</p> <p><u>Output 1.2.5:</u> Technical support and training provided for the development and implementation of measurement, reporting and verification (MRV) of carbon sequestration arising from forest restoration activities</p>			
		<p>Outcome 1.3: Capacity of institutions and resource-user groups strengthened to integrate climate-smart approaches into landscape restoration</p>	<p><u>Output 1.3.1:</u> Agricultural extension support agencies trained on integration of climate advice into agricultural</p>	GEFTF	598,700	3,200,000

		<p>and agricultural production practices</p> <p><i>Indicator:</i> Increase in capacity of institutions to provide and adopt climate-smart advice and SLM approaches (measured as per UNDP Capacity Scorecard)</p> <p><i>Baseline:</i> to be determined at PPG <i>Target:</i> to be determined at PPG</p>	<p>extension support services</p> <p><u>Output 1.3.2:</u> On-farm demonstration and training on water and climate-smart agricultural methods and technologies conducted (e.g. rainwater harvesting; agro-forestry and integrated soil fertility management)</p> <p><u>Output 1.3.3:</u> Strategy developed to facilitate landscape-level adoption of climate-smart restoration and SLM approaches</p>			
<p>Component 2: Implementation of on-the-ground interventions to reduce land degradation and pressure on forests and increase agricultural productivity</p>	INV	<p>Outcome 2.1. Enhanced resilience of ecosystems and livelihoods through landscape regeneration and integrated watershed management in over 80,000 hectares.</p> <p><i>Indicator:</i> Number of hectares of degraded land and forest ecosystems under restoration</p> <p><i>Baseline:</i> to be determined at PPG <i>Target:</i> to be determined at PPG</p> <p><i>Indicator:</i> Number of hectares of watershed extent under integrated management</p> <p><i>Baseline:</i> for permanent forest enclosures, this stands at 9,000 hectares, with an additional 3,490 ha</p>	<p><u>Output 2.1.1:</u> Interventions to increase water availability and improve soil moisture implemented in the 5 kebabis.</p> <p><u>Output 2.1.2:</u> Improved livestock grazing and livestock water management practices promoted to reduce rangeland degradation and promote livestock productivity.</p> <p><u>Output 2.1.3:</u> Agro-forestry and forest restoration and regeneration promoted through establishment of community tree nurseries in Endlal, Mo’o and Maret</p> <p><u>Output 2.1.4:</u> Community-managed forest</p>	GEFTF	5,592,957	15,100,000

		<p>for temporary enclosures⁵, but exact baseline including other restoration activities to be determined at PPG</p> <p><u>Target: 15,000 hectares</u> for forest restoration (not including other landscape restoration activities whose exact spatial coverage will be determined at PPG)</p>	<p>enclosures expanded through planting and assisted natural regeneration of indigenous and drought-resistant tree species, including the African Wild Olive (<i>Olea europaea sub-species Africana</i>), East African juniper (<i>Juniperus procera</i>) and <i>Carissa edulis</i>.</p> <p><u>Output 2.1.5:</u> Alternative livelihoods and value-addition opportunities identified and supported to reduce over-dependence on unsustainable land use practices in particular bee-keeping (honey production) and horticulture (vegetable and fruit crops).</p>			
Subtotal					7,867,245	22,600,000
Project Management Cost (PMC) ⁶			GEFTF		393,362	900,000
Total Project Cost					8,260,607	23,500,000

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ()

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Recipient Government	Government of the State of Eritrea	Grant	15,000,000
Beneficiaries	Project beneficiary communities	In-kind ⁷	6,000,000
GEF Agency	UNDP	Grant	2,500,000

⁵ Temporary enclosures are closed from grazing during the rainy seasons for three to four months and are open during the dry season. This approach increases biodiversity and is a very cost-effective way of regenerating denuded sites. Permanent enclosures are closed to grazing and other human interference for an unlimited number of years; farmers are allowed to cut and carry grass on a scheduled period under the supervision of a local land committee.

⁶ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

⁷ Calculated on the basis of labour-days contributed to the project by local community members using the average Eritrean daily wage as a measure of this in-kind contribution.

Total Co-financing			23,500,000
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D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS ^{a)}

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) ^{b)}	Total (c)=a+b
UNDP	GEFTF	Eritrea	CC		2,210,761	210,022	2,420,783
UNDP	GEFTF	Eritrea	BD		1,508,624	143,319	1,651,943
UNDP	GEFTF	Eritrea	LD		2,881,101	273,705	3,154,806
UNDP	GEFTF	Eritrea	Multi-Focal Areas	SFM	1,660,121	157,711	1,817,832
Total GEF Resources					8,260,607	784,758	9,045,364

a) Refer to the [Fee Policy for GEF Partner Agencies](#).

E. PROJECT PREPARATION GRANT (PPG)⁸

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

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

Project Preparation Grant amount requested: \$160,000					PPG Agency Fee: 15,200		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee ⁹ (b)	Total c = a + b
UNDP	GEF TF	Eritrea	Climate Change		40,000	3,800	43,800
UNDP	GEF TF	Eritrea	Biodiversity		40,000	3,800	43,800
UNDP	GEF TF	Eritrea	Land Degradation		40,000	3,800	43,800
UNDP	GEF TF	Eritrea	Multi-focal Areas	SFM	40,000	3,800	43,800
Total PPG Amount					160,000	15,200	175,200

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	15,000 hectares¹⁰
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	80,000 hectares

⁸ PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$2m (for MSP); up to \$100k for PF up to \$3m; \$150k for PF up to \$6m; \$200k for PF up to \$10m; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁹ PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

¹⁰ Strictly based on the target area for restoration within forest enclosures, but this is expected to be more (exact amount to be determined during PPG) as the restoration of forests and rehabilitation of degraded forests will also occur in other areas outside enclosures.

3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	3,148,100 metric tons ¹¹
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

PART II: PROJECT JUSTIFICATION

A.1 Project Description.

Global environmental problem, root causes and barriers that need to be addressed

1. Eritrea is endowed with a variety of natural resources that have been declining as a result of human and natural disasters, including drought, deforestation and a prolonged 30-year war that ended in 1991. The country is heavily affected by soil erosion and is experiencing a significant decline in soil fertility and productivity, rendering agricultural production, the only source of livelihoods for more than 80% of the population, progressively less productive. This, in turn, is leading to further conversion of land for agriculture, exposing even more land to wind and water erosion, particularly in the highlands where erosion is already a significant problem and, in some cases (notably in the highlands), encroaching into wildlife habitats. The loss of biodiversity and land and ecosystem degradation, coupled with climate change and desertification, have been identified in a recent GEF Country Portfolio Evaluation as the greatest challenges to sustainable development in Eritrea¹².
2. Eritrea is characterised as arid and semi-arid, with rainfall varying from 500-700 mm in the highlands to below 200 mm a year in the drier coastal areas. The highlands represent ~14% of the total land area and have a mean annual temperature of 21.5 °C. Eritrea faces harsh climatic conditions and has shallow, highly erodible soils. Despite these constraints, cultivation and pastoralism are the major economic activities. According to the 2010 Eritrean Population and Health Survey, the population of Eritrea is estimated at 3.5 million, of whom ~80% live in the rural areas and derive their livelihoods from agricultural activities¹³ – crop and livestock production. Crop cultivation is widespread; however, increasing population and demand for food production are placing pressure on the land through overgrazing, overbrowsing, deforestation and land fragmentation as more land is cleared for agriculture. Clearing vegetation to make way for cultivation is

¹¹ Estimated over a 20-year time horizon using IPCC Tier 2 data in the FAO EX-ACT tool.

¹² GEF, 2014. *Country Portfolio Evaluation: Eritrea (1992–2012)*.

¹³ Government of Eritrea. 2000. *National Biodiversity Strategy Action Plan*.

exposing soil to wind and water erosion and is leading to the siltation of rivers, wells and dams¹⁴. Poor agricultural practices and overgrazing by domestic livestock are further promoting soil erosion¹⁵. The gross annual rate of soil loss from croplands, rangelands and marginal lands is estimated at an extremely high 2.1, 2.5 and 3.5 tonnes per hectare, respectively¹⁶. Climate change, particularly growing climate variability and more frequent droughts, are exacerbating soil erosion¹⁷. Crop yield per unit area of land, as well as livestock and wildlife populations, are declining¹⁸. Over time, crop yields have declined, forest cover reduced and wild animals and bird population dwindled .

3. Eritrea is divided into six regions (zobas) and, in turn, sub-regions (sub-zobas); each sub-zoba is further sub-divided into several 'Mimhidar kebabi' or local administrative areas. Kebabis comprise two or more villages brought together to facilitate their administration.
4. The proposed project is located in the Rora Habab Plateau, in the Nakfa sub-zoba. Rora Habab Plateau is situated approximately 250 km north-west of Asmara. The Plateau lies between 1,500m to 2,760m above sea level and extends about 40 km to the south, rising in many places up to 1,000m above the surrounding countryside. The plateau consists mainly of intermediate to acid volcanic rocks, dominantly andesites and trachytes, mantled by red clay loam and grey-brown sandy loam soils. The juniper-olive woodlands and associated vegetation are important economic, ecological and cultural resources for local people.
5. The Nakfa sub-zoba is located in the Northern Red Sea region, the capital of which is Nakfa. The project site encompasses five administrative kebabis as follows: Bakla, Mariet, Laba, Endlal and Mo'o. The total combined land area for these kebabis is 220,657 hectares, with a population of 19,687 – 9,498 of whom are women and the remaining 10,189 male. Bakla has 6 villages with a total of 1,131 households; Mariet has 4 villages with a total of 930 households; Laba has 2 villages with a total of 765 households; Endlal has 3 villages with a total of 619 households; Mo'o (La'el) has 2 villages with a total of 748 households.

Land degradation and deforestation in the Rora Habab Plateau

6. Although land degradation is pervasive across Eritrea, the central and northern highlands are worst affected, with a degraded area covering ~2.4 million hectares, constituting 19% of the country. The National Capacity Self-Assessment for Global Environmental Management (NCSA, 2006) identifies high population densities, overgrazing, recurrent drought, steep gradients, torrential rainfall and long-term traditional agricultural practices as specific drivers of degradation in the highland areas. Poverty levels are high within the highland areas and households only cultivate ~0.9 hectares of land on average.

Forestry, agriculture and NRM in the Rora Habab plateau

7. Agriculture is the main economic activity in the project area, although yields are highly variable and often insufficient for the average family's yearly needs. Both cereal cultivation and animal husbandry are important in Rora Habab's mixed farming system, with some farmers preferring settled farming with a few animals, and others relying mainly on their animals. There are three farming systems in the project site: (i) a rain-fed farming system supplemented with small-scale irrigation using traditional methods with low inputs and low outputs, (ii) an agro-pastoral farming system where farmers practice growing cereal crops mixed with rearing cattle, goats and camels, and (iii) semi-nomadism on a very limited scale. The main rain-fed crops are wheat,

¹⁴ Government of Eritrea. 2008. *Action Plan for Integrated Water Resource Management (IWRM) in Eritrea*.

¹⁵ Government of Eritrea. 2001. *Eritrea's Initial National Communication under the UNFCCC*.

¹⁶ Government of Eritrea. 2002. *National Action Plan to Combat Desertification and Mitigate the Effects of Drought*.

¹⁷ Government of Eritrea. 2012. *Eritrea's Second National Communication under the UNFCCC*.

¹⁸ Government of Eritrea. 2014. *The Fifth National Report on the Implementation of the UNCBD*.

barley and maize, the yields of which have declined by up to 50% compared to 20 years ago¹⁹. Varieties of fruits (including oranges, lemons and papaya) and vegetables (tomatoes, cauliflower, peppers and onions) are also grown in the rain-fed areas and in the areas where spate irrigation is sometimes practised. Usually, animals provide something of a fall-back in the event of partial or complete crop failure, either to be consumed directly or else sold for cash to buy grain, and their prices fall dramatically during a drought year.

8. Dense forests are found in the northern part of the plateau. The three major tree species across the plateau are *Juniperus excelsa* (juniper), *Olea europaea* subsp. *africana* (olive) and *Rhus abyssinica*. Juniper and olive are co-dominant and commonly associated with the shrubs *Acacia origena*, *Carissa edullis*, *Dodonaea viscosa*, *Maytenus arbutifolia* and *Tarchonathus camphoratus*. Other trees, including *Nuxia congesta* and *Galega somalensis*, are found occasionally, particularly in cemeteries and other protected areas. These isolated, protected individuals attest to the degraded status of the plateau's vegetation and were at one time present in far greater numbers.
 - *J. excelsa* is especially valued for fuelwood, house construction and shade. As an evergreen species, it is also valuable for watershed protection, especially at the onset of the rainy season when little ground cover is present. Rora Habab has the most northerly remnant of *J. excelsa* in Africa, except for an unsurveyed, small and declining population 80 km further north. The distribution of *J. excelsa* along Rora Habab is now patchy and restricted to the north of the plateau, where it is cut by villagers and subject to drought.
 - *Olea europaea* L. subsp. *africana* is co-dominant with *J. excelsa* across most of Rora Habab but isolated trees, remnants of a much larger population, can be found along the hills and drainage channels almost down to Nakfa (1,770m). Although living trees are no longer cut or used as fuelwood on Rora, villagers say that olive trees were cut extensively for fuelwood in the past. *Olea europaea* is the principal species used in the manufacture of plough handles, ox yokes, herding sticks, mattock handles and other agricultural implements. Twigs between one and two years old are used as toothbrushes. The principal reason why this species is particularly threatened on Rora is that its foliage is the main green fodder crop in the dry season and during drought. Farmers know that the practice of stripping leafy branches ultimately kills the trees but they face a dilemma; either they chop the olives to feed animals or else the animals die. The species is difficult to germinate; in the absence of protected areas, the result has been extensive deforestation.
 - *Rhus abyssinica* is mostly found along river banks and at the foot of slopes but only rarely on more exposed or steeper slopes with shallower soils. Most specimens on Rora Habab are 4-6m high and are found in close association with other species, especially *Olea europaea*. Villagers use it to improve the taste of the water. Leaves are collected for this reason and also for use as dry season fodder.
9. The restoration, conservation and sustainable management of the forest remnants in Rora Habab Plateau is key to the continued conservation of the natural forest ecosystem in the adjacent Semienawi Bahri area, making the Northern Red Sea Region of Eritrea a stronghold for biodiversity conservation that requires further protection and conservation status.

Baseline scenario

¹⁹ Based on fieldwork conducted by the Ministry of Land, Water and Environment, Ministry of Agriculture and UNDP Eritrea Office in preparation of this PIF (September 2015).

10. Eritrea has a long history of implementing soil and water conservation structures through widespread local community mobilisation for labour inputs. These include soil and rock bunds, check dams and terracing and tree planting, all of which have been extensively utilised throughout the country. These soil and water conservation activities are also ongoing in the proposed project site through government funding. However, these physical measures alone are insufficient to address the increasing rate of soil erosion, ecosystem fragmentation and land degradation, and, if not properly designed, planned and implemented, have the potential to cause more ecosystem degradation through inappropriate placing and location of physical structures such as dams, use/introduction of invasive alien tree species, over-abstraction of groundwater and obstruction of natural aquifer recharge. Increasing land use intensity and the utilisation of land beyond its inherent capacity (e.g. for crop production and grazing) has affected the long-term sustainability of ecosystems. For instance, intensive crop production has led to significant soil nutrient depletion, resulting in low yields and further abstraction of other resources (e.g. water) to increase productivity and yields. If sustainability measures are not systematically integrated into the types of interventions employed to increase agricultural productivity and facilitate ecosystem restoration – including, *inter alia*, land use planning, conservation agriculture, sustainable grazing/rangeland management, watershed rehabilitation, sustainable forest management and appropriate methodologies to restore degraded forests – they will further exacerbate ecosystem fragmentation and degradation.
11. The primary threat to wildlife in Eritrea is habitat loss. Unsustainable grazing, cultivation, and forestry practices drive this threat. Historical accounts suggest that the Rora Habab and Nakfa area once had extensive forests and were home to abundant wildlife.
12. In 2006, the Government entrusted the Ministry of Agriculture and the Ministry of Marine Resources with the mandate to establish protected areas. The 2006 Forestry and Wildlife Conservation and Development Proclamation (Proclamation No. 155/2006) states that the MoA may establish and manage terrestrial protected areas. The objectives of the proclamation are the conservation, development and sustainable management of forests and wildlife resources of Eritrea. Despite this recognition, the requisite capacity to operationalise these plans has not been available, and this has hampered systematic implementation of these legal instruments. Through the GEF-financed, UNDP-supported project, *Integrated Semienawi and Debubawi Bahri-Buri-Irrori-Hawakil Protected Area Systems for Conservation of Biodiversity and Mitigation of Land Degradation (GEF ID: 4559)*, the first protected area will be designated and operationalised under the Proclamation.
13. While natural resource conservation has not yet taken off at scale in Eritrea, some significant momentum has been built around soil and water conservation throughout the country, within the context of promoting agricultural productivity. Large-scale investments have been made throughout the country, and strategies developed to guide this process. The focus of these interventions and investments has been on infrastructure and physical developments, with limited sustainable natural resources management to ensure ecosystem protection. The integration of sustainability principles into ecosystem restoration and agricultural production is therefore amongst Eritrea's pressing challenges. Field observations and discussions with local authorities show that the level of community participation in soil and water conservation initiatives is high throughout Eritrea, and ecosystem restoration is recognised at community level as an important aspect of addressing land degradation and increasing the productivity of land for agriculture²⁰.
14. The baseline projects are briefly described below.

Baseline projects

²⁰ MoLWE/UNDP field visits to the Debub Zoba, south of Asmara, July 2015.

Soil and water conservation for improved agricultural productivity

Indicative co-finance: Government - US\$ 3 million grant; Beneficiary communities – US\$ 5 million in-kind

15. Over the past decade, large-scale public soil and water conservation works and reforestation programmes have been implemented involving farm forestry, community forestry, village woodlots and popular participation. This work has largely been conducted through the Eritrean philosophy of self-reliance and popular participation, and the programmes have resulted in 305,232 hectares of enclosures – 214,133 hectares of temporary and 91,099 hectares of permanent enclosures – throughout Eritrea²¹. On-farm soil and water conservation practices are underway in all zobas and are currently implemented across an area covering 32,250 ha (2014). The government has made plans to increase this to 87,450ha by 2018, as outlined in 2014-2018 Strategic Development Plan of the Ministry of Agriculture.
16. In the Nakfa sub-zoba, soil and water conservation interventions have, since 2010, resulted in an estimated 9,956 km of terracing of hillsides and 109,477 m³ of check dams in areas previously subject to severe surface erosion and degradation. There has also been re-establishment of native tree species and planting of exotic tree species, and up to 322,000 trees have been planted in 3 out of the 5 kebabis in the project site, covering about 161 ha, with a survival rate of between 60-70%.
17. Eritrea's five-year action plan under the The Great Green Wall Initiative focuses on activities that help in mitigating land degradation, reducing desertification, adapting to climate change and increasing agricultural productivity. The action plan includes implementation of sustainable natural resource management (land, water, forest and wildlife) in the six zones (Maekel, Debub, Anseba, Gash-Barka, Northern Red Sea and Southern Red Sea region) through afforestation/reforestation, soil and water conservation, and establishment and management of enclosures, as well as promotion and establishment of nursery sites. The action plan also includes the establishment of protected areas such as Semenawi and Debubawi Bahri (100,000 ha), Buri-Irrori-Hawakil Islands (180,780 ha), Bara'soli (800 ha) including riverine habitat along Gash and Barka Rivers (195,024 ha), and Nakfa Reserves (16,390 ha).

Ministry of Agriculture Five Year (2014–2018) Strategic Development Plan

Indicative co-finance: Government - US\$ 7 million grant; Beneficiary communities – US\$ 2 million in-kind

18. The Five Year Strategic Development Plan targets smallholder farmers, who form a large majority of the Eritrean farming community. The plan focuses on the following programmes and services:
 - Agricultural Land and Natural Resources Management (soil, water, forestry and wildlife conservation and irrigation development) programmes
 - Integrated Crop and Livestock Development Programmes
 - National Agricultural Research Programmes
 - Services (Animal Health, Plant Health, Regulatory, National Plant and Animal Health Laboratory, Support)
19. The implementation of this plan is expected to cost close to US\$ 690 million over 5 years, with the bulk of the budget (more than US\$ 400 million) allocated to the Agricultural Land and NRM programme (ALNRMP). Through these programmes, the government will develop irrigation infrastructure, introduce integrated agricultural packages that will distribute improved livestock for milk and meat, and promote apiculture, horticulture, poultry and soil, forestry and wildlife conservation.

²¹ Government of Eritrea. 2014. *The Fifth National Report on the Implementation of the UNCBD*.

20. In Eritrea, agricultural extension services are provided primarily by the public sector, through offices of the Ministry of Agriculture. The extension services aim at raising the awareness of farmers towards the adoption of improved inputs and modern practices to increase their yields and improve the quality of production. The main points of contact between the extension specialists or frontline extension agents and farmers are sub-zoba/region and in some places further down at local area administration offices. The extension programme, while successful in deploying much-needed support to farmers, has fallen short of fully integrating sustainable natural resource management into extension support and advice. This lack of integration of ecological sustainability has permeated agricultural practices, including ecosystem restoration interventions, to date. The effectiveness of government extension services is therefore limited, a problem compounded by limited human and institutional capacities for research, land-use planning and governance amongst technical staff, communal authorities and village leaders. Although institutions, such as the National Agricultural Research Institute (NARI) and Hamelmalo Agricultural College have clear roles and mandates, they face shortage of technical staff and have limited funding for on-the-ground activities. Furthermore, the systems for capturing and disseminating lessons-learned and best practices for sustainable natural resource use and land management are inadequate. Inadequate data and information (in terms of quality, quantity and access) constrain decision-making and the knowledge needed for effective practice of integrated land and natural resources management.
21. There are, therefore, significant barriers to sustainable agricultural production and ecosystem restoration in Eritrea. These barriers are briefly described below.

Barriers to be addressed

Barrier 1: Inadequate capacity for cross-sectoral planning, implementation and appraisal of integrated landscape management interventions.

22. It is widely recognised that Eritrea faces an acute shortage of skilled and professional staff within the environmental sector, particularly those with the knowledge and skills for addressing local resource use and development²². For example, biodiversity conservation has received limited support as the Government has focused instead on pressing human development issues, in particular food security. Intensive awareness-raising regarding the conservation, sustainable use and sharing of the benefits of biodiversity conservation has also not been effectively undertaken as the focus has been on promoting agricultural productivity. Consequently, there is weak capacity for the assessment, identification and monitoring of biodiversity with a view to promoting its conservation²³.
23. While there is significant community-level investments in soil and water conservation throughout Eritrea, facilitated through Government financing, these are not always informed by up-to-date knowledge and science, and do not sufficiently consider environmental sustainability. For instance, soil and water conservation works are usually undertaken by the Ministry of Agriculture alone, with little or no participation from other natural resource management institutions such as the Ministry of Land, Water and Environment (MoLWE). Where knowledge does exist, it is not integrated into decision-making and advice, and does not always reach farmers in a user-friendly and timely manner. For instance, the practice of tree-enclosures has been widely adopted by farmers but often exotic species (e.g. *Eucalyptus*) are preferred over indigenous species. Even where the impacts of exotic species are understood by – some – officials and practitioners, the

²² Government of Eritrea. 2006. *National Capacity Needs Self-Assessment for Global Environmental Management in Eritrea*.

²³ *Ibid.*

short-term gains – e.g. *Eucalyptus* grows faster and provides better timber than most indigenous species – outweigh longer-term environmental considerations. Furthermore, the trade-offs between timber production and watershed rehabilitation are not well understood and cost-benefit analysis is not integrated into decision-making.

24. The Extension Agents deployed in the kebabis are usually residents of one of the villages in the kebab they oversee. This approach is followed out of necessity, specifically the lack of financial resources to cover the costs of deploying Extension Agents in localities other than their own. It also allows the Agents to be farmers themselves and practise what they teach. The Extension Agents are usually young and have less experience than most farmers. Their knowledge and expertise is therefore sometimes questioned by farmers, especially in cases where the Extension Agents can identify the problems but are unable to solve them – for example, when they are unable to provide inputs such as seeds, fertilisers or pesticides to farmers.
25. The absence of a well-organised information and knowledge management system focused on landscape-level resource use and management has restricted the documentation and dissemination of best practices that could be adopted by other kebabis in Eritrea. There is no database of best and proven practices; the provision of knowledge-based advice from Extension Agents is limited by the quantity and quality of information available to them. Despite the investment placed in them over recent decades, little systematic study has been done on the efficacy of erosion control and water conservation practices.

Barrier 2: Historical land tenure approaches that act as a disincentive to investing in land conservation

26. Land tenure arrangements continue to have a great impact on the ability and desire of villagers to manage natural resources and to plant or remove trees. *Diesa* (communal or village ownership) and *Risti* (private ownership by individuals or, more commonly, by a kinship group) are the commonest forms of land tenure in Eritrea. Historically, farmland acquisition system at the proposed project site (Rora Habab) has been '*Risti*', under which land is inherited from parents. Typically, farmland passes from father to son. In some instances, women are also entitled to receive a limited share when their fathers die. The major source of women's access to land, however, is through their husbands' customary right to land.
27. A land reform process, applying some tenets of the Land Proclamation of 1994, was carried out in 2009 to change the customary mode of land acquisition. Based on this land reform, eligible households for the allocation of land include female-headed households, and these households are allocated equal pieces of farmland (approximately 0.6 ha per household). The redistribution was carried out by a land committee drawn from among the agro-pastoral communities. According to local officials, the main purpose of this land reform was to achieve a more equitable land allocation and to provide access to land for those who had previously had none. The implementation of the 1994 Land Proclamation has not yet fully begun, but there are pockets of successful trials in different parts of the country, including through a GEF-financed, UNDP-supported project, *Capacity Building for Sustainable Land Management in Eritrea*. Through this project, some land redistribution has been conducted in five villages, and this has generated an awareness and realisation of the importance of land tenure security in facilitating increased investments in sustainable land management at farm level.

Barrier 3: Institutional constraints to coordinated sustainable natural resource management

28. The NCSA highlights the following capacity issues in the environmental management sector in Eritrea: i) weak inter-institutional coordination and communication among government line ministries; ii) weak policy and legal framework; iii) inadequate technical capacity to implement Multilateral Environmental Agreements; iv) weak institutional capacity; v) inadequate funding and lack of budget; and vi) inadequate research and training.

29. The decentralisation of government functions, including environmental issues, has sought to integrate environmental issues into decision-making processes at the regional and sub-regional administrative level. However, capacity deficiencies – relating to planning, baseline data, logistics, institutional and legal frameworks – exacerbate rather than support environmental conservation efforts. Furthermore, the linkages between various natural resource sub-sectors is relatively weak. Environmental protection and the mainstreaming of international obligations – in accordance with the UNCBD, UNFCCC and UNCCD – is therefore not taking place as required.
30. The impact of this lack of institutional capacity to coordinate natural resource management is therefore felt at the local level, and manifests itself as fragmented resource management and a highly sectoral approach to management of water, land, wildlife and other resources. The large-scale nature of the soil and water conservation practices designed to increase agricultural productivity have had large negative impacts on ecological sustainability, and have resulted in ecosystem fragmentation, over-abstraction of groundwater and extensive use of invasive alien species for reforestation. This has been compounded by the lack of data and monitoring of the impacts of these interventions (i.e. cost-benefit analyses) to inform more sustainable approaches. In most cases, the ecological state of the resource (especially water) is not known, or well understood, prior to the design of interventions. New interventions should, therefore, make extensive efforts to integrate scientific information into the design of soil and water conservation interventions and properly integrate biodiversity and species conservation into agricultural development.

Proposed alternative scenario, GEF focal area strategies and expected outcomes and components of the project

31. The objective of the proposed project is to mainstream sustainable land management, forestry and biodiversity conservation into land-use planning and agricultural production practices in the Nakfa Sub-Zoba. Enhanced social mobilisation towards addressing land degradation and the upgrade of institutional and human resource capacity will improve implementation of on-the-ground measures – such as reforestation, enrichment planting, establishment of enclosures and agroforestry – to address environmental deterioration. There are few alternatives to ensuring food security in Eritrea other than through intensifying agriculture and increasing agricultural productivity at household and farm level. Restoring degraded ecosystems so that they continue to provide the necessary ecosystem goods and services is therefore the only solution to guarantee that arable and pastoral production remains viable for the typical farmer.
32. The GEF alternative will therefore address sustainable natural resource management issues that would remain largely unaddressed within the baseline scenario. A range of constraints (discussed under the barriers section) limits the adoption of sustainable natural resource use, land management, and forest strategies and practices that yield local-level benefits. Some of these barriers also impede the generation of global benefits, such as those related to conservation of biodiversity and ecosystems and the landscape's ability to sequester carbon. In order to address these barriers, the project will demonstrate how agricultural development, landscape and ecosystem restoration/rehabilitation and sustainable forest management can be simultaneously achieved with tangible benefits for both the environment and local communities. The proposed project strategy is outlined below.

Component 1: Institutional capacity and enabling framework for integrated landscape management in over **80,000 ha in the Rora Habab Plateau, Nakfa sub-zoba**

33. Component 1 is designed to support the development and strengthening of the policy, regulatory and institutional framework for landscape restoration and natural resources management in Eritrea. As already noted, the focus of government interventions in Eritrea is largely on food production and security. Natural resource management and ecosystem and landscape restoration therefore occur within, and are largely driven by, the greater priority of increasing agricultural productivity. There is, therefore, a need to integrate

sustainable natural resource management, especially soil and water conservation, within the agricultural sector domain, and demonstrate that agricultural production can play a significant role in SLM and landscape restoration. There is significant lack of capacity, skills and resources within the Eritrean resource management institutions to properly do this. Developing this capacity is therefore a key aspect of ensuring that current and future NRM and agricultural practices do not result in further ecosystem degradation and to facilitate and institutionalization of sustainability principles into NRM. The three outcomes proposed under this component are designed to support capacity development at the policy and legislative level, and to create capacity at the national level, through the review or creation of different tools and skills for knowledge-based planning, implementation and monitoring of landscape restoration and management, and the benefits thereof. The outcomes and proposed outputs are outlined below:

- a. Outcome 1.1: Support to the review of national level policy and legislative frameworks for integrated landscape restoration.
 - *Output 1.1.1: Technical review and updates of existing legal instruments conducted to promote/incorporate sustainable use and conservation of forest and wildlife species into landscape restoration planning and implementation*
 - *Output 1.1.2: Integrated landscape restoration plans developed (including for watershed rehabilitation, reforestation and rangeland management) for each of the 5 administrative kebabis in the Nakfa sub-zoba.*
 - *Output 1.1.3: Technical support provided for establishment and strengthening of community-level institutions for natural resource management (e.g. Water User Associations, Farmers' Association and Village Committees) to champion improved land and water management*

- b. Outcome 1.2: Integrated decision-support tools to support multi-stakeholder participation in landscape and ecosystem restoration planning, implementation and monitoring.
 - *Output 1.2.1: Biodiversity mapping (flora and fauna surveys) conducted to determine status of key species (in particular African Olive, Juniper and Nubian Ibex) in the Nakfa sub-zoba*
 - *Output 1.1.2: Revision of existing community by-laws to integrate biodiversity species protection/conservation into the use and management of landscapes (e.g. through land-use planning)*
 - *Output 1.2.3: An integrated system developed to monitor the impacts and benefits of landscape restoration on biodiversity and ecosystems*
 - *Output 1.2.4: Technical guidelines developed to support informed decision-making on appropriate restoration interventions to promote ecosystem integrity*
 - *Output 1.2.5: Technical support and training provided for the development and implementation of measurement, reporting and verification (MRV) of carbon sequestration arising from forest restoration activities*

- c. Outcome 1.3: Capacity of institutions and resource-user groups strengthened to integrate climate-smart approaches into landscape restoration and agricultural production practices
 - *Output 1.3.1: Agricultural extension support agencies trained on integration of climate advice into agricultural extension support services*
 - *Output 1.3.2: On-farm demonstration and training on water and climate-smart agricultural methods and technologies conducted (e.g. rainwater harvesting, agro-forestry and integrated soil fertility management)*
 - *Output 1.3.3: Strategy developed to facilitate landscape-level adoption of climate-smart restoration and SLM approaches*

34. Component 1 is expected to result in a well informed approach to the development of capacity, skills and enabling frameworks for landscape restoration in Eritrea that generates multiple benefits for both the environment and the livelihoods of agriculture and natural resource-dependent households throughout rural Eritrea. The skills and capacity of the resource management institutions (e.g. Ministry of Agriculture, Ministry of Land, Water and Environment) to integrate science into decision-making on landscape and natural resource management interventions and approaches, and even the location and siting of such interventions, as well as the impacts (and benefits) of such interventions on ecosystems, is a key missing element that this component is designed to address. Within the project site, this component will guide site-specific planning and implementation of landscape restoration work with specific ecosystem benefits from the restoration, conservation and sustainable management of African Olive and Juniper tree species, as well as the recovery and deliberate protection of the vulnerable wildlife species, particularly the Nubian Ibex, which is slowly recovering after being hunted to near-extinction. Land-use plans will be developed and community by-laws will be revised to integrate biodiversity considerations into natural resource use, particularly into agricultural production practices.

Component 2: Implementation of on-the-ground interventions to reduce land degradation and pressure on forests and increase agricultural productivity

35. The project will support ecosystem restoration efforts already underway in the Nakfa region, with a focus on the Rora Habab plateau, to promote the rehabilitation of the extensively degraded forest landscapes and promote integrated watershed management. The project will support the development and implementation of integrated restoration plans in the five kebabis identified for project interventions. Support will be provided for sustainable livestock production to address rangeland degradation challenges. A specific focus will be on promoting sustainable forest management through support to conservation of indigenous tree species, in particular African Olive and Juniper, with a view to promoting sustainable ecosystem restoration approaches that not only have economic benefits to the communities but also have strong ecosystem benefits. Afforestation/reforestation activities in Eritrea have promoted widespread use of exotic tree species as the focus continues to be on growing trees that grow fast and have direct economic value. These species have, however, been shown to have negative consequences on water resources, and these consequences can be significant in water-stressed landscapes such as those of Eritrea. If Eritrea is to have a better chance at addressing the current and future impacts of climate change, sustainable restoration and conservation of its degraded forest ecosystems will be one of the key adaptation and mitigation strategies; another will be the promotion of sustainable agricultural production practices through the adoption of sustainable land management (SLM) approaches at landscape levels (both on- and off-farm). Agro-forestry and water- and climate-smart agricultural practices will therefore be demonstrated under this component and the capacity and skills of extension support services and farmers developed to properly carry out these interventions. The outcome and outputs proposed under this component are designed to operationalise integrated and sustainable landscape restoration in the Rora Habab plateau. The component will focus on the following:

Outcome 2.1.: Enhanced resilience of ecosystems and livelihoods through landscape regeneration and integrated watershed management in over 80,000 hectares

Output 2.1.1: Interventions to increase water availability and improve soil moisture implemented in the 5 kebabis.

Output 2.1.2: Improved livestock grazing and livestock water management practices promoted to reduce rangeland degradation and promote livestock productivity.

Output 2.1.3: Agro-forestry and forest restoration and regeneration promoted through establishment of community tree nurseries in Endlal, Mo'o and Maret

*Output 2.1.4: Community-managed forest enclosures expanded through planting and assisted natural regeneration of indigenous and drought-resistant tree species, including the African Wild Olive (*Olea europaea sub-species Africana*), East African juniper (*Juniperus procera*) and *Carissa edulis*.*

Output 2.1.5: Alternative livelihoods and value-addition opportunities identified and supported to reduce over-dependence on unsustainable land use practices in particular bee-keeping (honey production) and horticulture (vegetable and fruit crops).

36. At the end of the project, this component is expected to have facilitated the development of practical skills and piloted and demonstrated best practices for landscape restoration and sustainable agriculture approaches in over 80,000 hectares in the Rora Habab plateau. Through these interventions, it is expected that both farmers and resource managers will be better equipped to identify, implement and monitor improved resource management and promote the generation of multiple benefits (livelihood and ecosystem) in natural resource use and management practice. The practice of creating forests enclosures (both temporary and permanent) has promoted afforestation/reforestation as a natural resource management approach throughout Eritrea, but often sustainability aspects are not integrated into this practice. The project will therefore promote better decision-making about how to 'do' forest restoration, including by promoting the use of indigenous species. These enclosures largely function as protected areas, and there are clear and strict regulations for off-take and harvesting of forest and wildlife species from within these enclosures. They therefore provide a good opportunity to demonstrate sustainable forest management and habitat protection approaches that have clear ecosystem benefits. This component will also support the use of alternative livelihood practices that increase opportunities for income-generation, in particular the production of honey and vegetables and fruits. This is expected to promote reduced dependence on cereal crop production alone for income.

Incremental/additional cost reasoning

37. Without the GEF investment, unsustainable agricultural practices and deforestation will continue to threaten ecosystem integrity and function in the Nakfa area, and Rora Habab plateau in particular. Ecosystem degradation in the area has affected livelihoods and agricultural productivity for decades, and the loss of forest habitats has also affected wildlife populations, with some species coming close to extinction and remaining threatened even today. Investments in post-war landscape restoration have facilitated the recovery of some forest ecosystems and augmented the availability of freshwater²⁴, but the use of unsustainable approaches to agricultural production and landscape restoration pose a threat to the integrity of ecosystems and may lead to further ecosystem degradation and even collapse (e.g. underground water aquifer pollution). The GEF alternative is therefore designed to turn around the conventional approaches currently being used and integrate sustainability aspects into the local production and resource management practices. Investments made now into better natural resource management practices in Eritrea have the potential to halt the widespread degradation of land and ecosystems in the country, particularly in already-vulnerable landscapes, such as the Northern Red Sea region, where the project will be located.

38. Through the Ministry of Agriculture's Five-Year (2014-2018) Strategic Development Plan, significant investments are planned to increase agricultural productivity throughout Eritrea, including in the proposed project area. These plans, if not well informed by sustainable approaches, have the potential to facilitate the further adoption of ecosystem- and landscape-degrading practices and intensify the need to further convert land (e.g. for grazing) and abstract more resources for agriculture. There is therefore a need to balance the goals of Eritrea's food security strategies and policies with the need to promote conservation and management of natural resources, including forests, water and wildlife. While the Five-Year Strategic Development Plan makes mention of land and natural resource management plans, it is unclear what these entail, or how these will be developed at the landscape level. This challenge in articulating the issues to address is partly due to the lack of capacity for sustainable natural resource management, and the bias towards agricultural production that utilises old and often unsustainable approaches. Building the skills and capacity to consider and integrate long-term socio-economic and environmental sustainability into government programmes is therefore an

²⁴ See photographs recently taken in the project area showing forest remnants in the Nakfa sub-zoba.

integral aspect of natural resource management and conservation and should be fully integrated into agricultural policy and practice in Eritrea.

39. Without the proposed GEF alternative, the risk of further environmental degradation due to the prioritisation of agricultural development and economic gains from agriculture will severely curtail the ability of the landscape and ecosystems to recover and continue to provide the goods and services they do. This will further jeopardise the ability of farming communities and households to benefit from their immediate landscape as agricultural yields and ecosystem goods and service will continue to decline. Ecosystem degradation in the Rora Habab Plateau, and the Nakfa region in general, is a potential risk for the integrity of adjacent ecosystems in the Northern Red Sea region, particularly the Debubawi Bahri-Buri-Irrori-Hawakil area, which is the government's new focus area for biodiversity conservation and is the site for the development of post-war Eritrea's first protected area.

Global environmental benefits

40. The total number of households expected to be involved in the project activities is approximately 4,200, with a population of approximately 19,687. Access to irrigation water, ecosystem rehabilitation and restoration, sustainable forest management, climate-smart agriculture and training on climate-smart land management practices is expected to improve the skills of these households and further promote land and agricultural productivity per unit area, and further contribute to household food security, in line with the goals of Eritrea's food security strategies. The promotion of alternative and sustainable income-generating activities and incorporation of biodiversity strategies (e.g. species conservation) in agricultural production practices is expected to reduce pressures on land (e.g. reduction of forest clearance for cultivation of crops) and to promote biodiversity conservation. Deliberate protection of biodiversity through assignment of 'protected status' to flora and fauna species within forest enclosures (e.g. African Olive, Juniper) and the setting aside and recognition of key wildlife habitats (e.g. preventing settlement and human activities at high altitudes which serve as habitat for the Nubian Ibex) through the local land-use plans and community by-laws, will further promote local level awareness of and buy-in for natural resource conservation and species protection.
41. The Rora Habab plateau is part of the Afromontane Archipelago-like Regional Centre of Endemism and the restoration of the remnant forest/woodland ecosystem and support to its conservation would therefore contribute to both regional and global biological conservation benefits. The project will expand the enclosure areas from ~9 000 hectares to ~15,000 hectares during the project implementation period. In addition to the biodiversity benefits, the restoration of forests/woodlands will lead to increased carbon sequestration and storage.
42. The carbon sequestration benefit of the expansion of the forest enclosure area is estimated by the FAO EX-ACT tool²⁵, using IPCC Tier 2 data, to be ~472,215 tCO₂e over a period of 4 years (on the assumption that planting takes place in year 2 of the project). This is equivalent to a cost of GEF \$17.5/tCO₂e. Tropical dry forest can continue to maintain positive net primary production and act as a carbon sink for decades, partly because stem respiration rates decrease with increasing tree size, and partly because continual turnover of leaves, roots and woody material contribute to stabilisation of soil organic matter. Equilibrium between carbon assimilation and respiration may, therefore, not occur for several decades after planting²⁶. The literature on carbon equilibrium in dry forest will be reviewed in detail during the PPG phase to inform more detailed carbon sequestration calculations. For current purposes, a highly conservative 20-year equilibrium timeframe is assumed, in which case the carbon sequestration benefits of the forest enclosures supported by

²⁵ <http://www.fao.org/tc/exact/ex-act-home/en/>

²⁶ See, for example, Keith *et al* (2009), 'Re-evaluation of forest biomass carbon stocks and lessons from the world's most carbon-dense forests', *Proceedings of the National Academy of Sciences*, Vol 106 (28).

the GEF-financed project can be extrapolated, again using the EX-ACT tool, to be ~3.1 million tCO₂, at a cost of GEF \$2.6/tCO₂.

43. SLM will reduce current resource degradation – of water, land and forests – trends in the project area. This will result in more productive pastures and, consequently, improvements in local livelihoods, such as food security and increased incomes for men and women in the project areas. The sustainable management of forests and pastures for moderating runoff will reduce the current rates of flooding that affects downstream populations and improve the landscape's ability to capture and store water under the ground, and create further opportunities for sub-surface water storage through physical interventions. Improved water and livestock management approaches are expected to reduce the pressure on rangelands and the scarce water resources in much of the plateau.
44. Better land management will also lead to improved ecosystem integrity, and delivery of ecosystem goods and benefits. By incentivising sustainable forest management and ecosystem restoration, the project will create an enabling environment for greater investments in such activities at the local and national levels, and further promote the generation of global environmental benefits beyond the project's lifetime.
45. This project directly contributes to the Strategic Plan for Biodiversity 2011-2020 by promoting the mainstreaming of biodiversity conservation into agricultural landscapes in the Rora Habab Plateau of the North Red Sea Region of Eritrea. The project contributes to the achievement of the following Aichi Targets:
 46. 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 site has a population of 19,687 (9,498 women and 10,189 men), since the interventions will be implemented directly with communities, it is expected that their direct participation in project activities will contribute to the raising of their awareness on the values of biodiversity and how to conserve and use it sustainably within agricultural production landscapes.
 47. As part of Outcome 1.1 (*Review and revision of national-level policy frameworks for integrated landscape restoration*) and Outcome 1.2 (*Integrated decision-support tools to enable multi-stakeholder participation in landscape and ecosystem restoration planning, implementation and monitoring*), local, regional and national land use and restoration plans, as well as policy and regulatory frameworks (e.g. community by-laws and national regulations) will be developed/reviewed to incorporate biodiversity conservation and monitoring and ensure an integrated approach to managing landscapes. This will contribute to Aichi 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.*
48. The entire project strategy, particularly Outcome 1.3 (Capacity of institutions and resource-user groups strengthened to integrate climate-smart approaches into landscape restoration and agricultural production practices) is geared towards the achievement of Aichi Target 7 – *By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.* The project will achieve this through supporting the development of decision support tools, based on scientific assessments and findings that promote the consideration of biodiversity in local and national level land use planning processes and through farmers' practices. Training and awareness-raising, and dissemination of findings on the benefits of conserving biodiversity and recognising its value will promote an institutionalization of informed decision-making at household, farm, landscape and administrative-political levels. Climate-smart and biodiversity-friendly land management practices, including physical restoration of degraded ecosystems will be promoted. The project will seek to facilitate an understanding of the status of flora and fauna species in the Rora Habab Plateau and support the recognition and conservation of key species, in particular the African Wild Olive and the East Africa Juniper, as well as the Nubian Ibex, which is reported to be recovering in these highlands. In

this manner, the project will also contribute to Aichi Target 12 – *By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly those most in decline, has been improved and sustained.*

49. A significant portion of the project resources under Outcome 2.1 (*Enhanced resilience of ecosystems and livelihoods through landscape regeneration and integrated watershed management in over 80,000 hectares*) will be allocated to physical restoration interventions to increase the resilience of ecosystems and enhance their ability to continue to provide the goods and services that both land users and biodiversity depend on, and to address land degradation and support climate change adaptation and mitigation. The project will thus contribute to Aichi targets 14 and 15: Target 14 – *By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable;* Target 15 – *By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combatting desertification.*

Innovation, sustainability and potential for scaling-up

50. Efforts to address deforestation, biodiversity loss and land degradation should be undertaken in a manner which supports the broader objective of sustainable development. The majority of the Eritrean population are dependent upon ecosystem goods and services for their livelihoods. Enhancing the resilience and productive capacity of ecosystems will therefore ensure the economic and social wellbeing of local communities – especially the rural poor. Rehabilitation of watersheds and landscapes is critical. Yet it is unlikely to be effectively done without requisite technical capacity for mainstreaming sustainability considerations into rehabilitation and restoration programmes.

- **Social sustainability:** will be achieved by building the capacity of communities to undertake their own landscape-level land-use and rehabilitation plans, with appropriate technical support and incorporating knowledge, information and best practices from elsewhere. Community-based interventions have proven to constitute an effective vehicle for building resilience, as well as addressing social drivers of vulnerability and other factors related to social exclusion. The organisational capacity of the local communities will also be developed through project activities, and training programmes will be provided for both community members and government staff.
- **Economic sustainability:** the project will promote sustainable income-generating activities, such as the harvesting of non-timber forest products, as well as the establishment and/or upscaling of nurseries. Improvements to agricultural and livestock production will also be sought through technological improvement. In addition, alternative income-generating activities will be identified and technical support provided for the implementation thereof. Capacity to make informed investment decisions will be enhanced through capacity building programmes. This will ensure both social and economic sustainability.
- **Financial sustainability:** communities and households will be required to make cash and in-kind contributions, particularly to landscape restoration activities. The level of contributions will be contingent upon the type of activities being implemented and the financial circumstances and needs of the community or household. Eritreans already invest significant amounts of labour and effort into community-level projects, be they government- or donor-funded.

Institutional sustainability: all project planning processes and activities will be aligned with existing government institutions and planning frameworks. Support to review of existing legislative and regulatory frameworks will contribute to much-needed integration of sustainability considerations

into these frameworks and guide appropriate measures for landscape and natural resources management practices in Eritrea. Training and capacity development will further enhance the capacity of institutions to plan, implement and monitor interventions and promote a better balancing of socio-economic and environmental benefits of development programmes.

51. A multi-faceted approach will build stronger social capital, where initiatives also empower communities to consider addressing the underlying development issues. Furthermore, such an approach will support communities to adopt more resilient livelihood strategies. By strengthening the capacity of government institutions – which have a national mandate – to provide knowledge-based advice to the extension services, the project will increase the likelihood and potential for replication. Similarly, an empowered extension service will ensure a nation-wide use of knowledge products developed by the project.
52. Project implementation will be through the current government, village institution and extension structures. This will ensure ownership of the project initiatives as well as on-the-job skills development for all technical staff involved. This approach has great potential for up-scaling and replication across Eritrea, unlike more costly structural measures. The bottom-up approach will ensure that local communities are responsible for both identifying the problems and solutions, as well as implementing and monitoring the identified interventions.
53. This project will directly support the scaling-up of Eritrea's ongoing investments on landscape restoration. The Government has been supporting local-level activities on landscape restoration, implemented through community mobilization. Between 2010 and 2015, an estimated \$5.9 million has been spent in the Rora Habab Plateau area to implement soil and water conservation measures such as check dams and hill-side terraces; conduct afforestation activities; plant tree/forest enclosures; and build ponds and micro-dams. The SFM elements of the project are expected to facilitate institutionalization of forest restoration into landscape management and agricultural practices, and facilitate a systematic integration of this widespread approach into the policy and regulatory frameworks of Eritrea, at both local (i.e. land use and restoration plans) and national (Forest Policies and Regulations) levels. Most importantly, the project is expected to facilitate integration of sustainability principles into forest restoration programmes (e.g. decision-making on species, location of interventions and the monitoring of these interventions and their impacts on ecosystem health and economic benefits arising from them). Addressing degradation of ecosystems such as watersheds and rangelands, including addressing the degradation of biodiversity in agricultural landscapes within a specific site such as Rora Habab, will generate important lessons for the Government to integrate into future planning and design of similar interventions and thereby inform replication. Past and ongoing restoration interventions in Eritrea (specifically soil and water conservation) have mostly lacked a landscape approach and perspective, and have had a narrow focus (e.g. physical interventions to control water) and, as a result, have failed to 'join the dots' in terms of system interconnections. For instance, focusing on water and control without explicit consideration of other aspects such as biodiversity or ecosystem health limits the generation of multiple benefits to the landscape and the livelihoods of resource-users. The GEF support is therefore designed to introduce both quantity and quality objectives into landscape and ecosystem restoration in Eritrea, starting in the Rora Habab Plateau site.

A2. *Stakeholders.* Will project design include the participation of relevant stakeholders from [civil society](#) and [indigenous people](#)? (yes /no) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation.

54. The involvement of policy makers and multiple stakeholders with distinct roles and responsibilities is integral to the success of this multi-focal area approach. Moreover, improving natural resource use and management requires multi-level stakeholder coordination and communication. Broad-based consultations have been (PIF stage) and will be (PPG stage) undertaken, including among communities, civil society and resource user groups (e.g. farmers' associations) and a wide variety of government departments, led by the Ministry of

Land, Water and Environment. A detailed stakeholder analysis will therefore be presented in the CEO Endorsement Request. The table below presents the preliminary list of stakeholders and their expected roles and responsibilities.

Group	Indicative roles and responsibilities
<u>Society</u> : Local communities, private sector, civil society in areas including NUEY (National Union of Eritrean Youth) and NUEW (National Union of Eritrean Women) – to address gender issues.	Local communities will play a central role in project preparation, in particular in the context of identifying the specific on-the-ground investments to be supported under Component 2. Communities will be beneficiaries but will also have the responsibility of direct implementation of project activities.
<u>Policy makers</u> : Ministry of National Development; Ministry of Agriculture; Ministry of Land, Water and Environment with special emphasis on Land, Environment and Water Departments; Ministry of Local Government; Ministry of Transport and Communication (Meteorological Services); Ministry of Finance	Policy-makers will support community engagement in the improved practices as well as ensure mainstreaming of biodiversity conservation and sustainable use into the development process. They will be involved as follows: mainstreaming restoration and ecosystem services; developing innovative funding; influencing international policies; dialogue with research institutions; understanding scientific uncertainties; financing research and monitoring; recognising local diversity; and promoting environmental education. All the listed ministries have been (PIF development) and will be (PPG stage) involved in project design.
<u>Research Institutions</u> : National Agricultural Research Institute (NARI), Hamelmalo Agricultural College	Research institutions will provide technical leadership on integrated landscape restoration and link it to ecosystems, management practices, resilience and vulnerability. Specifically, they will quantify and value ecosystem services, evaluate uncertainties, work at local scales, communicate results to non-scientists, involve society in research; engage in dialogue with policy-makers; and support policy design and negotiations.

3. *Gender Considerations*. Are [gender considerations](#) taken into account? (yes /no). If yes, briefly describe how gender considerations will be mainstreamed into project preparation, taken into account the differences, needs, roles and priorities of men and women.

55. Although women have equal rights in terms of national law, they are still disadvantaged in terms of access to economic opportunities and decision-making. Gender equality is, however, enshrined in the country’s legal frameworks, including the National Policy on Gender (2004) and the National Gender Action Plan (2003-2008). In addition, legislation has been passed relating to gender-sensitive issues, including tenure of land. Women and men are involved in agriculture, soil and water conservation, as well as restoration activities in different ways in Eritrea. However, women are recognised as being one of the most vulnerable groups due to underdevelopment, which is exacerbated by recurrent natural and human-made disasters, and deeply entrenched traditional practices that give rise to inequalities within, between and among men and women. In particular, female-headed households are characterised by low farm productivity and income, because they lack sufficient human power and own fewer assets than the average poor household²⁷.

56. Resource use and access are differentiated by gender, which is aggravated by environmental change. Women in Eritrea carry the heaviest burden in providing their households with basic environmental services. For example, the scarcity of biomass fuel in Eritrea results in women having to walk longer distances and spend more time – up to a day at a time – to collect sufficient quantities of firewood of good quality to meet their families’ needs. Legislation prevents the cutting of live trees for biomass/fuelwood. Consequently, there is a shortage of biomass. The project includes the planting of community-managed woodlots for biomass and individual tree tenure to partly address this problem. Water use and access are also differentiated by gender, and women in Eritrea are traditionally responsible for locating, obtaining and transporting freshwater for

²⁷ Comprehensive Africa Agriculture Development Programme. 2013. *Nutrition Country Paper – Eritrea*.

household use. Inadequate freshwater supplies mean that women and girls can spend up to three hours a day fetching water. Consequently, women are most affected by environmental degradation.

57. In alignment with the National Gender Action Plan, gender considerations will be mainstreamed into the project’s activities to ensure that women are included in the selection of activities to increase their resilience and income-generation abilities, as well as in the various training and capacity-building programmes. For example, womens’ user groups and female-headed households will be targeted in the implementation of sustainable forest management practices, as well as particular alternative livelihoods – such as bee-keeping and the planting of fruit trees. In addition, technical support and advice will be sought from the NUEW during the project design and implementation phase to ensure that women’s needs in the Rora Habab plateau, and Nakfa Sub-Zoba in general, are accurately identified and addressed.
58. Detailed gender analysis will be conducted during the PPG to examine how gender relations influence access to natural resources, management of natural resources and how these relations are likely to influence the effectiveness of project implementation and achievement of results. In particular, the influence of gender relations on the equitable distribution of costs and benefits of project implementation, as well as long-term benefits of the project, will be explored in detail. Based upon the findings, a gender strategy will be formulated to ensure that project implementation is monitored as appropriate in terms of its gender-responsiveness.

A4 Risks. 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 description	Degree	Mitigation/Comment
Severe drought or other extreme weather events intensified by climate change	H	Severe drought, linked with a temperature increase of ~4°C across Eritrea ²⁸ , will result in higher evapotranspiration levels, while greater rainfall variability could result in higher soil erosion rates and reduced groundwater recharge. Higher wind speeds could lead to dust storms (kamsin), especially in the dry season. While the project interventions are designed to address the effects of increasing climate variability, such extreme weather events could negate project benefits in some years. The project will have an ongoing learning-by-doing and monitoring/decision-support tools component (1) that will allow for iterative and adaptive management (e.g. improved water harvesting practices, adoption of SLM/SFM, etc.). Lessons learned will be generated to inform sustainability and replicability of similar interventions elsewhere in the region and in the country.
Further drop in groundwater, possibly leading to conflict	H	While the risk of further lowering of ground water levels is high based on observed trends ²⁹ , a number of project activities – such as watershed rehabilitation, construction of sub-surface dams, treatment of river banks and SWC technologies – have been designed specifically to recharge groundwater levels. Thus implementation of project activities will mitigate against this risk and reduce levels of competition for this scarce resource.
Low human and institutional capacity, especially at the zoba and sub-zoba levels	M	The project has a strong capacity building and training component, designed to promote effectiveness and sustainability at the community and the sub-zoba and zoba administrative levels.

²⁸ Government of Eritrea. 2001. *Eritrea’s Initial National Communication under the UNFCCC*.

²⁹ Government of Eritrea. 2008. *Integrated Water Management Action Plan*.

Delays in project implementation and particularly in the development of infrastructure interventions	H	The PPG period will support the regional administration to design capacity building programmes. Delays in projects are often related to capacity issues, which will be mitigated against. Ownership by the government has been extremely high during the PIF formulation and such ownership will reduce this risk.
Environmental variability may impose new priorities on the funding of Eritrean government and other partners	L	Environmental variability is ever-present in Eritrea, imposing substantial limits on the effectiveness of most medium- to long-term plans. Key project participants will be enabled to actively collaborate to share impending funding changes brought about by environmental variability.
Potential negative impacts of agrobiodiversity activities	M	The use of exotic tree species (e.g. <i>Eucalyptus</i>) for replanting and reforestation purposes is common in Eritrea, and if not well considered (e.g. appropriate species to plant and their siting) may lead to further degradation of some ecosystem services (e.g. reduced streamflow in rivers). This issue will therefore have to be carefully planned, based on scientific knowledge, evidence and detailed understanding of the hydro-ecological interactions and dynamics within the project area. The project includes technical advice activities to specifically address this issue.

A5. Coordination. Outline the coordination with other relevant GEF-financed and other initiatives.

59. The project will be closely coordinated with the baseline programmes and all other projects addressing similar issues. It will, in particular, be closely coordinated with the GEF SIP, *Sustainable Land Management Pilot Project* (UNDP ID: 2979; GEF ID: 3364), whose objective is “To create the enabling environment (policy, capacity, knowledge, alternatives) necessary for adoption of sustainable land management practices and alleviate environmental degradation while improving livelihoods of the farming communities of the Central Highland Zone (CHZ)”. The project will draw from the lessons learned and replicate the best practices for SLM.
60. The project will also collaborate with the Adaptation Fund project entitled *Climate Change Adaptation Programme in Water and Agriculture in Anseba Region, Eritrea* (PMIS 4540), which is addressing climate change adaptation issues within the Anseba region in Hamelmalo and Habero Sub-Zobas. The Adaptation Fund project is focused on increasing community resilience and adaptive capacity to climate change through an integrated water management and agricultural development approach. The GEF-financed project will draw upon the lessons learned regarding enhanced climate-resilient agricultural and livestock production, as well as erosion control through floodwater harvesting and irrigation technologies. One of the lessons learned from the Adaptation Fund project to date is that farmers seek local-level solutions to the environmental challenges they face and acknowledge the benefits of such interventions in terms of increased ecosystem goods and services (e.g. increased water availability, higher agricultural yields, etc.).
61. Similarly, the GEF-financed project will coordinate with the GEF *Integrated Semenawi and Debubawi Bahri-Buri-Irrori-Hawakil Protected Area System for Conservation of Biodiversity and Mitigation of Land Degradation* project (UNDP PIMS 4816; GEF ID: 4559), whose objective is “To establish a national system of protected areas to conserve biodiversity and mitigate land degradation pressures on habitats in key biodiversity areas, initially centred in the Semenawi-Debubawi Bahri-Buri-Irrori-Hawakil Protected Areas Cluster”. The biodiversity mapping activities planned under the new proposed project will also provide valuable information about the status of Eritrea’s fauna and flora, including the African Olive, Juniper and Nubian Ibex, which form part of the Rora Habab’s key biodiversity species.

62. UNDP is in the process of supporting the Government of Eritrea to develop an LDCF project on 'Mainstreaming climate risk considerations in food security and IWRM in Tsilima Plain' (GEF ID: 6923, UNDP ID: 4633). The project objective is 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. In doing so, the LDCF-financed project will support the implementation of Priorities 3,4 and 5 of Eritrea's NAPA – which focus on livestock, forestry and water resources, respectively. The LDCF project is closely aligned with the Rora Habab project in that they are both geared at supporting ongoing initiatives on landscape restoration, although the Rora Habab project has a strong focus on forest restoration owing to its location and the landscape. At the central government level, both projects will be under the oversight of the Ministries of Agriculture (MoA) and that of Land, Water and Environment (MLWE). This central-level coordination by the two Ministries will facilitate cross-project learning and promote joint planning and monitoring by the two institutions, which has been identified as one of the missing elements in planning and implementation in Eritrea, as is the case in many other countries.
63. The African Development Bank has recently launched (early 2016) a \$1.4m project on 'Drought Resilience and Sustainable Programme In the Horn of Africa' and aspects of this project will be implemented in the Nakfa sub-zoba. The proposed GEF-financed project will also coordinate closely with the project to ensure reduced duplication and increased complementarity. More details on the AfDB project will be collected during the PPG stage and ensure enhanced learning from the experiences of the AfDB project. Since 2014, the Government of Japan has also been financing a \$2.3m project in the area to support soil and water conservation, establishment of enclosures and tree nurseries as well as a dairy cow scheme. The proposed GEF-financed project will also coordinate with this project to build on the investments made and learn from ongoing implementation to ensure that strategy and proposed interventions are relevant and have the maximum potential to make impact in the project area.
64. The project will draw upon lessons learned, as well as tools and methods developed under the projects above, to reduce duplication and avoid pitfalls during implementation, and, where appropriate, adopt successful approaches. During the PPG, further analysis will be undertaken to identify relevant projects that should be coordinated with the GEF proposal and linkages will be established.

A.6. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes /no). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.

65. The project is consistent with Eritrea's National Action Programme (NAP - UNCCD), which identifies priority actions to arrest land degradation, desertification and drought. In particular, the proposed project is in alignment with the following priorities: i) empowering people to take active measures to arrest land degradation; ii) addressing the concerns of vulnerable groups affected by land degradation, particularly female-headed households, pastoralists and small-scale farmers; iii) reduction of poverty through income-generating activities; and iv) activities related to arresting land degradation, particularly degradation of productive agricultural land. The project will also support the Aligned National Action Programme 2014–2018 in raising awareness of decision-makers to land degradation issues and SLM at key institutions and within relevant government departments.
66. The project is also consistent with the National Biodiversity Strategy Action Plan (NBSAP), which seeks to ensure the provision of environmental services and natural resources through the restoration, conservation and management of Eritrea's biodiversity. Goals of the NBSAP which the proposed project is in alignment with include, amongst others: i) reducing the overall degradation of natural resources; and ii) increasing the benefits flowing from natural resources through environmental management. The project will support the enhancement of terrestrial biodiversity through the rehabilitation of degraded ecosystems and encouraging the sustainable use of natural resources. Furthermore, the project will promote afforestation/reforestation through

community participation, as well as promote public awareness of biodiversity conservation. In addition, the proposed project will enhance agricultural biodiversity through conserving agricultural resources and ensuring their equitable and sustainable use.

67. The project is in alignment with Eritrea's First National Communication (FNC) and Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC). These reports guide the development of Eritrea's policy, legal and institutional framework for adaptation to, and mitigation of, climate change. The project is in alignment with the objectives of the FNC and SNC and will: i) promote the efficient use of land resources by integrating climate risk considerations into land-use planning and decision-making; ii) empower rural communities with skills to maintain a balance between agricultural production and demands for non-agricultural land uses; iii) strengthen the community-based management of natural resources; and iv) address institutional and technical limitations.
68. The Intended Nationally Determined Contribution (INDC) to the UNFCCC identifies priority mitigation actions that include assisted natural forest regeneration and reforestation (together potentially contributing to emission reductions of 394,000 tCO₂e per year by 2030), subject to international assistance being made available to support these actions.
69. Similarly, the project is in alignment with the country's National Action Programme for Adaptation (NAPA), which identifies priority adaptation projects in Eritrea. Furthermore, the proposed project will empower groups identified in the NAPA as particularly vulnerable to reduce their vulnerability to the effects of land degradation, climate hazards, food insecurity and water scarcity.
70. The project strongly responds to the National Capacity Needs Self-Assessment for Global Environmental Management in Eritrea (NCSA, 2006). In particular, the proposed project will enable the establishment and strengthening of conservation areas (currently these are limited to forest enclosures), as well as demonstrate and develop sustainable use methods in forestry as part of integrated land management in agricultural and forest landscapes in the highlands. In addition, the project will focus on the conservation and sustainable use of natural resources where such resources are threatened by increasing pressure from intensified land use, drought and desertification. In compliance with the NCSA, the project's indicative activities will emphasise the prevention and control of land degradation through the development of sustainable methods for biodiversity conservation within the Nakfa Sub-Zoba, which is affected by significant levels of land degradation.

A.7. 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.

71. Knowledge products/materials will be developed during implementation (e.g. guidelines for monitoring the costs and benefits of restoration interventions) and these can be used for subsequent capacity building and awareness-raising, even beyond the life of the project. Support to improved understanding of the ecological and hydrological processes through Outcome 1.2 is specifically designed to generate data and information that will be used to inform decision-making on the use and management of ecosystems (e.g. water-shed management, appropriate species of trees for reforestation, as well as soil and water conservation measures). Under Outcome 2.1, selected locations in the project area will benefit from demonstrations and training through a learning-by-doing approach. These activities will promote the integration of scientific knowledge, climate information and local knowledge at farmer-level. Farmers will therefore be able to make informed land-use decisions based on an integrated interpretation of the data/information and tools made available and on their own traditional knowledge. Increased collaboration with NARI and Hamelmalo Agricultural College and enhanced capacities of agricultural extension agents will provide further support for the development of appropriate agro-ecological technologies.

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


A. RECORD OF ENDORSEMENT³⁰ OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [Operational Focal Point endorsement letter](#)(s) with this template. For SGP, use this [SGP OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mogos Woldeyohannes	GEF Operational Focal Point	Ministry of Land, Water and Environment	07/27/2015

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies³¹ and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Adriana Dinu, Executive Coordinator, UNDP-GEF		07/20/2016	Phemo K. Kgomotso, EBD RTA	+251 912 503 309	phemo.kgomotso@undp.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required [GEF Project Agency Certification of Ceiling Information Template](#) to be attached as an annex to the PIF.

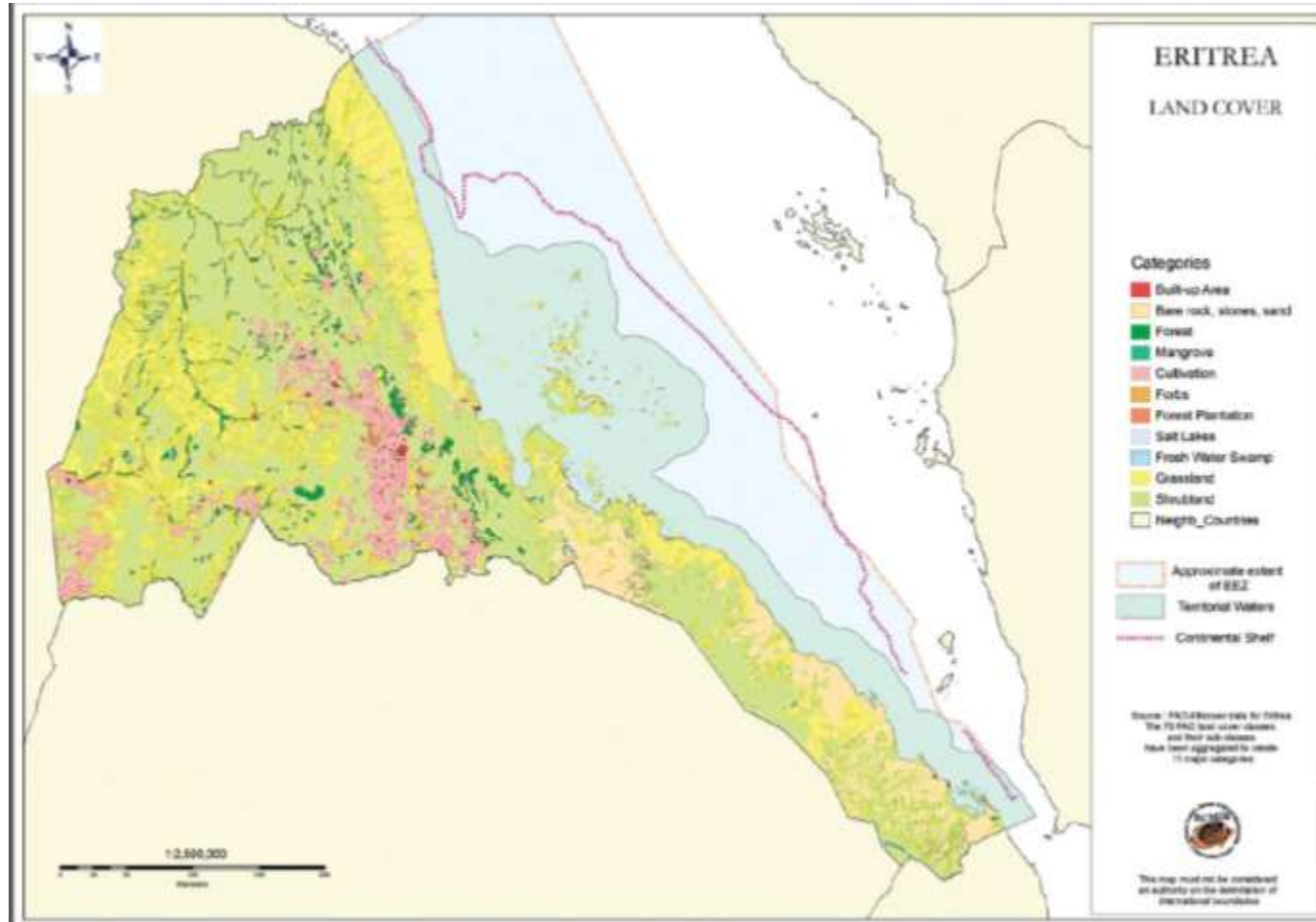
³⁰ For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required

even though there may not be a STAR allocation associated with the project.

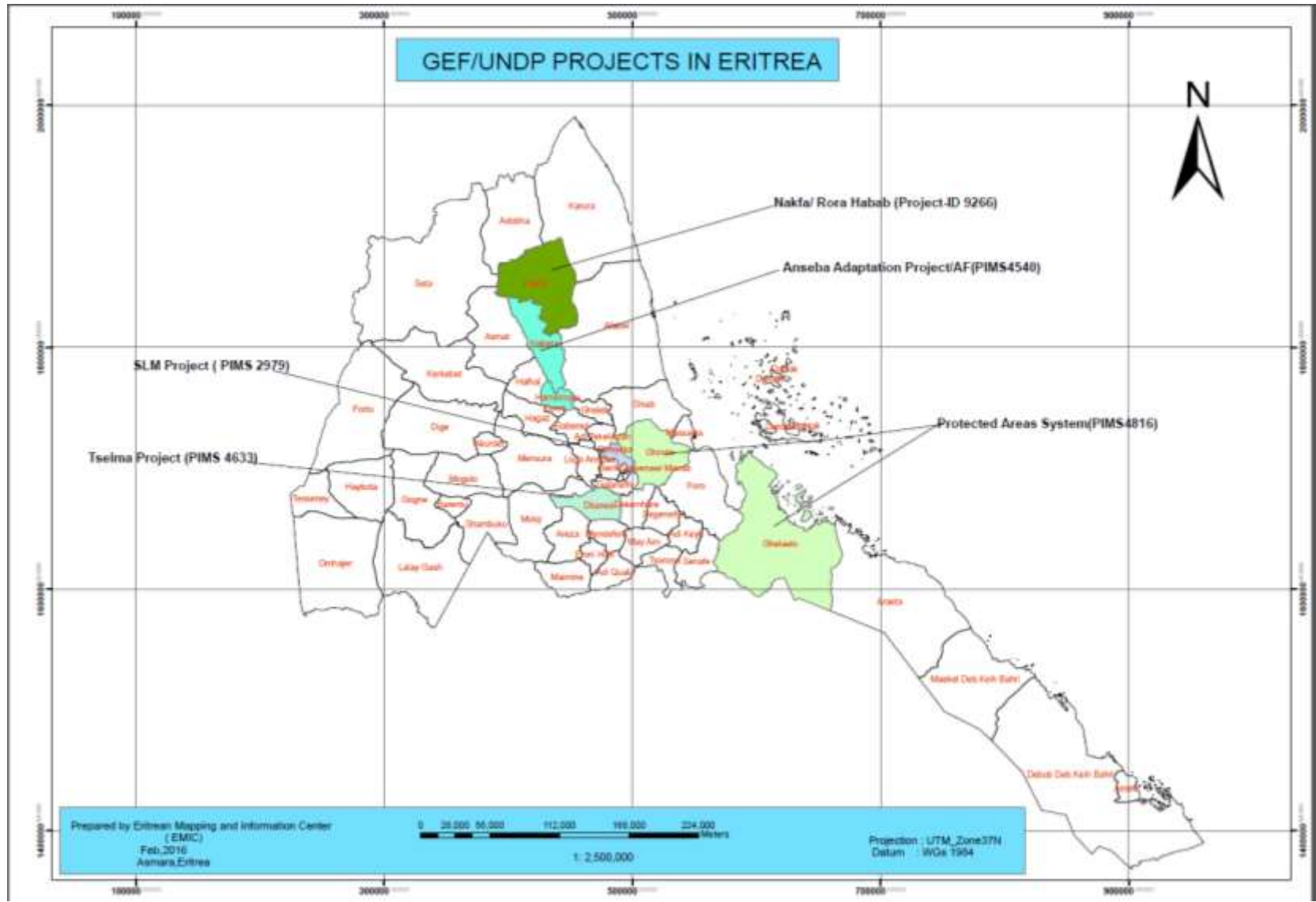
³¹ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

Annex 1: Maps of the Project Site

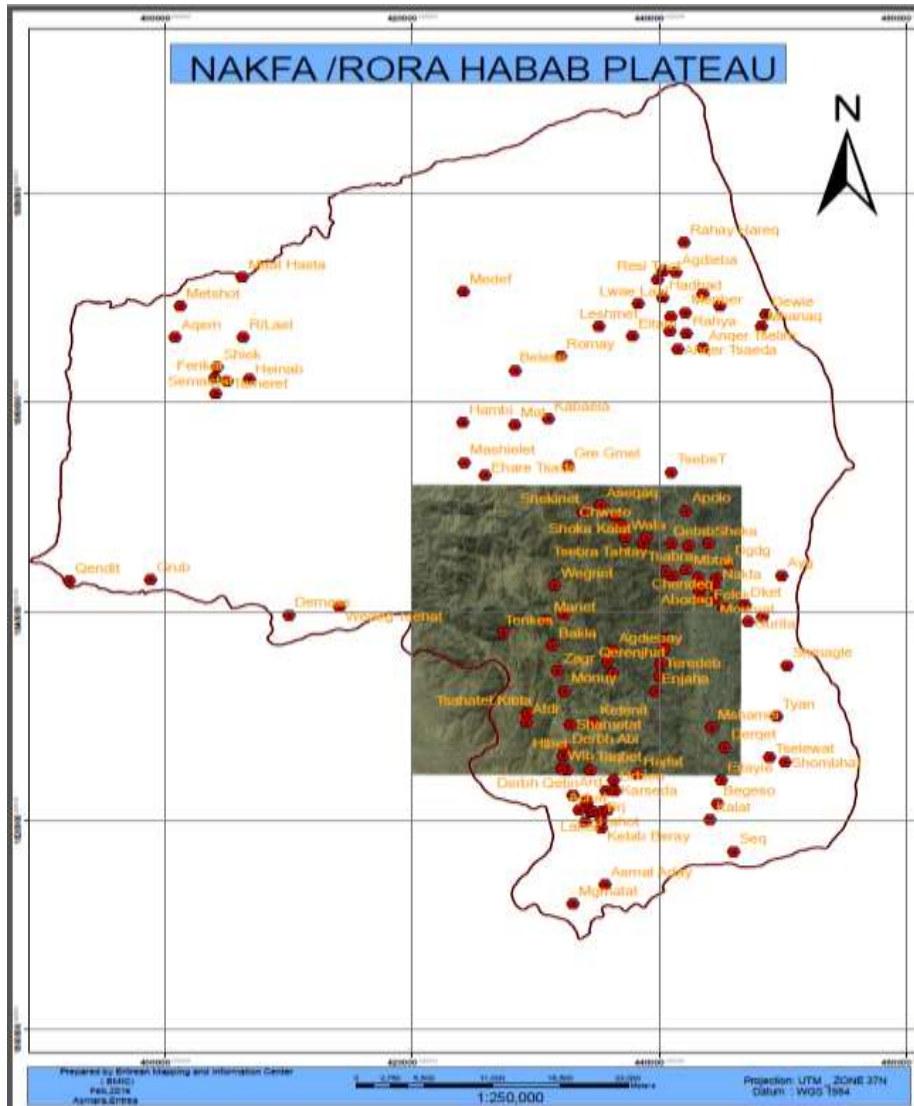
Map 1: Land cover map of Eritrea (extracted from UNDP Report titled *State of the Coast_2006-2007*, Ed by Dr Alain Jeudy de Grissac and Keleab Negussie, 2007)



Map 2: Distribution of GEF-financed projects in Eritrea (including the site for the proposed project)



Map 3: Nakfa settlement map



Annex 2: EX-ACT Results

The screenshot displays the EX-ACT Standard Edition interface. The main content area is divided into two sections: 2.1 Deforestation and 2.2 Afforestation and Reforestation. Each section contains a table with columns for Type of vegetation, Area (ha), Previous land use, and Total Emissions (tCO₂e). The Deforestation section shows a total of 0 tCO₂e, while the Afforestation and Reforestation section shows a total of -3,148,103 tCO₂e.

2.1 Deforestation									
Add map									
Zone 1 = Tropical rain forest		Zone 2 = Tropical moist deciduous forest		Zone 3 = Tropical dry forest		Zone 4 = Tropical dry forest		Zone 5 = Tropical dry forest	
Type of vegetation that will be deforested	Area (ha)	Fire use? (y/n)	Final use after deforestation	Forested area (ha)		Deforested area (ha)		Total Emissions (tCO ₂ e)	
				Without	With	Without	With	Without	With
Select the vegetation:	0	NO	Select Use after deforestation	0	0	0	0	0	0
Select the vegetation:	0	NO	Select Use after deforestation	0	0	0	0	0	0
Select the vegetation:	0	NO	Select Use after deforestation	0	0	0	0	0	0
Select the vegetation:	0	NO	Select Use after deforestation	0	0	0	0	0	0
Select the vegetation:	0	NO	Select Use after deforestation	0	0	0	0	0	0
Select the vegetation:	0	NO	Select Use after deforestation	0	0	0	0	0	0
Depleted Wood Products								Total Deforestation	
								0	0
								0	0

2.2 Afforestation and Reforestation									
Add map									
Zone 1 = Tropical rain forest		Zone 2 = Tropical moist deciduous forest		Zone 3 = Tropical dry forest		Zone 4 = Tropical dry forest		Zone 5 = Tropical dry forest	
Type of vegetation that will be planted	Area (ha)	Fire use? (y/n)	Previous land use	Area that will be afforested/reforested		Total Emissions (tCO ₂ e)		Reliance	
				Without	With	Without	With	Without	With
Forest Zone 3	9000	NO	Degraded Land	9000	24000	0	0	-1,888,882	-5,236,955
Select the vegetation:	0	NO	Select previous use	0	0	0	0	0	0
Select the vegetation:	0	NO	Select previous use	0	0	0	0	0	0
Select the vegetation:	0	NO	Select previous use	0	0	0	0	0	0
Select the vegetation:	0	NO	Select previous use	0	0	0	0	0	0
Select the vegetation:	0	NO	Select previous use	0	0	0	0	0	0
Total Afforestation								-1,888,882	-5,236,955
								-3,148,103	

The carbon sequestration estimates have been computed using the Ex-Ante Carbon-Balance Tool (EX-ACT) Tier Standard Edition, developed by FAO. The forest-type selected for the calculations is Tropical Dry Forest, building on a baseline of degraded land in a Dry Tropical climate. The soil-type generally consists of fertile High Activity Clay loams derived from a basaltic substrate, albeit highly degraded through prior deforestation activity and subsequent over-grazing/agriculture. The project involves the expansion of enclosure areas from 9,000 ha to 15,000 ha using native and introduced tree species selected for their adaptability to semi-arid conditions. Over a period of 4 years (on the assumption that planting takes place in year 2 of the project), approximately 472,215 tCO₂e will be sequestered through the project's intervention.

Annex 3: Pictures taken in September 2015 during a joint UNDP-Government of Eritrea field trip in the Rora Habab Plateau.

