



## Resilient and sustainable livelihoods for rural Yemen

### Part I: Project Information

GEF ID

10562

Project Type

FSP

Type of Trust Fund

MTF

CBIT/NGI

☐ CBIT

☐ NGI

Project Title

Resilient and sustainable livelihoods for rural Yemen

Countries

Yemen

Agency(ies)

FAO

Other Executing Partner(s)

Environmental Protection Agency -Ministry of Environment and Water

Executing Partner Type

Government

**GEF Focal Area**

Multi Focal Area

**Taxonomy**

Land Degradation, Focal Areas, Sustainable Land Management, Restoration and Rehabilitation of Degraded Lands, Income Generating Activities, Sustainable Livelihoods, Sustainable Agriculture, Food Security, Climate Change Adaptation, Climate Change, Community-based adaptation, Climate resilience, Innovation, Mainstreaming adaptation, Least Developed Countries, Livelihoods, Sustainable Development Goals, Biodiversity, Mainstreaming, Fisheries, Agriculture and agrobiodiversity, Productive Landscapes, Protected Areas and Landscapes, Strengthen institutional capacity and decision-making, Influencing models, Demonstrate innovative approach, Private Sector, Stakeholders, Individuals/Entrepreneurs, SMEs, Local Communities, Type of Engagement, Participation, Beneficiaries, Civil Society, Community Based Organization, Non-Governmental Organization, Awareness Raising, Gender results areas, Gender Equality, Capacity Development, Gender Mainstreaming, Gender-sensitive indicators, Women groups, Sex-disaggregated indicators, Capacity, Knowledge and Research, Knowledge Generation, Training, Workshop

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 2

**Duration**

84 In Months

**Agency Fee(\$)**

1,445,202

**Submission Date**

3/23/2020

## A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCA-1	LDCF	5,006,056	24,000,000
CCA-2	LDCF	4,000,000	18,000,000
BD-1-1	GET	5,079,416	9,000,000
LD-1-1	GET	1,100,000	13,000,000
LD-2-5	GET	872,326	7,000,000
<b>Total Project Cost (\$)</b>		<b>16,057,798</b>	<b>71,000,000</b>

**B. Indicative Project description summary****Project Objective**

Support the development of sustainable and resilient livelihoods for rural Yemenis by mainstreaming climate change adaptation, biodiversity conservation, and SLM across productive agriculture, livestock and fisheries sectors. Anticipated objective level indicators: 118,000 hectares of productive land under improved sustainable and resilient management, 48,000 ha of which directly benefiting biodiversity 100,000 hectares of productive marine area under improved management to benefit biodiversity conservation 120,000 small-scale livestock, fisheries, and agriculture producers (60,000female/60,000male) engaged in and successfully demonstrate SLM and climate change innovation and adaptation practices resulting in increased productivity and reduced food insecurity

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
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1. Spatial planning describes and prioritizes conservation and sustainable production practices across terrestrial and marine areas	Investment	<p>Spatial and land use planning ensures terrestrial and marine resource use is appropriately situated to maximize production while promoting biodiversity conservation, SLM, and climate change adaptation.</p> <p>Indicators: Legally binding spatial planning delivers production improvements along with tangible biodiversity conservation, SLM and climate adaptation benefits across:</p> <p>(i) 40,000 ha of agricultural land</p> <p>(ii) 75,000 ha of grazing land</p> <p>(iii) 100,000 ha of marine habitat</p> <p>(iv) 3,000 ha of High Conservation Value Forest</p>	<p>1.1 Government and private enterprise capacity built to enable creation and administration of spatial planning</p> <p>1.2 Government and private enterprises adopt, implement, and monitor legally binding spatial plans</p>	GET	2,000,000	5,000,000
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1. Spatial planning describes and prioritizes conservation and sustainable production practices across terrestrial and marine areas	Investment	<p>Spatial and land use planning ensures terrestrial and marine resource use is appropriately situated to maximize production while promoting biodiversity conservation, SLM, and climate change adaptation.</p> <p>Indicators:</p> <p>Legally binding spatial planning delivers production improvements along with tangible biodiversity conservation, SLM and climate adaptation benefits across:</p> <p>(i) 40,000 ha of agricultural land</p> <p>(ii) 75,000 ha of grazing land</p>	<p>1.1 Government and private enterprise capacity built to enable creation and administration of spatial planning</p> <p>1.2 Government and private enterprises adopt, implement, and monitor legally binding spatial plans</p>	LDC F	2,000,000	10,000,000
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2. Agriculture, livestock, and fisheries practices stimulated to improve livelihoods and mainstream conservation	Investment	Private enterprises adopt innovative agriculture, fisheries, and livestock production practices that improve livelihoods while delivering biodiversity, SLM, and climate adaptation benefits	2.1 Extension training program assists agriculture, livestock and fisheries enterprises to mainstream conservation within productive practices	GET	3,000,000	14,500,000
		Indicators:	2.2 Market innovations generate economic incentives for improved agriculture, livestock and fisheries production			
		Number of small-scale private enterprises adopting productive practices that deliver biodiversity conservation, SLM, and/or adaptation benefits				
		(i) 90,000 agriculture producers 45,000 female/45,000male)				
		(ii) 25,000 livestock producers (12,500 female/12,500 male)				
		(iii) 5,000 marine fisheries producers (2,500 female/2,500 male)				

2. Agriculture, livestock, and fisheries practices stimulated to improve livelihoods and mainstream conservation	Investment	Private enterprises adopt innovative agriculture, fisheries, and livestock production practices that improve livelihoods while delivering biodiversity, SLM, and climate adaptation benefits	2.1 Extension training program assists agriculture, livestock and fisheries enterprises to mainstream conservation within productive practices	LDC F	4,577,196	21,500,000
		Indicators:				
		Number of small-scale private enterprises adopting productive practices that deliver biodiversity conservation, SLM, and/or adaptation benefits	2.2 Market innovations generate economic incentives for improved agriculture, livestock and fisheries production			
		(i) 90,000 agriculture producers (45,000 female/45,000 male)				
		(ii) 25,000 livestock producers (12,500 female/12,500 male)				

3: Policy and regulatory frameworks guarantee enduring results by integrating lessons learned	Technical Assistance	<p>Policy and regulatory frameworks reflect project results, including incentivizing production practices that improve livelihoods and benefit biodiversity conservation, SLM, and CCA</p> <p>Indicators:</p> <p>Number of agriculture, livestock, and fisheries enterprises incentivized to adopt biodiversity conservation, SLM, and/or adaptation positive practices as a result of policy improvements:</p> <p>(i) 90,000 agriculture producers (45,000 female/45,000 male)</p> <p>(ii) 25,000 livestock producers (12,500 female/12,500 male)</p> <p>(iii) 5,000 marine fisheries producers (2,500 female/2,500 male)</p>	<p>3.1 Targeted capacity building generates policy and regulatory improvements</p> <p>3.2 Effective monitoring and evaluation implemented with project lessons captured, disseminated and upscaled</p>	GET	1,715,945	9,000,000
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3: Policy and regulatory frameworks guarantee enduring results by integrating lessons learned	Technical Assistance	<p>Policy and regulatory frameworks reflect project results, including incentivizing production practices that improve livelihoods and benefit biodiversity conservation, SLM, and CCA</p> <p>Indicators:</p> <p>Number of agriculture, livestock, and fisheries enterprises incentivized to adopt biodiversity conservation, SLM, and/or adaptation positive practices as a result of policy improvements:</p> <p>(i) 90,000 agriculture producers 45,000 female/45,000 male)</p> <p>(ii) 25,000 livestock producers (12,500 female/12,500 male)</p>	<p>3.1 Targeted capacity building generates policy and regulatory improvements</p> <p>3.2 Effective monitoring and evaluation implemented with project lessons captured, disseminated and upscaled</p>	LDC F	2,000,000	10,000,000
Sub Total (\$)					15,293,141	70,000,000
Project Management Cost (PMC)						
GET					335,797	500,000
LDCF					428,860	500,000
Sub Total(\$)					764,657	1,000,000
Total Project Cost(\$)					16,057,798	71,000,000

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Donor Agency	World Bank	Grant	Investment mobilized	36,000,000
Donor Agency	The Netherlands	Grant	Investment mobilized	5,000,000
Donor Agency	Emirates Fund	Grant	Investment mobilized	12,000,000
Donor Agency	Kuweit	Grant	Investment mobilized	9,000,000
Donor Agency	European Commission	Grant	Investment mobilized	9,000,000
<b>Total Project Cost(\$)</b>				<b>71,000,000</b>

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

"Investment Mobilized" was identified. New and additional investments from project partners executed in the same geography and during the same period of time, have been mapped and relevant projects and programmes capitalised and recognised as mobilised investment. The below summarises the link to the relevant projects per each co-financier listed in table C (further elaborated upon in section incremental cost reasoning of the PIF): The World Bank mobilised investment comprises the GAFSP project Strengthening Agriculture Productivity and Resilience Project Plus (SAPREP+) The Netherlands' mobilised investment comprises the project Consolidating the Decentralized Integrated Water Resource Management System in Sana'a Basin, Yemen (Sana'a Basin Project Phase II) The Emirates Fund's mobilised investment comprises the project Integrated water management for food security and resilience Kuwait's mobilised investment comprises the projects Resilient livelihoods for the most vulnerable communities in Yemen and Enhancing food availability through increased agriculture production for subsistence farmers in Hadramout Governorate in Yemen The European Commission's mobilised investment comprises the project Supporting Resilient Livelihoods and Food Security in Yemen Joint Programme (ERRY II)

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Yemen	Climate Change	NA	9,006,056	810,545	9,816,601
FAO	GET	Yemen	Biodiversity	BD STAR Allocation	5,079,416	457,147	5,536,563
FAO	GET	Yemen	Land Degradation	LD STAR Allocation	1,972,326	177,510	2,149,836
Total GEF Resources(\$)					16,057,798	1,445,202	17,503,000



## E. Project Preparation Grant (PPG)

PPG Required



PPG Amount (\$)

300,000

PPG Agency Fee (\$)

27,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Yemen	Climate Change	NA	168,256	15,143	<b>183,399</b>
FAO	GET	Yemen	Biodiversity	BD STAR Allocation	94,896	8,541	<b>103,437</b>
FAO	GET	Yemen	Land Degradation	LD STAR Allocation	36,848	3,316	<b>40,164</b>
Total Project Costs(\$)					<b>300,000</b>	<b>27,000</b>	<b>327,000</b>

## Core Indicators

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
118000.00	0.00	0.00	0.00

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
45,000.00			

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

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

## Type/Name of Third Party Certification

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
70,000.00			

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

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

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

Title

Submitted

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
100,000.00			

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

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

Type/name of the third-party certification

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

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

LME at PIF

LME at CEO Endorsement

LME at MTR

LME at TE

## Indicator 5.3 Amount of Marine Litter Avoided

Metric Tons (expected at  
PIF)

Metric Tons (expected at CEO Endorsement)

Metric Tons (Achieved at MTR)

Metric Tons (Achieved at TE)

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

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	60,000			
Male	60,000			
Total	120000	0	0	0

## Part II. Project Justification

### 1a. Project Description

#### 1a. PROJECT DESCRIPTION

##### Background:

The Republic of Yemen is located on the southern end of the Arabian Peninsula. The country occupies an area of 527,970 km<sup>2</sup>. The coastline is over 2,000 km long and follows the Gulf of Aden, Arabian Sea and Red Sea. Approximately 80% of the country is classified as desert. Over 17% of the country is classified as rangelands and forest. Less than 3% of the land is considered suitable for agriculture. However, the land and seascapes are diverse. The Al-Rub Al-Khali desert interior is hot and dry. The Yemen highlands along the Red Sea coast reach to 3,600 meters with a temperate, monsoonal climate. The country has more than 112 islands, including the highly biodiversity rich Socotra Archipelago.

Yemen is an LDC and often considered the poorest country in the Arab region. The World Bank estimates per capita GDP at approximately US\$ 1,100. More than 40% of the population live on less than \$2 per day. The country's HDI ranking is 178 from 189 globally. The total human population is approximately 30 million. Life expectancy is 64 years. (UNDP, 2015). External assistance, including foreign aid and remittances from workers in neighboring Gulf States, are large parts of the economy. Oil represents 27% of GDP and 70% of export revenues.

The entire economy has suffered due to the on-going conflict. The World Bank estimates that GDP declined over 30% from 2012 – 2015. The UN estimates that over 80% of the country's total population currently need humanitarian assistance, nearly 15 million people lack access to basic health care. Only 21% of the rural population has access to safe drinking water. Yemen is one of the world's most food insecure nations. Over 10 million people currently rely upon food aid for their survival with over 80% of all food-insecure people living in rural areas. FAO estimates that 50% of Yemeni children are chronically malnourished.

Although urbanization is occurring, over 70% of the population still live in rural areas. The rural economy is based upon fisheries, agriculture and livestock rearing. Agriculture generates only 17% of total GDP. However, the agricultural sector employs more than 50% of the population. There are more than one million private farms, most of these are small-holder private enterprises. Crops include a variety of cereals, fruits, coffee and expanding khat production.

Much of Yemen's production is for subsistence. Productivity is very low. As a result, over 80% of all food availability is imported. The country imports 70% of all cereals, 90% of wheat and 100% of rice.

Livestock production is extensive and a highly important part of the agricultural sector. The national herd is comprised of approximately 9 million sheep, 9 million goats, 1.6 million cattle, and nearly .5 million camels.

Artisanal and commercial fishing are important contributors to rural economies and food security. Although rigorous data is not available, the Ministry of Fisheries Wealth estimates that nearly 500,000 households rely upon fisheries and the total annual catch exceeds 231,000 tonnes.

Yemen's rural communities are highly vulnerable to climate change impacts. These vulnerabilities are heightened by the conflict induced humanitarian crisis. Rural communities rely upon sustainable access to natural resources and associated ecosystem services for production and subsistence. They require natural resources for basic household needs such as drinking water, fuelwood and medicinal plants. Unfortunately, land, water, fisheries, and forest resources that are already under great strain and generally degraded have limited resilience to rapidly advancing climate change impacts.

Although the current protected area regime covers less than 1% of Yemen, the conserved land and marine habitats are very important globally. It is important to note that all of Yemen's protected areas are currently used for production purposes including livestock, agriculture, and fisheries although these practices may be limited and are subject to additional oversight by the Environmental Protection Agency.

Yemen's biodiversity is globally significant. There are 71 large mammals and more than 363 bird species. At least 13 bird species are endemic to Yemen (UNDP, 2010). According to the Gap Analysis of Natural Plant Biodiversity of Yemen (2011), Yemen hosts over 2,871 plant species of which 105 are exclusive to Yemen.

Yemen's marine ecosystems are complex and diverse. Abundant marine habitats include coral reefs, mangroves, and sea grasses. Yemen's sea grasses include *Posidoniaceae*, *zosteraceae*, *hydrocharitaceae*, and *cymodoceaceae*. There are four species of turtles: Green (*Chelonia mydas*), Hawksbill (*Eretmochelys azelleu*), Loggerhead (*Caretta caretta*) and Leatherback (*Dermochelys coriacea*). Dugongs and several species of dolphins and whales are found in Yemen's waters. There are over 416 fish species recorded with a high number of endemics.

#### Project Areas:

The Government of Yemen would like this project to focus upon three locations where interventions are urgently required: The Socotra Archipelago, Al-Mahrah Governate, and the Sarawat Mountains. Each location was selected based upon factors including relevance, global significance, SLM and CCA needs, security, and probability of successful outcome. Rural producers in each location face challenges stemming from unsustainable production activities, including agriculture, livestock and fisheries sectors. These productive practices result in adverse impacts to globally significant biodiversity, land degradation and increased exposure of rural poor to increased climate change vulnerability and food security issues. Each location requires international assistance to mainstream conservation within production practices in order to promote generation of global environmental benefits and increase food and livelihood security.

*Socotra Archipelago:*

Facts and Issues: Socotra Project Site	
Governorates: Socotra	Agriculturalists: 12,339 Total Agricultural Land: 120,000ha
Districts: Hadibu and Qulansiyah wa 'Abd-al-Kūrī	Irrigated: 98,000 ha Dry-Land: 22,000 ha Primary Crops: fruit, vegetables, palms
Urban Population: 17,158 Male: 8,647 Female: 8,511	Livestock Producers: 8,226 Total Rangeland: 245,000 ha Total Livestock: 731,500 head
Rural Population: 42,842 Male: 21,592 Female: 21,250	Sheep/Goats: 700,000 head Cattle: 20,000 head Camel: 3,000 head Other: beehives 8,500



Total Project Area: 362,500 ha Terrestrial: 274,000 ha Marine: 88,500ha	Degraded Lands: 18,000 ha  Land Degradation Neutrality Target: 13,000 ha
Protected Area: 362,500 ha Terrestrial: 274,000 ha Marine: 88,500ha	Total Forest Land: : 274,000 ha  High Conservation Value Forests: 9,500 ha
Area with legally binding spatial planning: N/A Terrestrial: N/A Marine: N/A	Annual Fisheries: 3,600 metric tones Fishing Households: 26,080
<p>Summary of Threats:</p> <p>The pressing conservation issues on Socotra are overfishing driven by foreign market demands, over-grazing driven by drastically increased goat populations, and land conversion for commercial and household agriculture. Both fisheries and livestock production are currently “open access”.</p>	

The Socotra Archipelago is comprised of four islands. Socotra stands out as a tremendous example of globally significant biodiversity often compared to the Galapagos Islands due to high levels of endemism. The island chains and associated marine environments are located nearly 600 km south of the mainland. The archipelago is approximately 110 km long and about 40 km wide. The total land area is approximately 3,900 km<sup>2</sup>. The terrestrial terrain is rugged and defined by dry lands. The highest point in Socotra reaches over 1,500 meters.

Socotra became a UNESCO Biosphere Reserve in 2003 and a World Heritage Site in 2008. The World Heritage application states: “The Socotra Archipelago is a unique living museum and a masterpiece of evolution...” Bird Life International recognizes 22 important bird areas within the archipelago. Conservation International identified the archipelago as the most important center for biodiversity within the Horn of Africa Biodiversity Hotspot. WWF lists Socotra as one of 200 Eco-regions.

The number of endemic species is remarkable. There are 830 plant species. More than 300 of these plant species can be found nowhere else in the world. All of the terrestrial mollusks are endemic. There are 30 endemic reptiles. The islands have 6 endemic bird species and 10 endemic subspecies. The Dragon's Blood Tree (*Dracaena cinnabari*) is found only on Socotra and relied upon for its medicinal properties. The islands have the world's highest diversity of Frankincense trees (*Boswellia*).

The very rich marine system is a unique mix of species from the western Indian Ocean, the Red Sea, East Africa, and the wider Indian Ocean. There are 730 species of fish, 253 species of reef-building corals, 600 mollusks, and over 300 species of crab, lobster, and shrimp. Both Green and Loggerhead turtles nest on Socotra. The historically unspoiled marine and reef systems of Socotra are thought to serve as a significant source of replenishment and dispersal for surrounding areas.

The total human population is approximately 50,000. Historically, Socotra has been one of the poorest regions of Yemen with most of the population living below the absolute poverty line. Economic activities include small-scale agriculture, livestock grazing, fisheries, and a very small tourism market.

Thirty-two protected areas are located within the Socotra archipelago. The 10 marine protected areas (MPAs) cover approximately 2,800 km<sup>2</sup>. The 22 terrestrial protected areas cover approximately 1,700 km<sup>2</sup>. Most of the protected areas are used extensively for production practices. Some examples exist of small protected areas being managed by local communities to help support conservation, particularly of marine resources.

#### *Al-Mahrah Governate*

Facts and Issues: Al-Mahrah Project Site	
Governorates: Al-Mahrah	Agriculturalists: 1,530
Districts: Hawf	Total Agricultural Land: 2,995 ha
Municipalities: Damqoot, Gadeb	Irrigated: 809 ha
	Dry-Land: 2,660 ha
	Primary Crops: fruit, vegetables and livestock fee

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<p>Urban Population: 00</p> <p>Male: 00</p> <p>Female: 00</p> <p>Rural Population: 8,806</p> <p>Male: 4,973</p> <p>Female: 3,833</p>	<p>Livestock Producers: 6,164</p> <p>Total Rangeland: 11,340 ha</p> <p>Total Livestock: 960,000 head</p> <p>Sheep/Goats: 370,000 head</p> <p>Cattle: 480,000 head</p> <p>Camel: 110,000 head</p>
<p>Total Project Area: 30,000 ha</p> <p>Terrestrial: 23,791 ha</p> <p>Marine: 6,209 ha</p>	<p>Degraded Lands: 4,500 ha</p> <p>Land Degradation Neutrality Target: 4,500 ha</p>
<p>Protected Area: 30,000 ha</p> <p>Terrestrial: 23,791 ha</p> <p>Marine: 6,209 ha</p> <p>Haouf and Nishtun?</p>	<p>Total Forest Land: 30,000 ha</p> <p>High Conservation Value Forests: 23,791 ha</p>
<p>Area with legally binding spatial planning: N/A</p> <p>Terrestrial: N/A</p> <p>Marine: N/A</p>	<p>Annual fisheries: 86,161 metric tones</p> <p>Fishing Households: 6568</p>
Summary of Threats:	

Overgrazing along with fuelwood consumption are driving the loss of biodiversity, intensifying land degradation, and exposing rural residents to increased climate change vulnerability.

Al-Mahrah is a desert coastal zone with rich marine biodiversity and terrestrial biodiversity. This includes the Hauf cloud forest which the largest forest system remaining on the Arabian Peninsula. Located along the border of Saudi Arabia and Oman, the Governorate is approximately 122,000 km<sup>2</sup> with a human population of 500,000. Most of these residents are rural and rely upon grazing, limited agriculture, and seasonal fisheries for their livelihoods. The region is mountainous with the highest elevation reaching 1,300 m. The region provides habitat for species such as Arabian leopard, ibex, hyena, and gazelle. There are more than 220 plant species and approximately 70 bird species. This is one of only two regions in Yemen with Frankincense trees (*Boswellia*), an important species for both biodiversity and traditional use.

Two protected areas are located in Al-Mahrah: Nishtun MPA and the Hauf (Hawf) PA. Nishtun provides important nesting habitat for several turtle species. The Hauf protected area covers approximately 46,000 hectares. This includes a majority of the governorate's cloud forest. The Hauf District was nominated as a UNESCO World Heritage site and listed as tentatively approved.

#### *Sarawat Mountains:*

Facts and Issues: Sarawat Mountains Project Site	
<i>Site information is indicative.</i>	
Region: Yemen	Estimated agriculturalists: 150,000+
Governorates: Dhamar	Total Agricultural Land: Dhamar: 28,000 km <sup>2</sup>
Districts: Dhamar (Anis, Maghirib, Utmah)	Irrigated: 12,000 km <sup>2</sup> Dry-I and: 15 000 km <sup>2</sup>

Municipalities: multiple	Primary Crops: Coffee, Khat, Grains, Vegetables
<p>Total Populations (Urban/Rural)</p> <p>Anis: 119,000</p> <p>Maghirib: 53,000</p> <p>Utmah: 145,000</p> <p>Bura: 45,000</p> <p>Target Rural Population: 10,000</p> <p>Male: 5,000</p> <p>Female: 5,000</p>	<p>Anis, Maghirib, Utmah Districts – Estimated Livestock Producers: 6,000</p> <p>Total Rangeland: 10,000 ha</p> <p>Est Total Livestock: 10,000+ head</p> <p>Sheep/Goats: 8,000 head</p> <p>Cattle: 1,500 head</p> <p>Camel: 500 head</p>
<p>Total Estimated Project Area: 40,000 ha</p> <p>Terrestrial: 40,000 ha</p>	<p>Estimated degraded Lands: 40,000 ha</p> <p>Land Degradation Neutrality Target: 25,000+ ha</p>
<p>Protected Area: 4,000 ha</p> <p>Terrestrial: 4,000 ha</p>	<p>Total Forest Land: N/A</p> <p>High Conservation Value Forests: N/A</p>
<p>Area with legally binding spatial planning: N/A</p> <p>Terrestrial: N/A</p> <p>Marine: N/A</p>	<p>Annual fisheries: N/A</p> <p>Fishing Households: N/A</p> <p>Commercial Fishing Operations: N/A</p>

<p>Summary of Threats:</p> <p>Khat production is displacing traditional cropping patterns, including highly valuable and potentially sustainable coffee. Khat requires very high levels of chemical inputs along with large volumes of freshwater. This is driving land degradation, increasing climate change vulnerabilities, and impacting nutrition, livelihood and food security for local residents.</p>	

The Sarawat Mountains are located between Sanna and Aden and covers parts of five governorates. The three northern Governorates are Dhamar, Taiz and Ibb. The two southern Governorates are Abyan and Rahj. This mountainous area has peaks exceeding 3,000 meters with the highest, Jabal An-Nabi Shu'ayb, reaching 3,666 meters. Significant biodiversity includes both the Arabian leopard and Hamadryas baboons. This region receives higher rainfall than the remainder of Yemen, making it historically an important region for agriculture. The Sarawat region was once home to some of the world's most valuable coffee. Coffee was historically grown as a cash crop accompanied by diverse farm production of vegetables and grains. However, over the last decade, the monoculture production of khat has rapidly replaced much of this traditional and potentially sustainable coffee due to perceptions of potential cash returns. This has caused significant land degradation, loss of biodiversity, and increased exposure to climate change challenges. Much of the rural population now reliant upon khat production faces critical livelihood and food security issues.

### Threats, Causes and Climate Related Issues:

#### *Climate Change, Vulnerability and Impact*

Yemen is experiencing a number of climate induced impacts that threaten the well-being of rural communities while contributing to biodiversity loss and land degradation. These events are happening now and create an urgent need for action. At the same time, climate related vulnerabilities will likely accelerate as climate change advances with impacts ascending rapidly if action is not taken.

A climate risk screening was conducted in order to enhance the PIF development, using a short-form of the MOSAICC platform. This is a modelling system for the assessment of the agricultural impacts of climate change developed by FAO and EU.

The assessment concluded that the three proposed project sites are “high” risk. The assessment determined that each of the intervention sites (mountain, desert and island) are highly exposed to climate related natural hazards. All the agricultural systems (crops, livestock, fisheries and forests) will be affected to some extent across short, medium and long term projections.

Yemen is one of the most vulnerable countries to climate change and variability. Yemen is ranked 167 of 181 countries by the ND-GAIN (The Notre Dame Global Adaptation Initiative) vulnerability index given the low adaptive and institutional capacities of its population and institutions, heavy dependence on fragile marine ecosystems for fishing, and severe scarcity of freshwater for agriculture.

The Yemen NAPA identifies three main sectors most vulnerable to climate change: water resources, agriculture and livestock production, and coastal zones/fisheries. These critical sectors pose potentially severe implications to the citizens at large and are considered to be in need of immediate and urgent adaptation attention. The major impacts of climate change in Yemen will include: increased water scarcity and reduced water quality; increased drought frequency, increased temperatures, and changes in precipitation patterns leading to degradation of agricultural lands, soils and terraces; further habitat degradation and biodiversity loss particularly associated with desertification and over-grazing; reduced agricultural productivity impacting already at risk food insecurity issues; deteriorated coastal zones and fisheries; and, associated growth of vector borne and water borne diseases.

Socioeconomic indicators denote that the people living in the project’s areas are highly vulnerable to climate change and most of them are below the poverty line, are sensitive to climate hazards and make a living from weather-related systems such as agriculture, livestock and fisheries (UNDP, 2009). These are very serious concerns as Yemen's economy largely depends on its rural natural resources with more than 74% of the rural-based population engaged in farming and pastoralism and hence highly reliant on favorable climatic conditions for their livelihoods.

There will likely be a 2-3°C increase in temperature (according to CIROC and MIROC GCM's) by 2050 as reported by Jones et al. (2010) and of 1.2-3.3 °C by 2060 as acknowledged by USAID (2016). Over the coming years, all areas of Yemen will likely get warmer particularly during winter months with mean rise by 2050 between 1.7° C and 2.4° C. The number of hot days/nights (exceeding the hottest 10% of historical days/nights) are expected to increase as reported in Yemen’s Second National Communication (2013).

Projected climatic trends give evidence that extreme precipitation, floods and drought events will be more frequent and intense in all of the project’s intervention areas. Even though values differ between studies, the amount of precipitation falling in heavy events is also likely to increase. Socotra Island and Western parts of the country are likely to be affected by intensified and more recurrent cyclones (i.e. Cyclones Kyarr and Maha in 2019). Weather patterns are changing and storm severity is increasing. Rain events are sporadic and intense. Droughts are more frequent and accompanied by higher than normal temperatures.

Desertification, brought on by human land-use pressures and recurrent drought, has consumed significant land area and continues to threaten arable land. Depletion of forests along the western and southwestern escarpment threatens species, communities, and reduces other services forests provide. These examples represent the type of current environmental concerns that could be exacerbated under climate change conditions.

Climate change will increase ocean temperature. Sea levels will rise by 0.3-0.5m by the end of the century, particularly affecting low-lying areas (i.e. Aden, with approximately 2 million people). The frequency of cyclonic events will likely increase impacting degraded coastal zones unable to withstand storm surges. This is closely linked to unsustainable coastal zone development and loss of mangrove systems. Some project areas were already struck by a Tsunami in 2004. This event severely affecting Yemen's Socotra Island (Fritz and Okal, 2008). Physical alterations of marine environments such as salinity, pH, and temperature will impact coral communities, marine biodiversity, and sustainable fishery options. Coral reefs, sea-grass and mangroves provide coastal zones with important biodiversity and fishery potential are already experiencing degradation from manmade as well as climatic causes.

The Yemen highlands provide a high number of endemic species and ecological niches (Yemen First National Report to the Convention on Biological Diversity, 2004). This includes wild agricultural species well adapted and resilient to climate change. Unfortunately, many of these and their potential contribution to climate change resilient production approaches are being lost. In the highlands of Yemen profound traditional knowledge on agriculture and a significant agro-biodiversity has been developed over centuries. As explained, these well-adapted agro-ecosystems are now threatened by impacts of socio-economical, demographic and climatic changes.

As temperatures and weather variability increase, rural poor are expected to be the most vulnerable communities exposed to declining access to water, adverse health impacts, decreasing agriculture productivity, rangeland degradation, and loss of fisheries. This combination of climate change factors is already impacting production and placing degraded habitats at further risk. For instance, the 2008 floods killed 180 people, displaced 10,000 and caused damage and losses to infrastructure, shelter, and livelihoods. Agriculture accounted for nearly 64% of the total losses placing a heavy toll on vulnerable rural communities. Cyclone Chapala in 2015 resulted in severe human and ecological impacts.

### ***Drought, Land Degradation and Food Security***

Yemen faces several compounding issues in terms of land degradation. This includes lands that are overgrazed and lands that influenced by unsustainable agricultural practices. The UNCCD estimates that over 7.5% of Yemen's total land areas is severely degraded.

Land degradation impacts are strongly linked to climate change. The UNCCD recently released a science-policy brief entitled "Land Management and Drought Mitigation" recognizing that drought is one of the major drivers of global food and water insecurity, affecting agricultural production and access to food and water.



Yemen is already considered to have one of the lowest rates of per capita freshwater availability in the world. Surface and ground water resources are scarce and under stress. Water tables are lowering at alarming rates. Water use outpaces replenishment rates. Freshwater systems, including wetlands, are disappearing. Wetland ecosystems are being degraded by agriculture, livestock, and development. Wetlands loss not only impacts biodiversity, it also contributes to the on-going depletion of freshwater abundance and quality.

Land use and management regimes, particularly in the agriculture sector, are poorly prepared for climate change impacts and currently drive over-consumption of freshwater. Agricultural production consumes over 92% of all freshwater resources used annually. Unsustainable irrigation results in increased evaporation levels and water temperatures. Agriculture and industrial sources both contribute to lowered water quality. Overall water availability dropped by nearly 50% between 1990 and 2010. This rate is suspected to be accelerating over the past decade. The government estimates that total annual renewable water resources are 2.1 billion m<sup>3</sup> (1.1 billion m<sup>3</sup> of groundwater and 1 billion m<sup>3</sup> surface water) while water consumption stands at 3.565 billion m<sup>3</sup>, reflecting a groundwater depletion rate of 1.465 billion m<sup>3</sup> (170%) a year.

Yemen relies heavily upon the highlands for food security. This is where 75% of all agricultural production occurs. The highlands resting between 1,500 and 1,800 meters receive more rainfall than the rest of the country. However, both environmental degradation and food insecurity are now extremely high. This is due, in part, to increased production of khat.

Both khat and coffee grow best in the highlands zone, primarily at or above 1,600 meters. Lured by potential profit opportunities, hundreds of thousands of farmers in the highlands tore up established coffee trees and replaced them with khat fields. Khat plantations have now largely replaced traditional coffee and associated cropping patterns. Many farmers shifted from coffee to khat in response to the ongoing conflict. Coffee demands more labor inputs than khat. Coffee is also an annual crop. Khat can be harvested 3 – 4 years each year and easily sold in local markets. Although khat does provide cash, farmers are finding that the amount of inputs required compared to the potential returns are quite low. Khat must be sold almost immediately after harvest. This gives farmers very little opportunity to negotiate prices with traders. As a result of this poor value chain and high level inputs demanded, khat provides just enough capital to barely sustain a farm on a month to month basis.

Most coffee production in Yemen is organic and/or nearly organic, requiring very little inputs. Yemen coffee is rainfed, often shade grown and does not generally demand irrigation. As a cash crop within an integrated farmstead, coffee can be produced along with other crops such as grains and vegetables that provide food security and some additional livelihoods. When compared to khat, coffee greatly reduces water consumption, increases water retention and elevates drought resilience. This means that coffee alleviates land degradation, provides biodiversity conservation benefits, and both improves climate change resilience and can serve as a climate change buffer for vulnerable populations. Khat demands intensive agriculture production reliant upon heavy use of fertilizer, pesticide, and water. This has resulted in high levels of land degradation across the highlands that leaves rural poor highly vulnerable to climate change. Arable lands are being lost at a rate of nearly 1.8% annually. Khat generates extreme water stress requiring both ground and surface water irrigation.

FAO estimates that khat production now consumes more than 40% of all water used nationally. In the Sanaa basin alone there are now an estimated 100,000 illegal underground wells. The Governate of Ibb has some of the highest rainfall in Yemen. However, due to the recent shift to increased khat production, many communities in Ibb currently receive drinking water only 1 – 2 days each week.

Once a producer has committed to khat production, they are finding that escaping the “khat cycle” is very challenging. Most farmers only have the financial, land and water resources available to exclusively grow khat. This loss of crop diversification has caused a severe disruption in terms of food security and economic opportunity. The re-establishment of coffee plantations requires capital investment and at least three years from planting to harvest. Shared water resources, including ground and surface water are now severely depleted due to intense khat production. Rejuvenating these resources requires coordinated effort by large numbers of farmers across the landscape to revert from khat to coffee. Most farm enterprises exist at a poverty level. When combined with rapid land degradation, loss of diversified farm production, and over-prescribed water use, khat generates a circle of poverty. Farmers do not have the land and water, time, economic ability, and/or technical capacity required to replace khat with coffee and associated crop diversification.

Livestock production is generally managed under an open access regime with limited traditional management in some areas. Livestock are critical to rural food security and livelihoods particularly in Yemen's dry lands where cropping opportunities are very low. While rangeland health has deteriorated, livestock numbers have increased significantly. The Ministry of Agriculture estimates that from 2001 to 2012 the national sheep population increased 34% and the goat population increased 20%. The resulting overgrazing compounded by climate change is rapidly accelerating desertification. Overgrazing has resulted in livestock health becoming so depleted that the Government along with international donors have assisted livestock producers with feed augmentation programs to avoid catastrophic herd losses.

### ***Biodiversity Loss***

The landscapes of both Socotra and Al-Mahrah are very fragile and extremely vulnerable to climate change. As noted, both areas provide habitat for an immense number of globally significant species. The EPA reports that both landscapes are showing signs of severe overgrazing. FAO estimates that there are now nearly 100,000 goats on Socotra alone. These animals are rarely sold for meat and are prized for their highly valuable milk and cheese. Overgrazing impacts both terrestrial and marine habitats while increasing climate change vulnerabilities of local communities. Overgrazing reduces grassland health and negatively influences forest degradation and loss. The forests of Socotra and Al-Mahrah contain a number of endemic species and are some of the last remaining intact forests in the entire region. These forests also provide critical ecosystem services such as water retention and climate change resilience. Cloud forests are particularly important for the capture of freshwater.

While overgrazing reduces forest health and reproduction, unsustainable grazing practices also inhibit forest health due to fuelwood and fodder consumption by grazing communities. According to the Government, annual wood removal for household fuelwood increased 30% in a single decade from 302,000 m<sup>3</sup> in 2000 to 435,000 m<sup>3</sup> in 2010. Current numbers are not available. However, the presumption is that this rate of deforestation has increased during the conflict.

period. Livestock grazing and overharvest of trees for building materials, medicine, fodder and fuelwood threaten the globally significant forests of both Socotra and Al Mahrah. Unsustainable forest use continues to contribute to degradation, desertification, and increased loss of carbon stocks and biodiversity. Forest degradation due to overgrazing worsens existing climate change vulnerabilities.

The nation's fisheries and marine resources are being depleted at unsustainable rates. Although rigorous statistical data does not exist, harvest of marine resources is suspected to be surpassing carrying capacities with most fisheries considered to be well beyond Maximum Sustainable Yield. Lobster, cuttlefish, shrimp and shark stocks are all in steep decline. Fisheries are targeted by artisanal, commercial and international ventures. Harvest methods are often unsustainable, including fisheries subjected to trawling, spear and dynamite fishing. These unsustainable harvest techniques further degrade extremely fragile coral reef and seagrass habitats. IUU fishing by international fleets is considered to be prevalent. As detailed below, degraded fisheries upon which local residents rely are at great risk of collapse as climate change alters marine ecosystems.

Coastal zone development further impacts marine resources. Coastal zone development is altering coastal areas. The cutting of mangroves for timber, fuelwood and animal feed is destroy coastal habitat and impede climate change resilience. Oil exploration and transport result in regular oil spills. Run-off from sewage, agro-chemicals, over-grazing, and inappropriate land development brings pollution and sediment that harms marine environment integrity including the health of the nation's unique coral reefs.

The waters surrounding Socotra hold highly important biodiversity resources and have historically produced abundant and highly diverse fish stocks. Traditionally residents relied upon these fisheries for subsistence and, to a more limited extent, economic benefits. However, this scenario has changed in recent years as international fish interests have moved onto the island to promote exports. Most of this commercial export is moved via air freight to supply wealthier and more developed areas within the region, particularly the United Arab Emirates. The sector is now seeing substantial investments in freezers, motorboats, nets, and increasingly sophisticated fishing methods. Socotra fishing interests are becoming much more effective and efficient at harvest. The main market for foreign fish mongers is grouper, which is a highly unsustainable and easily depleted fish stock. This is causing a large shift in fishing practices that has not been accompanied by commensurate needs to improve both oversight and value chain management.

For six months of the year, the Socotra seas are too heavy to allow for fishing. During these lean fishing months, rural Socotra residents generally relied upon livestock and very limited agriculture. Socotra historically imported most vegetables from the mainland. As the fishing industry expands due to international demand and market availability, many local residents have seen their wealth increase. They are using this additional capital to invest in agriculture and livestock. The expanded agricultural and livestock practices now threaten the integrity of the archipelago's globally significant biodiversity. Production practices do not integrate conservation concerns. They are creating increased competition for the island's limited and fragile land and water resources. Residents are converting land to agriculture to produce local goods for local markets. This includes removing high value forests. This is accompanied by increased use of pesticides and fertilizers which degrade lands and harm associated marine habitats. Agriculture and livestock production are quickly reducing both ground and surface water. Goat herds continue to expand under an open access regime. This is increasing land degradation. For instance, the Government established nurseries to replant native trees after the most recent cyclone. Replanted trees were quickly destroyed by resident goat herds.

Residents have also begun to introduce bees from off-island for honey production. These introduced bee species are threatening the island's indigenous bees. Despite several conservation efforts implemented since the 1990's, including many with GEF support, Socotra continues to face grave ecological and social challenges similar to those faced nationally.

Eight species (seven of these from Socotra) are now listed in the international IUCN Red Data Book as endangered or rare. Approximately 19 species are considered to be endangered or rare at the national level. Many sizeable mammals have been hunted into extinction. Cheetah, Arabian Oryx and the Queen of Sheba's Gazelle are now extinct in the wild. All protected areas of Yemen are inhabited and/or utilized by rural peoples.

As noted, ecosystems are already degraded and biodiversity threatened from a variety of anthropogenic sources. This includes land degradation, habitat conversion, and overconsumption of fresh-water. There is little resilience and/or elasticity under the existing situation to safeguard biodiversity, associated ecosystem services, and highly vulnerable rural households from climate change impacts. Socotra and its inhabitants are on the frontlines of climate change with impacts such as sea level rise, temperature changes, and increasingly severe weather patterns challenging conservation gains and demanding increasingly innovative approaches to effectively conserve the archipelago's globally unique and significant ecosystems. Socotra's Dragon blood trees (*Dracaena cinnabari*) are highly sensitive to drought and temperature changes. To survive, such globally significant species require risk averse management that allows for elasticity and emplaces adaptation safeguards. Preliminary estimates suggest that overall forest biodiversity is expected to decline by about 10% - 20% over the next thirty years absent any strategic interventions. The residents of Al-Mahrah will confront profound social and ecological challenges. Unsustainable agricultural production is quickly destroying ecosystem services and resilience in the highlands, leaving poor rural inhabitants facing very high risks.

## **Barriers**

*Barrier One: Inadequate experience with effective spatial planning designed to enhance productive sector benefits resulting from mainstreaming of adaptation improvements, reduced land degradation, and enhanced biodiversity conservation.*

Spatial planning is fundamental to defining conservation, adaptation, and sustainable livelihood parameters for productive practices at the land and seascape level. Properly implemented, spatial planning can assist producers to identify climate change risks, plan for these risks, and maintain higher levels of resilience. The Government of Yemen understands this need and is committed to providing support. However, the country faces significant capacity challenges. National and local level institutions generally have limited experience with the design, implementation, and monitoring of effective spatial planning and related informed decision-making.

Legally binding spatial planning provides zones and boundaries for allowed uses, protected areas, carrying capacity, and resource extraction limits. The planning process creates an opportunity to build capacity and awareness of environmental concerns. Spatial planning provides well-defined requirements for public comment. This creates entry points for communities and local businesses to engage in conservation planning, reducing conflict through constructive dialog and the identification of innovative solutions. Spatial planning allows for integrated approaches. This includes cross-sectoral coordination designed to address biodiversity, land degradation, adaptation and sustainable production concerns. Spatial planning provides a forum for private enterprise and government decision-makers to work with conservation and development specialists to identify and incentivize best production practices. A rational planning approach reduces environmental and investment risks, including the reduction of "open access" regimes that result in a resource race that ultimately undermines sustainable production. Proper spatial planning provides a stable investment environment for private enterprise to realize consistent economic returns along with adaptation, SLM, and biodiversity conservation benefits. Planning sets in place the key indicators for production, climate, biodiversity and land degradation to monitor and report upon. Monitoring of spatial planning provides private enterprise, policy-makers and other stakeholders with the tools required to make more informed decision-making. Monitoring and reporting of planning objectives encourage adaptive management and the generation of early warning systems.

Yemen is challenged with the availability of information required to generate spatial planning for both terrestrial and marine environments. The country needs assistance to create models where carrying capacities are determined based upon existing uses, potential future use, best productive practices, conservation objectives and potential future constraints such as climate change.

This is particularly important for project targeted regions proximate and/or inclusive of protected areas as protected areas in Yemen are often used for productive purposes. So long as the barrier remains, approaches required to expand the effectiveness of protected areas through strategic planning of areas proximate to terrestrial and marine PA's will be challenged. This includes the identification and conservation of migratory corridors and buffer areas required to increase climate change resilience. Without such planning, protected areas will likely be hemmed in and constrained by productive land and seascape practices incompatible with biodiversity conservation objectives.

Yemen does have one existing example of spatial planning the incorporates delivery of global environmental benefits. The Socotra Conservation Zoning Plan (SCZP) was created with GEF investment. The SCZP was established in 2000 and approved by Presidential Decree. The SCZP was supplemented by a Socotra Heritage Site Management Plan covering the years 2003 – 2008 designed to support the "gradual establishment of a clear institutional and management framework for the Socotra Conservation and Development Program". The Environmental Protection Agency (EPA) under the Ministry of Water and Environment is responsible for the SCZP and management plan. The SCZP is a general spatial plan for the Socotra World Heritage Site and identifies PAs, conservation areas, resource use zones and general use zones. The plan covers the entire archipelago of 21,450 km<sup>2</sup> with 3,730 km<sup>2</sup> terrestrial and 17,720 km<sup>2</sup> marine. There are four land use categories: General use zone (1.4% of total area); Resource use zone (23.5% of total area); National Park (72.6% of total area); and, Nature Sanctuary (2.5%).

The SCZP model does provide a baseline from which to address the barrier. However, there is a need to strengthen the SCZP to identify innovative, conservation-oriented approaches for productive areas. This is a general land and marine plan that as adopted by decree. Although approved, the plan has not been fully operationalized and/or enforced. The SCZP focuses upon World Heritage Site Objectives and gives limited attention to specifics associated with productive land and seascapes. A draft sustainable development master plan was created several years ago. However, implementation has struggled to gain traction. The capacity of Government stakeholders has been outpaced by productive sector development, particularly fisheries and livestock that are driving biodiversity loss, land degradation and climate change vulnerability. Yemen has not had the technical and/or financial capacity to extend the plan to adequately cover and/or address productive sector uses. This is particularly relevant to both fisheries and livestock production which have highly negative impacts on the region's globally significant biodiversity.

There are also examples of cooperative, community-based planning being applied to the productive agriculture sector. This is being achieved through Water Users Associations. As described in the baseline, groups of irrigation dependent farmers are joining together to manage shared water resources. Part of this process has involved the creation of binding agricultural development plans covering the WUAs area of concern. Although these plans do not currently mainstream conservation and adaptation issues, they are proving to be effective and provide a good starting point to expand success more broadly to cover agriculture, livestock and fisheries while mainstreaming conservation concerns within these productive sectors.

Although baseline activities such as the SCZP model and WUAs provide a good starting point, they do not address the barrier. The challenge persists in that there is almost no experience with comprehensive and enforceable land and seascape zonation where groups of production-oriented, private sector stakeholders in sectors such as agriculture, livestock, and fisheries coordinate with resource conservation professionals to identify areas of critical habitat, support identification of best production practices, and link spatial planning with monitoring of economic, quality of life, and environmental indicators. These models have not been adapted and/or applied at land or seascape level large enough to secure substantial conservation impacts.

There are no established planning platforms showing the potential livelihood and conservation co-benefits of strategic, spatial resource management planning encompassing protected and productive landscapes. The country has almost no knowledge in place to assist local decision-makers to go through the time-consuming and challenging process of identifying planning objectives in an informed and inclusive manner. There are no capacities in place that communities can use as models for the design of spatial plans that are rigorous and enforceable. The country does not have a formal planning program that integrates monitoring and uses information generated to inform and adapt planning modalities. So long as this barrier persists, Yemen will struggle to set in place the parameters required to make certain productive practices are guided to deliver GEB's based upon best practices linked to specified areas.

Without spatial planning linked to the achievement of GEBs, habitat is being exposed to transformed to non-sustainable productive use. Yemen is not well prepared to identify and implement the adaptation innovations required to jointly secure sustainable livelihoods, decrease biodiversity loss, and maintain critical ecosystem services upon which vulnerable rural communities depend. In a country such as Yemen with so many people already struggling for basic human needs, the multiplier effect of climate change without urgent adaptation measures will be severe.

*Barrier Two: Limited capacity to mainstream adaptation and delivery of GEB's within productive sector practices*

The Government of Yemen and other relevant stakeholders do not have the capacity to improve productive sector practices resulting in co-benefits to both rural communities and associated ecosystems. There are excellent models emerging that can be applied to help solve Yemen's land, water, biodiversity, and climate change adaptation challenges. However, the existing support regimes, including extension services, do not have access to best international principles and practices. This includes limited capacity to identify, produce and market commodities in innovative ways necessary to incentivize sustainable production.

Although rural populations in many cases recognize that their resource use behaviour is unsustainable and detrimental, they have little access to productive management tools to mainstream and incentivize delivery of GEB's and commensurate livelihood benefits. This results in the loss of biodiversity and associated habitats, land degradation, and increased exposure to climate change risks. The root cause of this situation and associated threats stem from inadequate governance capacity to incentivize productive sector improvements that generate sustainable livelihoods while reducing climate change exposure and delivering GEB's.

All government staff, including those specifically tasked with conservation let alone those focused primarily upon driving production practices, receive very limited training in terms of mainstreaming conservation concerns. Knowledge and exposure to modern community-based conservation models is limited. Capacity to monitor resource use and impacts to globally significant biodiversity necessary to inform decision-making is challenged. Interface with local communities is often difficult due to the fact that regulatory and land use planning mechanisms are generally not well defined.

Both the Ministry of Fish Wealth and the EPA are making strides. These institutions are monitoring MPAs where fishing is taking place and have enforced some closures of highly vulnerable marine habitats. The government is engaged in limited monitoring and reporting. However, the local government is responsible for actual enforcement. Government capacity to regulate fisheries practices and mainstream conservation within those practices is extremely limited. The government does not have boats so must rent boats and/or is restricted to limited dockside monitoring.

Again, there are isolated examples of good practices that can be built upon such as WUAs. The community of Roush on Socotra provides another example. With the support of a GEF small-grant in the early 2000's, two fishing villages created the "Roush Protected Area Community" to address dwindling fish stocks. The community set in place rules defining resource access, restricting fishing methods and limiting take of certain species. This was accompanied by improved value chains and the establishment of a small "no-take" community protected area to serve as refugia to replenish stocks. This protected area was given legal recognition by the Government of Yemen. The results were positive with biodiversity being better protected and the villages benefiting from increased stocks, better food security, and improved economic benefits. This project received a 2010 by UNDP Equator Prize as an a "best global practice in community-based environmental and sustainable livelihoods."

However, as noted, the commercialization of Socotra's fishing stocks has accelerated drastically over the last few years with the new export market. Industrial scaled, commercial fishing pressure takes place across Socotra's marine areas. This puts at risk the long-term sustainability of smaller, localized community initiatives. To address this issue, the EPA, the Ministry of Fish Wealth, local communities, commercial and subsistence fishing enterprises and other stakeholders need support to advance examples such as the "Roush Protected Area Community" to a more meaningful scale in order to secure long-term conservation and sustainable livelihood benefits.

In addition, there have been efforts to establish farmer field schools. These efforts have been mostly limited to WUAs. There is a need to build these delivery mechanisms in ways that better integrate conservation mainstreaming, SLM, and climate change resilience with production practices that result in increased productivity and environmental sustainability. This includes improvements to the entire value chain from production inputs and practices to improved marketing and market access. There is a need to better rural food security and economic prospects by establishing value and block chain models for agriculture, livestock and fisheries productive sectors that incentivize conservation and reduce climate change vulnerability. So long as this barrier exists, the Government of Yemen will struggle to provide the productive sector with the support and incentives required to shift unsustainable practices that degrade the resources upon which communities depend to production practices that maintain these resources and associated ecosystem services.

*Barrier Three: Insufficient capacity to identify and implement policy and regulatory improvements required to incentivize productive sector practices that are climate resilient and GEB positive.*

Most of Yemen's productive sector and poverty alleviation policies do not fully mainstream conservation issues. Some encourage either directly or indirectly over-use of limited forest, freshwater, grazing, land, and fisheries resources. At the national level, biodiversity values are not adequately considered in poverty reduction plans, national agricultural sector strategies, national water use strategies, and/or fishery sector policies. Conservation issues are, therefore, not reflected in national accounting and reporting systems that drive budgetary decisions. Despite progress, agriculture policies continue to incentivize the excessive use of fertilizers and inefficient water use. Fisheries policies do not encourage sustainable practices. Land management and grazing policies do not drive sustainable land management practices. Management regimes tend to result in de facto open resource access regimes with productive sector players competing to fully exploit resources. Forest management regimes do not promote sustainable forest management practices, but instead generate over-use. Although supportive, the Government has struggled to make comprehensive headway to generate positive incentives to mainstream conservation within productive sectors particularly at the ecosystem-wide scale required to deliver substantial conservation impacts.

Not surprisingly, the on-going political instability and insecurity contributes to the barrier. This is further elaborated upon and discussed within the section of the PIF discussing risk.

National government bodies continue to be important. However, local level government and even community-based organizations are currently filling an important vacuum. These local entities are critical in terms resource use management and access across productive sectors. However, local government agencies have very little capacity to properly integrate conservation concerns within regulatory pathways and/or mandates relevant to productive sector



actors.

This regulatory and institutional barrier constrains the ability of decision-makers to incentivize conservation practices within productive sectors practices. A recent World Bank study found that Yemen's legal and institutional framework weaknesses are a major driver of ecological degradation (World Bank, 2012).

The country has made some progress mainstreaming biodiversity conservation concerns within national level sectoral policies, plans and programs. This includes strategies related to forestry, agriculture, water, and energy production. The EPA is working to help the productive sector understand conservation issues and potential benefits derived. There are some conduits for information dissemination emerging such as business forums, community groups, and even youth groups. However, the EPA's capacity to effectively and efficiently utilize these conduits to achieve desired mainstreaming results is quite limited.

Socotra protected areas do benefit from modest community-based management approaches that are reasonably effective. However, there is a general absence of partnership and engagement between private sector enterprise and government policy-makers across productive land and seascapes boundaries. The current regulatory regime does not reflect the co-benefits and co-dependence, particularly in terms of ecosystem services, between productive and protected land and seascapes.

There is a strong need to integrate conservation within productive sector regulatory, planning and budgetary processes at national, governorate, district, and municipal levels. Although some efforts have been made to better reflect environmental concerns within productive practices, institutional roles and responsibilities remain convoluted. Institutional and regulatory frameworks are not designed to incentivize and support sustainable production practices. Yemen does not have a detailed policy and regulatory framework to guide conservation-oriented land tenure and land use planning. The institutional structures at all levels are generally weak in terms of mainstreaming biodiversity, adaptation and land degradation issues, particularly in terms of delivery cross-sectoral approaches and incentivizing sustainable practices.

A coherent regulatory and planning framework that institutionalizes environmental concerns within productive sector policies, plans and programs provides a platform for monitoring the positive and negative impacts of productive practices upon conservation objectives. This assists decision-makers to better adapt policies to make certain government policies are incentivizing pro-conservation production. The absence of a strong regulatory framework designed to incentivize sustainable practices across productive land and seascapes hinders decision-makers and others from tracking impacts and adapting approaches to increase conservation effectiveness. As a result of the existing barrier, environmental concerns are not adequately integrated within productive sector monitoring and planning. Policy makers and private enterprises do not have the tools required to determine the negative and positive environmental impacts of product productive practices.

Limited studies and tools that provide climate data for Yemen already exist, however, there is a clear lack of recent and reliable climate data and statistics specific to the three regions where the project will intervene. An in-depth climate analysis for each of those regions with downscaled future and past climate data should be prepared at a further stage. The analysis should also identify the impacts of climate change on project activities and determine specific evidence based measures to address the climate risks on each sector (crops, livestock and fisheries) and for each region (Socotra Archipelago, Al-Mahrah Governate, and Sarawat Mountains) in order to improve the resilience of the targeted agricultural systems and therefore ensure the project sustainability.

Removing this barrier requires the design and implementation of strategic approaches to effectively improve capacities to monitor approaches and impacts, capture lessons, and integrate these lessons and best practices within an effective policy and regulatory framework. There will be a need to provide critical financial and technical support at the user level to make certain negative impacts to communities and the ecosystems upon which they depend are not further harmed. This includes building experience with innovative regulatory approaches such as public-private partnerships based upon mutually agreement and/or contracts that support livelihood improvements, define resource access and use rights, and generate GEB's. The example of the WUAs is a good model upon which to build. As noted in the baseline, the Government recently passed a regulation recognizing the authority of WUAs and Fishing Cooperatives to self-regulate water use and fisheries management. Removing the existing barrier, however, requires having the capacity to build upon this baseline and improve the regulatory and standardized planning frameworks for agriculture and fisheries to better mainstream conservation and adaptation concerns. This includes expanding the model to include livestock production, which is another climate vulnerable sector and driver of land degradation and biodiversity loss.

## **1.2 The Baseline Scenario**

### **Summary**

Prior to the commencement of the most recent conflict, the Government funded an estimated 20% of identified conservation needs. The total current baseline inclusive of national and international funding is estimated to be approximately US\$ 50 million annually. Most of this is represented by international assistance. For instance, FAO has been assisting Yemen to implement more sustainable productive practices particularly in terms of water resources, agriculture and livestock management. GEF and others have provided important assistance to securing the integrity of Socotra's highly valuable biodiversity resources. Meanwhile, the Government of Yemen struggles to secure even basic financing. For most of the past four years, many government staff have continued to work without receiving a regular salary.

Despite these hardships, the Government is trying to make progress in terms of both conservation and sustainable production. The Government fully intends to better mainstream biodiversity conservation, sustainable land management, and climate risk reduction within national and local policies. This includes promoting better agriculture and livestock management practices, e.g. climate smart agriculture, "green" irrigation, improved seed varieties, etc. There is progress being made to reduce alien invasive species. The Government has helped reduce GHG emissions. This includes solar home systems and LPG public transportation. To promote conservation oriented agricultural practices, the Government is actively promoting adoption of organic fertilizers and irrigation

systems using treated “grey” water. The Government is attempting to take a more holistic approach to fisheries management incorporating environmental, production, and livelihood concerns. For instance, the Government has been working to generate a strategic fisheries management plan. These are all indicators of a strong desire and willingness to engage in mainstreaming conservation within the productive sector. However, capacities to move these intended improvements from concept to reality are quite limited.

### Government Structure

Yemen has a complex government structure further complicated by the on-going conflict. The most relevant baseline institutions and their mandates are described below.

*Ministry of Water and Environment (MoWE):* The MoWE has the overall responsibility for conservation matters. This is inclusive of water resources through the National Water Resources (NWRA). The MoEW has hundreds of employees within its numerous agencies located throughout the country. The Environmental Protection Agency (EPA) is particularly relevant to this project. The Environmental Protection Agency (EPA) is part of the MoWE, and has staff at both national and local levels. This includes experts in a variety of relevant fields such as climate change and biodiversity conservation. The EPA is generally responsible for the development and implementation of environmental policy. The EPA supports important international agreements such as the UNCBD and UNFCCC and GEF related issues. The EPA is responsible for protected area management. This includes the Socotra World Heritage Site where the EPA has approximately ninety staff. The EPA is supervised by an inter-ministerial panel. The panel assists the EPA to harness inter-agency support and integrated approaches.

*Ministry of Agriculture and Irrigation (MoAI):* The MoAI directs issues related to food security and agriculture. The MoAI oversees water management relevant to irrigation. The agency primarily responsible for encouraging production improvements is the Agricultural Research and Extension Authority (AREA). The AREA has four administrative units located in each of the country’s regional administrations and sub-offices and agents at more local levels. Additionally, the MoAI has research institutions and divisions that provide support for key productive sectors such as livestock and coffee. These agencies have little capacity in terms of mainstreaming conservation concerns within productive sector practices.

*Ministry of Fish Wealth (MoFW):* The MoFW regulates fishery resources. The Center for Marine Research serves a critical function in terms of monitoring fisheries and conducting general oversight. The agency has some technical capacity but very limited operational capacity to conduct oversight. For instance, the MoFW does some dockside monitoring but has almost no capacity to do offshore monitoring at Socotra where commercial fisheries are quickly expanding.

Several other government agencies contribute to baseline efforts. The National Water Resources Authority (NWRA) actively engages in water management. The Ministry of Tourism (MoT) oversees tourism development and infrastructure. The Ministry of Planning and International Cooperation (MPIC) coordinates development activities and resource mobilization. The Civil Aviation and Meteorology Authority (CAMA) monitors climate.

Regional, Governorate, and District offices and councils have substantial authority to oversee and implement policy. Most of these offices benefit from representation from relevant national government authorities. There are four regions and twenty-one governorates. Each Governorate is further divided into districts.

### Policy Framework

The Environmental Protection Law creates general parameters for issues such as the protection of water and soil, establishment of protected areas, regulation of marine pollution, and the implementation of environmental impact assessments. The law was adopted in 1995 and is generally under the auspices of the Environment Protection Agency (EPA).

Additional relevant laws and regulations include:

- The Law on Agricultural Wealth (1999)
- The Law on Water Resource Management (2002)(amended 2006)
- The Decree Concerning the Regulation of Fishing and the Use of Aquatic Living Organisms and their Protection (1997, amended 2006)
- The Decree on Protecting the Marine Environment (including fishing) from Pollution (1993)
- The Decree Concerning the Approval of the Regulations Protecting Endangered Flora and Fauna and Regulating their Trade (2002)

The regulatory environment in Yemen is considered to be relatively strong in terms of written laws. Regulatory enforcement, performance and monitoring are challenged. Prior to the conflict, implementation was challenged due to capacity constraints. The conflict period has further hindered implementation. However, as noted below, community-based approaches have been shown to be effective with local producer groups organized to coordinate resource conservation and production practices.

As noted, the regulatory environment requires updating to better mainstream and drive achievement of global environmental benefits. Progress has been made to reduce some perverse incentives. Farmer use of pesticides and fertilizer are no longer subsidized. There is no protected areas law in Yemen. Each protected area is established through an individual decree. Yemen is not a party to the FAO Compliance Agreement, UN Fish Stocks Agreement, and/or the UN Port Measures Agreement. The Agriculture Sector Strategy has not been updated since 2015. The Government is considering updating this strategy. Again, this provides a baseline for potential project entry.

### Civil Society Organizations

Yemen has a relatively active Civil Society. CSOs are enabled through the “Law on Associations and Foundations” passed in 2001. There are NGOs organized around many issues of concern such as environmental conservation, gender issues, and education. Nationally, this includes well established and highly respected organizations such as the Yemen Women’s Union and the Civic Coalition of Revolutionary Youth. There are more than 30 NGOs active on Socotra alone. This includes the Coastal Women’s Association.

Community-based organizations are emerging as a tool to drive economies of scale and improvements within various productive sectors, particularly Water Users Associations (WUAs) and Fishing Cooperatives.

Water User Associations (WUAs) are showing promise as a tool to shift open access resource use to community-based access that is locally driven. The WUA work provides a strong baseline for many project activities. This work is being coordinated by the National Water Resources Authority (NWRA) along with FAO who helped to develop the WUA model and provides technical capacity support. The program is implemented by a team of agricultural engineers trained by FAO. These team members are responsible for providing support to individual WUAs and reporting back to FAO.

The Government recently passed a regulation recognizing WUAs as community-based organizations (CBOs) supported by both the MoEW and the MoAI. This allows the agreements between the NWRA and WUA to be legally binding, require participation to access water for agricultural purposes, and cover the entire area of WUA concern.

The WUAs are well organized. They are situated at the sub-basin level. The WUAs operate according to standard charters. WUAs generate crop production plans. Each plan provides parameters for individual WUA member activity related to soil conservation, water use and crop suitability. The WUAs are responsible to make certain the production plans are working and to help maintain water quality and quantity standards. For instance, each WUA provides water samples and registration to the NWRA. The WUAs have tiered levels of coordination with “Water Alliances” at the basin level and WUAs at the sub-basin level. There are WUAs active in each of the target highland governates. Saan’a, for instance, has 38 WUAs and 4 Water Alliances. Individual WUAs have between 800 – 1,200 members. The members are farmers with interests in the basin. The members pay nominal dues to the WUA. These members elect a representative board. Each WUA board must have at least 30% representation of women and each female board member has special veto authority.

One incentive for participation is the provisioning of low-cost green houses. Each WUA is given one or several greenhouses to be used to generate revenue. This money can then be allocated to assist member farmers. FAO enters into an agreement with each WUA transferring greenhouse ownership to the WUA. The board can then decide how best to utilize the greenhouse for the benefit of members. Some WUAs use the greenhouse directly. Others rent the greenhouse to individual farmers. Greenhouses work as demonstration sites for FFS. They show low water production possibilities and generate high quality produce. Several hundred simple steel-framed green-houses have been distributed over the past few years at a cost of approximately US\$ 3,500/greenhouse.

Although progress is going well with WUAs, there are opportunities to better mainstream conservation and resilience concerns within their operations. There are also opportunities to use this community-based approach more broadly and apply it to other forms of agriculture, the fisheries sector, and livestock management.

#### Relevant International Investments

**UNDP** has supported several projects focused upon Socotra. These include the Socotra Conservation and Development Program (2001 – 2008) and Health and Water Project (2001 – 2002). Both projects assisted with Man and the Biosphere designation, identification of Ramsar sites, and the building blocks for creation of an integrated Decision Support System. Exclusive of GEF programming, the current annual baseline is approximately US\$ 8 million.

**GIZ** supports the ongoing “Local economic development through a sustainable use of natural resources and through conservation of biodiversity in Yemen.” This project works with EPA and other stakeholders to support community development and protected areas management improvement across Yemen with a focus upon Socotra. The current annual baseline is approximately US\$ 60.7 million.

**USAID** works to support relevant projects on several fronts including health; water, sanitation and hygiene; governance, and livelihoods and agriculture. Through the “Yemen Economic Stabilization and Support Program” USAID is building small and medium enterprise capacities. This includes providing training to approximately 5,000 farmers to increase production capacity. The current annual baseline is approximately US\$ 11.5 million.

**IFAD** has supported several efforts related to increasing agricultural production. This includes the Rainfed Agriculture and Livestock Project supported by both IFAD and the World Bank. IFAD is currently moving forward with a Fisheries Investment Project (US\$ 9 million). This project sets out to enhance fishing community incomes without increasing pressure on over-exploited fisheries. This includes work on value chains and sustainable resource management. The current annual baseline is approximately US\$ 7.5 million.

**The World Bank** has assisted Yemen with programs related to water resource management and development. This includes the previous Agro-biodiversity and Climate Adaptation Project. The current annual baseline is approximately US\$ 5.3 million.

**International NGO's** and academic organizations have historically provided support for biodiversity conservation initiatives focused upon Socotra. These include: Birdlife International, Royal Botanic Gardens of Edinburgh, and the Senchenberg Research Institute and Natural History Museum.

**FAO** has a long history of working in Yemen to assist with improving natural resource conservation and sustainable livelihoods.

During the conflict period and since 2015, FAO supported actions have contributed to more than 2 million resource-poor households to help improve their food security and nutrition while addressing climate change and conflict coping strategies. FAO recently completed a comprehensive "Plan of Action" for Yemen. This comprehensive policy and strategy document is designed to support and assist with organizing the strengthening of resilient agricultural livelihoods. The total FAO portfolio of projects in Yemen is estimated to be approximately US\$ 200 million.

FAO is currently implementing The Smallholder Agriculture Production Restoration and Enhancement Project (SAPREP) (US\$ 36 million). Funded through the World Bank's Global Agriculture and Food Security Program, this project is designed to increase productivity and enhance nutrition for small-holders. This includes improved water management and better livestock management along with extension and financing service improvements. The SAPREP will target seven governorates: Shabwa, Abyan, Lahj, Taiz, Al-Hodeidah, Hajjah, and Saada. The project will be closely aligned with the proposed GEF investment, particularly activities within the Western Highlands. This represents an excellent baseline opportunity to enhance and upscale mainstreaming of conservation and climate resilient practices. FAO and the International Organization for Migration (IOM) are coordinating several projects generally centered emergency response mechanisms and gender issues. However, most are also related to water resources management and adaptation. FAO works in Yemen also includes a US\$ 1 million peace building and water access project. This is relevant in that IOM has operational presence across Yemen in several major towns and cities providing a potential baseline to support GEF project implementation. Additional FAO projects include the "Water for Food Security: Enhancing the Resilience of Host Communities in Supporting Internally Displaced Persons and Returnees in Yemen (\$5M Kuwait Fund) and the "Emergency agricultural livelihoods support to severely food insecure households in Yemen project (\$8M Japanese Ministry of Foreign Affairs).

### Private Enterprise

Yemen currently produces approximately 20,000 tons of coffee each year. Ethiopia, by comparison, exports approximately 400,000 tons. However, good quality Yemen "mocha" coffee generally sells for US\$ 16/kg while Arabica sells for US\$ 4/kg. High quality Yemen coffee can currently be found on the world marketing selling for over US\$ 100/kg. This price level can only be achieved if the producers have the technical capacity to consistently provide excellent quality beans for export.

There are Yemen based exporters such as “Port Mokha” who have shown the potential success of developing Yemen coffee for the world market. Port Mokha now engages an estimated 120,000 farmers in the highlands who cumulatively produce 10 tons of coffee each year. This high-quality product is sold selectively and demands the highest international prices. Port Mokha has achieved this by providing incentives such as micro-loans and technical know-how to local producers to make certain small producers who supply Port Mokha maintain high quality standards.

These efforts represent a strong contribution to the baseline. During the PPG phase, the project will explore opportunities to coordinate with value producers such as Port Mokha to generate higher level conservation impacts.

### **1.3 The Alternative Scenario**

#### **Theory of Change**

#### **Project Objective**

The Project Objective is to apply community-based management tools to assist rural Yemenis to realize sustainable and resilient livelihoods that mainstream climate change adaptation, biodiversity conservation, and SLM across productive agriculture, livestock and fisheries sectors.

#### **Challenge**

Unsustainable fisheries, agriculture and livestock practices threaten biodiversity, degrade lands, and increase climate change vulnerabilities. These same practices and associated impacts harm the livelihoods and food security of rural Yemenis by degrading the ecosystem services upon which rural production depends.

Yemen’s rural economy relies upon three sectors: agriculture, grazing, and fisheries. Under the baseline, each sector results in LD, BD, and CCA impacts that negatively impact global environmental values and the well-being of Yemen’s rural poor. Agriculture suffers from crop production practices such as the growing of khat that does little to address food security and income resilience challenges while causing severe degradation to biodiversity, land and water resources. Livestock grazing in areas of high biodiversity value such as the Al-Mahrah and Socotra ecosystems are quickly degrading lands and negatively impacting both terrestrial and marine ecosystems. Fisheries practices in the biodiversity rich marine areas of Socotra are depleting stocks that are highly vulnerable to climate change and critical to food security and livelihoods.



These impacts exist largely due to “open access” resource management and associated capacity constraints at national, local and producer levels. Stakeholders do not have the tools, experience, and/or financing required to mainstream conservation within productive practices and establish mechanisms to be certain that emplaced changes will endure to deliver lasting impacts.

## Barriers

Yemen’s agriculture, livestock and fisheries sectors share three common barriers that currently hinder adoption of sustainable, conservation-oriented practices.

*Barrier 1 (Planning):* Capacity does not exist to emplace spatial planning needed to create resource use parameters. As a result, “open access” management persists with productive land and seascapes managed to maximize immediate benefits rather than long-term conservation objectives.

*Barrier 2 (Production Practices):* Producers have limited access to the tools and knowledge required to identify and/or adopt sustainable practices. Even if planning is in place to describe conservation-oriented management and associated objectives, stakeholders have little access to the tools and knowledge required to adopt improved practices.

*Barrier 3 (Enabling Environment):* Capacity does not exist to generate an enabling environment to capture and mainstream best practices. Policy frameworks are not in place to support informed decision-making and/or incentivize adoption of improved practices.

## Project Response

The GEF investment will provide the catalyst required for stakeholders to mainstream conservation and comprehensively address identified barriers using a focused and multi-sectoral approach.

The project will apply best international principles and practices while building upon emerging national success. Specifically, the project will draw upon FAO and the Government of Yemen’s work with organizing user groups such as WUAs as a community-based management tool to improve resource management and conservation within productive sectors. Both the EPA and FAO are confident that building upon the WUA baseline is a viable and realistic approach.

WUAs are showing that organizing private enterprises within user groups covering large landscapes, empowering these groups with the knowledge and capacity to balance resource conservation needs with production demands, and subsequently providing these groups and government regulators with the authority to codify improvements through mandatory agreements can and does work to alleviate conservation challenges and incentivize production improvements. WUAs that agree to improve water resource management are provided with incentives such as the provisioning of green houses that help soften the potential short-term economic impacts of adopting conservation-oriented production, diversify economic opportunities, increase food security, and ultimately stimulate efficient water use.

This will be achieved by implementing activities under three integrated components. These integrated solutions reflect the shared challenges of fisheries, livestock and agriculture and are designed to intentionally and systematically harness multiple benefits.

Under Component 1: spatial planning will describe and prioritize conservation and sustainable production practices across terrestrial and marine areas. Resource user groups will be organized to establish binding spatial planning that identifies ecosystem limits and creates parameters to guide sustainable production scaled to deliver meaningful conservation benefits.

Under Component 2, agriculture, livestock, and fisheries practices will be stimulated to improve livelihoods and mainstream conservation. Producers will be provided with the training, capacity building and tangible incentives needed to access and adopt improved production practices.

Component 3: Policy and regulatory frameworks will be improved to integrate lessons learned and guarantee enduring results. Impacts will be monitored to inform decision-making. Guidelines to assist upscale and replication will be completed. Policies will mainstream conservation and associated best production practices.

## Project Sites

Each component will be applied to at three locations: Sarawat Mountains, Al-Mahrah, and Socotra. These locations represent key productive sectors critical to securing rural livelihoods and achieving intended global environmental benefits. Each location will evince the positive biodiversity, SLM and CCA benefits that accrue from the adoption of sustainable production. Globally significant biodiversity will be directly targeted at both Socotra and Al-Mahrah.

*Agriculture: Sarawat Mountains*

*Land Degradation and Climate Change Resilience*

The project will help farmers trapped in khat production to shift to more sustainable and potentially much more profitable coffee production along with more diversified farm production. The project will build upon and expand the existing WUA models with many khat farmers already participating in WUAs. The project will also derive lessons from FAO's experimental "coffee for khat" programs. The project will seek out opportunities and coordinate with existing coffee enterprises. These efforts will assist groups of agriculturalists to shift from unsustainable khat production to diverse farming operations based upon coffee production which is much more ecologically sustainable, offers more reliable livelihoods, and greater food security.

The project will establish spatial planning to assist producers to identify and describe best resource parameters for farmsteads and to coordinate the use and conservation of shared resources such as water. This will emphasize the reduction of water use to enhance climate change resilience. The project will support producers through the provision of technical know-how as well bridging inputs such as shared greenhouses for diversifying crops and incomes, equipment cooperatives to increase labor efficiencies and coffee plants to substitute for khat. Shifts in production practices will be further incentivized through the provision of assistance to improve marketing and economic opportunities for the domestic sale of farm produce and international sale of coffee. FAO already has some experience with assisting existing Yemeni coffee producers to improve value chains and to access high value international coffee markets.

*Livestock Management: Socotra and Al-Mahrah*

*Biodiversity Conservation, Land Degradation and Climate Change Resilience*

As noted, overgrazing in both locations constitutes a direct threat to achieving globally significant biodiversity, SLM, and CCA objectives. As in each of the project sites, the main driver for degradation and associated threats is a continuing open-access regime. Spatial planning does not firmly demarcate grazing areas. There are no management limitations on livestock numbers linked to carrying capacity or the achievement of global environmental benefits. There are no incentives to encourage sustainable grazing behavior such as regulatory or management frameworks, policies, or increased production value linked to improved grazing practices.

The project will assist producers to improve livestock production practices within demarcated zones. These livestock production zones will describe community-based resource access regimes through grazing management associations similar to the WUA model. The spatial planning process will establish carrying capacity and resource conservation targets, including mainstreaming of biodiversity conservation. This will be used to set stocking level objectives and to gradually decrease overall herd numbers to meet these targets. Locations and stocking limits will be prioritized according to indicators such as land vulnerability indexes, proximity to protected areas, and/or presence of globally significant biodiversity. In Socotra, this will build upon the existing SCZP spatial use plan. Grazing areas will be allocated to organized livestock producers. These producers will in turn be responsible for working with government authorities to make certain grazing activities remain within sustainable limits, mainstreaming conservation within their productive practices. Improved grazing practices will link with conservation objectives such as maintaining endemic plant and animal species and associated habitats. Lessons learned from broadscale planning in Socotra supported through previous GEF investments will be applied and upscaled at Al-Mahrah to accelerate the planning process.

The opportunity for community members to enjoy more exclusive access to healthier grazing grounds and the resulting improvements to livestock health and value will serve as an incentive for participation. Livestock producers who agree to graze livestock within spatial and carrying capacity limits will benefit from project investments designed to help diversify and improve the marketability and sale of livestock related products. To help make the case for and incentivize livestock management improvements, results such as improved herd health, production levels, profitability, resilience, reduced land degradation, and biodiversity conservation will be monitored through veterinarian services, improved extension services, enhanced EPA monitoring, and value and block chains.

#### *Fisheries Management: Socotra*

##### *Biodiversity Conservation and Climate Change Resilience*

Current fishing practices have a direct impact upon the region's globally significant biodiversity. Over-fishing limits the capacity of local residents to cope with climate change impacts. Much of this stems from the continuing open-access management regime compounded by a rapid increase in commercial fishing with a large and expanding international market. To address these challenges, a similar community-based approach will be applied to mainstream biodiversity conservation within fisheries management in Socotra.

The project will start by helping government regulators and private enterprise stakeholders to establish spatial plans for productive marine areas that mainstream biodiversity conservation and are based upon best available knowledge. Fishing associations do exist in Socotra and these associations are legally recognized by the government. However, they have not been capacitated to achieve the level of spatial scale required to address growing fishery demands across the large shared productive marine zones surrounding Socotra.

The spatial plan will mainstream biodiversity conservation concerns, including reflection of the existing SCZP and relevant protected area management plans and objectives. The planning process will incorporate and reflect best international fisheries management issues and practices such as: marine conservation areas; zones and species for take, no take, and limited take; preferred fishing practices; the needs of subsistence and artisanal fishing interests; vessel demarcation; and, harvest monitoring and reporting.

To make certain the finalized plan benefits from informed decision-making, fully mainstreams biodiversity conservation concerns and is well-regulated, the project will provide support to improve the capacity of government agencies, particularly the Ministry of Fish Wealth and EPA. These agencies will be capacitated to oversee fisheries management based upon the established spatial plan and associated conservation targets.

To further help incentivize participation by fishing interests and improve the sustainability, biodiversity conservation benefits, and profitability of fishing operations, the project will provide assistance to improve the efficiency and effectiveness of harvest. The project will engage with private enterprise to develop better value and block chains to generate better returns on fishing investments. This may include value added through mechanisms to improve the quality of fish delivered to fish exporters. Additional incentives to encourage conservation-oriented production may include the establishment of low impact licenses and fees designed to generate revenue from commercial fisheries that may be reinvested in improved management and community development initiatives. Part of this effort will ensure that revenue is captured to make certain government regulators and community-based fishing associations have sustainable financing in place to make certain monitoring, enforcement, and capacity improvements are maintained.

## **Results**

Under the project's theory of change, the project responses to existing challenges will result in immediate improvements to at-risk rural producers as well as higher level global environmental benefits. The project will catalyze a shift from current "open-access" regimes to shared productive land and seascapes to a more coherent and strategic "community-based" management regime predicated upon the achievement of social and environmental objectives.

The project will address global biodiversity concerns in a very direct manner. Under the existing situation, both the marine scapes and productive terrestrial are directly threatened by a combination of unsustainable uses and emerging climate change impacts. In both situations, the primary issues revolve around a need to shift current open access resource management regimes to more conservation-oriented community-based management back-stopped by government agencies responsible for both oversight and extension. The regulatory frameworks at each location, and particularly Socotra and Al-Mahrah will be strengthened to address this need. These terrestrial and marine areas cover millions of hectares of globally significant habitats. Biodiversity conservation at the terrestrial level will further be improved through established and monitored LDN targets. This will focus upon issues such as over-grazing that substantially impact conservation both through direct reduction of habitat security and indirect competition for habitat between unsustainable agriculture and livestock management with both plant and animal wild species. Many of these species are highly endemic, occurring nowhere else on the globe.

Renewable resources such as water, agricultural land, fisheries, grazing areas, and forests will be sustainably managed to increase production levels and decrease threats to biodiversity and land degradation while reducing climate change risks. Rural poor who rely upon ecosystem services for their survival will benefit from much more stable livelihoods and improved food security. Ultimately, government and private enterprise stakeholders will have the tools, knowledge, and capacity to continue and expand project emplaced success.

## **Project Framework**

**Component 1:** Spatial planning describes and prioritizes conservation and sustainable

**production practices across terrestrial and marine areas**

*Output 1.1 Government and private enterprise capacity built to enable creation and administration of spatial planning*

*Output 1.2 Government and private enterprises adopt, implement, and monitor legally binding spatial plans*

This component will follow GEF-7 guidance making certain that binding spatial and land use planning is established as a critical first step for comprehensively mainstreaming conservation in productive landscapes and seascapes. The effort will ensure that resource use is appropriately situated to maximize production while supporting biodiversity conservation, SLM, and CCA. Component effort will focus upon emplacing planning that supports sustainable agriculture, livestock and fisheries production while reducing biodiversity loss, land degradation and climate change vulnerability. For each of the targeted production sectors (agriculture, livestock and fisheries), this will commence with spatial planning to make certain production at the land and seascape levels is informed by ecosystem limitations and production approaches are designed to be compatible with these limitations.

Mainstreaming biodiversity conservation along with LD and CCA concerns within spatial planning frameworks will be particularly important at the Socotra and Al-Mahrah sites. Again, following GEF-7 biodiversity mainstreaming guidance, land/seascape planning covering the productive sector will be fully aligned with achievement of biodiversity conservation objectives with particular attention to conservation of globally significant terrestrial, avian, and marine biodiversity. Productive sector (fisheries, livestock, agriculture) spatial planning will reflect and be supportive of relevant protected area planning and associated biodiversity conservation objectives and concerns. At Socotra, this will build upon and be informed by the SCZP baseline.

As with WUAs, finalized spatial plans will be adopted by the user groups and legally enforceable. This will make certain that all stakeholders abide by and contribute to community-determined conservation and production objectives. The project then intends to build upon this baseline to assist producers and government regulators with the technical and capacity tools required to support needed production alterations.

The project will build government and private enterprise capacity to enable the creation and administration of conservation oriented spatial planning. This will include working with government actors and private enterprise to assist them to understand spatial planning processes that provide for mainstreaming of conservation issues across substantial terrestrial and marine areas. The project will provide a training of trainers approach, most likely bringing key representatives from Yemen to Rome to work with spatial planning specialists and technical experts in fisheries, agriculture, and livestock management. The project will generate protocols and guidelines for conservation based planning. The effort will build upon existing models used to promote improved water resource management through WUAs, expanding these emerging models to organize groups of private resource users to coordinate and plan management based upon conservation principles and practices. This will include SLM practices that will contribute to LDN categories including controlling soil erosion, grazing pressure management, and improved water management, and integrated soil fertility management.

The project will work with stakeholders to generate planning guidelines covering issues of responsible parties, administration, process and stakeholder engagement strategies. The plans will be based upon suitability analysis that consider critical issues covering social, production, and environmental parameters. Considerations will particularly focus upon climate change risks and adaptation strategies. The guidelines will cover practical matters such as funding, institutional responsibilities, and implementation capacity. The resulting spatial planning guidelines and subsequently adopted spatial plans will incorporate best conservation-oriented production practices with an emphasis upon food security, nutrition and stabilized or increased income levels. The guidelines and adopted planning programs will be linked to mapping and GIS that demarcate zones and provide a basis for on-going monitoring and evaluation of plan effectiveness.

As noted, the spatial planning process will generate a baseline and inform on-going vulnerability assessments to identify existing and emerging CCA challenges, identify innovations to address these challenges, and monitor the results of adopted technologies. This may include the use of employ of tools such as MOSAICC. This will potentially link with tailoring climate information to stakeholders needs (i.e. agriculture: suitable sowing dates, amount of rainfall, onset/offset of the rainy season; i.e. fisheries: high tide, visibility and wind forecasts; i.e. livestock: fodder availability, transhumance corridors and potential lightning zones) and delivering it through effective communication means (radio, SMS, TV etc.) used to inform and be informed by the vulnerability assessment planning components.

*Sarawat Mountains Agriculture Management Spatial Plan:* The project will work with farmers currently engaged in unsustainable khat production to shift towards more sustainable coffee production. Since many khat farmers participate in WUAs, the work in this area will also coordinate with, expand, and help build the capacities of WUAs to more fully mainstream environmental considerations with a particular emphasis upon climate change resilience. Land use planning will focus upon identifying opportunities and constraints related to soil and water use to understand how rational use of resources can safeguard ecosystem services required to reduce climate change vulnerabilities, decrease land and water degradation, and improve production results. This will include assisting farmers to maximize yields and profits, diversify farm production using agro-ecological models based upon ecosystem-based management, and increase profitability and food security while mainstreaming biodiversity conservation, SLM, and climate change mitigation across large, productive landscapes.

*Socotra and Al-Mahrah Grazing Management Spatial Plan:* The project will work with government actors and private enterprise to shift open access to productive grazing lands towards more coordinated community-based management. The overarching goal of this spatial plan will be to reverse grazing trends that currently degrade lands, harm globally significant biodiversity and increase climate change vulnerability. The planning process will identify and demarcate sustainable grazing areas. This will be accompanied by efforts to establish carrying capacities, emphasize quality of stock over quantity of stock, detail access regimes, and rest/rotation protocols. The planning process will be closely linked to maintaining the ecological integrity of associated protected areas and places with highest biodiversity value.

*Socotra Fisheries Management Spatial Plan:* The project will generate marine spatial planning for productive fishery areas focused upon improving management of commercial and subsistence fishing areas. The project will assist to identify location of high biodiversity value, e.g. reef systems, and associated protected areas. The planning process will include identification of sustainable take levels, refugia, and monitoring of fish stocks to provide more

coherent access that sustains fisheries while providing opportunities for increased valuation and food security. This process will shift current open access fishing management towards more rational, structured community-based management.

At each location, the planning guidelines, protocols and capacity building will identify specific environmental concerns and limitations and link these to specific indicators for planning success. These indicators will be identified and generated by producers working with government agencies. Indicators such as biodiversity values, land degradation values, and climate change adaptation risks along with indicators for social and economic well-being will subsequently be used to monitor spatial planning effectiveness.

The project will assist organized community-based groups of private enterprises and government actors to support spatial plan implementation. This will include assisting these stakeholders to make certain the legally adopted spatial plans are enforced and monitored. Capturing lessons and helping to understand the value of spatial planning, both in terms of social and environmental benefits, will help to generate a baseline of understanding for expansion of spatial planning regimes to a broader audience and to upscale lessons to larger land and seascapes. This will include specific monitoring and reporting related to livelihood improvements and the achievement of global environmental benefits such as biodiversity conservation, Land Degradation Neutrality, and decreased climate change vulnerability. Monitoring of plan implementation will serve as an early warning system to assist private enterprise and government decision-makers to shift productive practices towards climate resiliency.

## **Component 2:        Agriculture, livestock, and fisheries practices stimulated to improve livelihoods and mainstream conservation**

*Output 2.1            Extension training program assists agriculture, livestock and fisheries enterprises to mainstream conservation within productive practices*

*Output 2.2            Market innovations generate economic incentives for improved agriculture, livestock and fisheries production*

This component will focus upon building the technical capacity, knowledge, financing and best practices required to incentivize conservation-oriented production. Activities will be closely aligned with spatial planning to help private enterprise and government actors to shift practices towards conservation improvements within the parameters of the spatial planning process.

The project will assist with providing specific know-how required to shift practices. This will include incentivizing improvements through established programs such as Farmer Field Schools. This will be linked to innovations including media (e.g., farmers channels), extension services training, and the production of training and awareness materials. Key government partners in this effort will again include the Ministry of Agriculture and Irrigation, EPA, and Ministry of Fish



Wealth. Each of these organizations have extension and extension type services that will be strengthened through project programming. This will include providing an impetus for these conservation and production-oriented agencies to better coordinate and mainstream conservation principles and practices within their institutional edicts. Again, the project may support remote training of trainers by bringing key staff to Rome to work with FAO experts in FFS models, agro-biodiversity value and block chains, marketing, and other important aspects associated with assisting small and medium enterprises to mainstream conservation within production practices. Part of this effort will be to expose representatives of the three main government agencies international best practices that may fit and/or be modified to support on-the-ground producers in Yemen.

*Sarawat Mountains Improved Agriculture Production:* The project will work with local producers to help them shift away from unsustainable khat production and towards commercially valuable and sustainable coffee production. As FAO work in the region has shown, khat producers require assistance to safely transfer from khat to coffee. Many of these producers are already at daily risk of losing their livelihoods. Khat is the sole commodity upon which they depend. However, continuing to rely upon khat is not sustainable. Their farms are in many cases severely degraded and water resources have been diminished. Under this component, the project will provide the assistance required to bridge that gap between unsustainable khat production and more climate resilient diversified cropping and coffee production. Building upon the established WUA model, the project will inject both technological capacity and hardware assistance for farmers willing to adopt sustainable practices. This will likely include using the cooperative greenhouse approach applied to WUAs, allowing groups of khat producers to benefit from greenhouse production while their farms are transformed. This effort will include: introduction of crops in addition to coffee to avoid mono-cropping, increase food security and secure resilient livelihoods; promotion of drought resistant, early-maturing and improved seed varieties to ensure good productivity; and, promotion of intercropping, agroforestry, stone bunds, organic amendment and mulching.

The project will provide technical support and coffee seedlings to help farmers establish high value coffee. The project will provide technical support to help farmers understand how to rehabilitate degraded lands. Labor and equipment are constraints to shifting practices. To fill this void, the project will explore and identify opportunities for shared or cooperative labor and farm implements. Offering shared access to implements to participating farmers can increase labor efficiencies without requiring each participating enterprise to make sizeable equipment investments. This lowers constraints and hesitancy to market entry. The project will work with medium sized enterprises to establish opportunities for low risk micro-credit that will allow farmers to have a reliable source of income while shifting to more sustainable and diverse cropping methods. To build capacities to access future investment capital, the project will assist private enterprises to identify investment needs required to support conservation-oriented production and then to work with lenders and government decision-makers to generate innovative funding mechanisms. Established WUAs through their boards of directors have already had some moderate success with securing such funding. Importantly, the project will assist farmers to access markets for their commodities, including applying proven value and block chains. This will include working with groups of farmers to help them coordinate marketing efforts to achieve economies of scale and increase their capacity capture greater returns on marketed commodities. Technical staff will work with farmers to make certain that new crops, and particularly coffee, are grown to standards that can be reliably sold. These and other tools will be fully explored and detailed during the PPG phase.

*Socotra and Al-Mahrah Improved Grazing Production:* At both Socotra and Al-Mahrah the project will assist producers to maximize opportunities associated with sustainable livestock production. The project will specifically work with private enterprises organized as grazing associations to provide the tools required to adopt improved practices that align with the approved spatial plans. This will include making certain that biodiversity conservation objectives outlined within the spatial plans are upheld. The project will assist the EPA and Ministry of Agriculture and Irrigation to help grazers oversee and monitor the

environmental, social, and production level impacts of improved grazing practices. The project may draw upon innovations such as “grass banks” that have been used successfully in the American West. Under a grass bank modality, groups of ranchers are able to access prime grazing areas if they agree to mainstream conservation within their production practices. These grass banks are then managed and actively monitored to make certain biodiversity conservation, SLM, and climate change resilience values are being maintained. This can be done using a free-range system without fencing so long as all association members are aware of and are incentivized to respect the allotment borders. The project will support grazers as they lower overall livestock numbers within community-based allotments to monitor potential improvements to herd health, including fitness, milk production, and overall animal welfare. Improved veterinarian and livestock monitoring services to show that stock reductions accompanied by grassland improvements leads to increased levels of production, improved profitability, and enhanced environmental benefits. As community-based grazing allotment areas recover from current overgrazing practices driven by open access, the presumption is that grass and water resources will become more abundant. This will contribute to global environmental benefits while serving to help incentivize participation as association members enjoy community-based access to particular grazing areas. The project will also support the establishment of improved value and block chains. These efforts will involve providing participating grazing enterprises with training and tools to improve the quality and marketability of livestock related products produced within conservation grazing areas according to spatial planning parameters. This may include training programs and assistance with generation of goat cheese, which is a high value and potential export product. These opportunities exist at both Socotra where livestock products may potentially be exported along with commercial fish and Al-Mahrah where livestock products may potentially be exported across shared borders to nearby Saudi Arabia and Oman.

*Socotra Improved Fisheries Production:* At Socotra, the project will work through fishing associations to support their ability to implement sustainable fisheries management that mainstreams biodiversity conservation objectives. The effort will motivate a shift from “open access” to better community-based management of Socotra’s fisheries. Open access currently represents the top perverse incentive driving unsustainable harvest rates. The overarching goal will be to make certain that increased commercial harvests are kept within sustainable levels to maintain ecosystem health and that the island’s rich biodiversity continues to support artisanal fishing communities who rely upon fisheries for their economic and food security. A major part of this effort will involve assisting the EPA and Ministry of Fish Wealth to improve their ability to oversee and manage fisheries. By doing this, these agencies will be better equipped to be certain the fishery resources upon which commercial and subsistence fisheries rely are being utilized within sustainable parameters. This will include helping to be sure that fishing effort complies with the binding marine spatial plan to be approved under Component 1. Improving oversight will require setting place simple management tools such as vessel demarcation and Vessel Monitoring System (VMS) technology; on-sea and dockside harvest monitoring; export monitoring particularly at the airport where most fish are shipped to overseas markets; and, self-reporting mechanisms to be conducted by fishing association members. Part of this self-reporting and “community-based access shift will be used to recruit fishing association members to engage in conservation effort. During the PPG phase, the cost/benefit of providing boats to the EPA and/or Ministry of Fish Wealth to allow for more effective marine monitoring will be considered. The project will rely in part upon established FAO guidance regarding fisheries management. This will include implementation of FAO’s “Voluntary Guidelines for Securing Sustainable Small-Fisheries in the Context of Food Security and Poverty Eradication”. Effort under this component will incentivize participation through stabilizing and improving fish stocks, offering technical assistance to create more efficient and effective harvest methods, and helping commercial enterprises to improve the overall value of Socotra’s fisheries. The project will apply FAO experience and expertise to assist fishing enterprises who engage in mainstreaming conservation within their production practices to increase value chains to their commercial efforts. This may include assisting commercial enterprises to establish better quality through improved handling and processing of harvested fish to increase harvest value and pricing for export marketing. However, EPA reports that commercial exporters are already investing in post-harvest management equipment. The project

will also incentivize improved fisheries management by helping to improve the licencing and/or permitting system for commercial fishing enterprises. A majority of the fees paid through this system will be redirected to support fisheries conservation and development. This will make certain harvest is better controlled while directing benefits from regulated fishery access towards activities that improve fish stock health and community development.

**Component 3: Policy and regulatory frameworks guarantee enduring results by integrating lessons learned**

*Output 3.1 Targeted capacity building generates policy and regulatory improvements*

*Output 3.2 Effective monitoring and evaluation implemented with project lessons captured, disseminated and upscaled*

This component will establish the regulatory and policy frameworks needed to support transformative mainstreaming within target productive sectors. This will include formal adoption of spatial plans, guidelines for the organization and management of user groups, and regulatory frameworks required to shift open access to conservation-oriented community-based access. The project will also assist government decision-makers at national and governate levels to mainstream conservation programming within sectoral plans, policies, and regulations. This will specifically include mainstreaming conservation concepts and lessons learned gleaned from project activity within policy instruments which have not historically reflected conservation objectives, e.g., national agricultural strategies. Effort will include identifying and removing perverse subsidies and integrating within policy changes positive incentives for private enterprise to engage in conservation-oriented production.

The component will build upon and encapsulate the results of the project's components, including spatial planning, technical know-how, and improved valuation and marketing. Effort will involve assisting policy makers at the national and local level to improve their capacity to mainstream conservation within policies specific to both environmental and production (e.g., agriculture, fisheries and livestock) sectors.

Regulations and policies will be informed by evaluation and monitoring of project emplaced activities as well as best international principles and practices. This process of adaptive learning and regulatory improvements will be on-going with monitoring protocols and strategies embedded within institutional structures. This will involve increasing the level of attention applied to data collection, information management, and knowledge dissemination. The effort will benefit from the integration of FAO's regional and global knowledge management and decision-making support tools. In this way, decision-making will more effectively addresses the intersection of increased production and biodiversity conservation, SLM, and CCA. National strategies and programs will reflect more coordinated approaches between conservation and production sectors. Financial incentives, both positive and negative, will be considered, including the role of government and donor institutions to support and maintain mainstreaming of conservation concerns within the productive sector.

The project under this component will also implement and build capacities for monitoring achievement of global environmental benefits. This includes working with government agencies to understand and apply Land Degradation Neutrality (LDN) principles, better monitor and report on biodiversity conservation status, and monitor and identify existing and emerging climate change adaptation risks and needs. This will include assisting to build capacities for measuring progress towards Sustainable Development Goals and tracking progress towards the achievement of gender equality and women's empowerment. This will assist to inform not only project monitoring, but also to build more awareness and rigorous mainstreaming of these issues within national policies and development strategies.

Project monitoring and evaluation will provide the basis to guide adaptive management, and promote the uptake of knowledge, including gender mainstreaming. Project activity will provide the basis to guide adaptive management, and promote the uptake of knowledge, good practices and successful approaches, including gender mainstreaming. This will be achieved in part through the project's Monitoring and Evaluation efforts. Based on the gender analysis and action plans that will be developed during the PPG, the project will ensure that decisions made, and interventions proposed for implementation, consider the potential impacts and outcomes for different groups within society, with particular focus on the roles played by men, women and youth. In line with the principles of integrated natural resource management, the project will promote a participatory approach to monitoring, evaluation and learning, involving all relevant stakeholders, including local communities. The focus will include project level monitoring, to feed into FAO's global monitoring of its GEF portfolio, and to contribute to GEF's global monitoring system.

#### 1.4 Alignment

##### LDCF

*Objective One: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation*

The project will contribute to LDCF Impact Indicator 1: Number of direct beneficiaries (gender disaggregated) who successfully demonstrate, deploy, and transfer relevant technology in targeted areas. This will include technologies and innovative solutions piloted and deployed to reduce climate-related risks and enhancement of resilience.

The project will support the productive agriculture sector of Yemen, including agriculture, livestock and fisheries, to identify and implement innovative improvements to productive practices the enhance resilience. This will include technology transfers where producers will be exposed to and benefit from best international principles and practices related to sustainable production. These efforts will build upon and enhance existing and promising management

innovations from the Water Users Associations work as detailed in the PIF. Stakeholders will gain from improvements to management regimes that promote sustainable and climate resilient production of agricultural goods, livestock management, and fisheries designed to drive integrated and cumulative impacts to reduce the existing high-risks they face in terms of exposure to climate change. Additional innovation will provide decision-makers at all levels with more advanced methodologies for the identification of climate change vulnerability and the ability to further innovate and apply resilience building approaches. This includes efforts to promote shifting from khat to coffee, creating sustainable fisheries and generating stronger programs for the management of livestock. These innovations will help alleviate climate change risks while strengthening food security and sustainable livelihoods.

### *Objective Two: Mainstream Climate Change Adaptation and Resilience for Systemic Impact*

The project will contribute to LDCF Impact Indicator 2: Number of policies developed, improved, and strengthened to integrate adaptation and resilience measures. This will include strengthening cross-sectoral mechanisms to mainstream climate adaptation and resilience.

Yemen is a Least Developed Country with a rural population that is highly vulnerable to climate change impacts. The project recognizes that adaptation presents a cross-cutting, systemic challenge for ecosystems and livelihoods. This includes working to address biodiversity conservation and land degradation within an adaption context. Using this synergistic approach, the project will create opportunities to mainstream adaptation across productive sectors that currently drive vulnerabilities. In this way the, the project will work to deliver multiple benefits and more holistic solutions. Directly following the guidance of GEF-7, the project will support climate-resilient smallholder food systems designed to generate climate mitigation, sustainable land management and biodiversity benefits while addressing the root causes of degradation and vulnerability. The LDCF resources are geared solely towards supporting adaptation to climate change, including enhanced climatic variability and long-term change in climatic means. Following GEF-7 guidance, the project will improve on-farm reliable water supply in situations of increasing drought and enable rural communities to shift livelihoods to an income source that is less affected by the vagaries of climate. Through policy and planning, the project will help to improve early warning systems for vulnerable communities.

## **Biodiversity Conservation**

### *Objective 1. Mainstream biodiversity across sectors as well as landscapes and seascapes*

The project will mainstream biodiversity considerations within Yemen's policies, strategies and practices. The project will assist both public and private actors to better conserve and benefit from biodiversity and associated ecosystem services. The project focuses upon three productive sectors targeted under GEF-7: agriculture, livestock production, and fisheries. The project has spatial and land-use planning in the forefront. The planning process will help to define all project activities and assist to generate parameters for productive sector action to ensure support for biodiversity conservation values. Planning will include

efforts to generate better align productive land and seascape practices to support adjacent protected area objectives. Technical capacity building and associated financial mechanisms will be emplaced to incentivize a shift towards more conservation-oriented production practices. Policy and regulatory frameworks will be improved to ensure that positive change is enduring.

## Land Degradation

### *Objective 2. Creating an enabling environment to support voluntary LDN target implementation*

The project focuses upon production landscapes where agriculture and rangeland management practices define the livelihoods of poor rural Yemeni farmers and pastoralists. These persons are highly vulnerable to land degradation, climate change, water stress and conflict. In the Yemen context, this includes drylands that are extremely drought prone in a conflict area. Each of these are highlighted concerns for LD investment under GEF-7. The project takes a comprehensive landscape approach, supported by spatial planning covering productive landscapes. The project comprehensively addresses the cumulative impacts of land degradation, climate change, and biodiversity loss upon livelihoods. The project seeks to address agriculture and livestock practices that are currently driving land degradation. Through interventions such as policy reforms, technical capacity building and financial mechanisms, the project targets small and medium-sized enterprises to stimulate innovations within agriculture and livestock production systems.

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

The planning process, technical improvements, and policy advances will integrate LDN and provide for effective monitoring of LDN achievement. LDN will be integrated within participatory land-use planning and promote good governance designed to improve the livelihoods of smallholders. These private sector producers will receive extension services specifically designed to enhance realization of LDN. The project will implement a monitoring program to track progress towards achievement of LDN linked to spatial planning, technical capacities, and policy improvements.

As noted, the project will promote practices designed to achieve measurable contributions to LDN including UNCCD identified LDN categories such as controlling soil erosion, grazing pressure management, and improved water management, and integrated soil fertility management. Because of the project's innovative approach to multiple and mixed land uses, the project will contributed to LDN for croplands, grazing lands, forests and mixed land uses.

## Checklist for Land Degradation Neutrality Transformative Projects and Programmes (LDN TPP)

*This adapted checklist is preliminary and indicative only. During full project development, the check-list and additional information from UNCCD regarding LDN will be used to guide final project design.*

A. Features that are fundamental to LDN

✓	LDN Guidance	Project Response
✓	Use a landscape approach by choosing an area large enough to involve multiple land units of a variety of land types (e.g., within a watershed), sectors and jurisdictions/administrative boundaries that are inclusive of different land tenure governance (communal, private and public land).	The project will encompass three large landscapes.
✓	Employ fundamental elements of the LDN-SCF:  Promote neutrality (i.e., counterbalancing for net loss) within the project area; Use the response hierarchy through a mosaic of interventions across different land units to avoid > reduce > reverse land degradation; and Present the interventions according to land type for each component of the response hierarchy.	The project addresses each of these fundamental issues, including counterbalancing using a mosaic approach designed to align with each land type.
✓	Contribute to (sub)national LDN targets	These are not yet generated. The project intends to assist to generate national and subnational LDN targets. These will be used to help measure impact through the results framework.
✓	Select project location considering the countries' priorities identified through their national sustainable development plans and/or land use planning policy/legislation and/or LDN target setting process	This was done through reference to relevant policy documents and close collaboration with key stakeholder.

✓	Include a monitoring system consistent with national LDN targets and Sustainable Development Goal 1 (SDG) targets, particularly SDG 15.3 and its indicator 15.3.1 on LDN	This will be generated through project activity.
✓	Ensure there are mitigating measures for potential leakage (negative offsite effects as opposed to positive spillover effects) beyond the project area	The project intends to provide amplification and improvement. There will be no leakage for each of the three primary productive sectors: livestock, cultivation, fisheries.
✓	Ensure the commitment to the principle of gender equality throughout the entire process	As noted in the PIF, the project will engage successful models developed through current WUAs approaches.
✓	Apply methods to manage or minimise environmental, economic, social and cultural trade-offs	The project will support community-based approaches to ensure there are no trade-offs or leakage.
✓	Ensure methods for gender responsive evaluation and adaptive learning are applied throughout the project cycle	The project document and related activities will each incorporate gender based indicators to be tracked through on-going M&E.
✓	Establish a system that involves relevant stakeholders in the regular monitoring and validation of LDN status reporting as well as project implementation outcomes, with a particular attention to gender	The project will engage user groups, community-groups, private sector, etc. in this process.

#### B. Features that deliver multiple benefits



✓	LDN Guidance	Project Response
✓	Create linkages to multiple SDGs by designing interventions that generate multiple environmental, economic and social benefits, while minimising trade-offs and maximising synergies and taking into account the different needs and priorities of women and men	This is a highly integrated project.
✓	Show a clear pathway to deliver multiple benefits whereby gains in natural capital contribute to improved and more sustainable livelihoods	The project looks to promote multiple benefits for natural capital, including water, land, fisheries, forest, etc.
✓	Provide economic incentives that benefit both men and women to improve livelihoods (e.g., creation of green jobs and enhanced access to inclusive credit lines)	The project will support value chain improvements and other approaches to promote economic incentives.
✓	Promote land use decisions based on an assessment approach which takes into account, inter alia: land and potential, land condition, resilience; social, cultural and economic factors and their impacts, including consideration of vulnerable groups and gender; participation of relevant stakeholders representing key land uses and land governance systems in the intervention area/landscape; both short and long term sustainability.	Each of these are fully factored within the project design, particularly Component 1.
✓	Identify land-based pathways for improving livelihoods, sustainable food systems and/or inclusive as well as sustainable value chains for current and future generations.	As above, FAO has a strong track record with this globally and within Yemen as it relates to farm diversification, livestock, etc.

C. Features that promote responsible and inclusive governance

✓	LDN Guidance	Project Response
✓	Safeguard land rights of local land users including individual and collective access to land, land tenure and resource rights, inheritance and customary rights.	These rights will be enhanced using community-based approaches.
✓	Ensure free, prior and informed consent of indigenous people and local communities for any activities affecting their rights to land, territories and resources.	The project is designed to be highly stakeholder inclusive and driven.
✓	Define mechanisms for ensuring gender-responsive engagement of key stakeholders in project design and implementation.	As above.
✓	Ensure strong gender equality, inclusiveness, accountability and transparency in land use decisions and planning.	As above.
✓	Avoid forced displacement/involuntary resettlement resulting from the intervention.	This is not a concern for this project.
✓	Strengthen or develop institutional arrangements through collaboration with the range of actors at multiple administrative levels.	The project will support integration at all levels.
✓	Strengthen or develop a grievance redress mechanism.	The project will utilize and strengthen existing tools for grievance.

D. Features that promote the scale out and up of what works

✓	LDN Guidance	Project Response
✓	Employ science based and local and indigenous knowledge as well as best practices including sustainable land management that contributes to land-based climate change adaptation and mitigation	The project is fundamentally based upon driving informed decision-making through the generation and use of improved data.
✓	Apply innovative locally adapted technologies, tools, and techniques that consider context and target group specificities including, for instance, local and indigenous knowledge and traditional practices	The project includes a host of innovative approaches.
✓	Capture and disseminate what is learned from the interventions and identify ways to address knowledge gaps through accessing all knowledge forms, and where necessary conducting research	The project has several activities that focus entirely upon information capture, awareness, and upscale.
✓	Ensure there is adequate investment in activities designed to scale-up and out best practices	As above. This includes a final project design that will incorporate a hand-over strategy.

E. Features that enhance (sub)national ownership and capacities

✓	LDN Guidance	Project Response
✓	Identify and employ capacity development mechanisms such as public awareness, education and capacity-building campaigns that are aligned with enduring domestic procedures, tailored to the specific needs and social behaviors of both women and men, and existing national strategies and programmes.	The project will integrate a number of capacity building tools.
✓	Identify and employ domestic public and private financing vehicles, including co-financing arrangements that ensure the cost-efficient pursuit of multiple benefits.	Sustainable financing will be considered throughout the final design.
✓	Identify and employ strategies which can ensure the positive impact of the intervention beyond the project lifetime.	As noted, making certain that the project will be self-sufficient after close is critical... particularly given the challenging implementation context.

F. Features that leverage innovative finance (especially private sector)

✓	LDN Guidance	Project Response
✓	Include/prepare for an investment component that leverages private sector mobilization.	The private sector is front and center in this project, including agriculture and livestock producers.
✓	Foster activities that incentivise income generation and job creation for the communities in the project intervention areas.	The project, particularly Component 2, is designed to address this incentive issue.
✓	Identify and leverage innovative and sustainable finance mechanisms which create incentives for and/or directly reward land stewardship.	This is linked to the planning and regulatory parts of the project. This includes by-laws for user groups that generate financial incentives for adoption and application of improved practices.
✓	Promote innovative financing (e.g., blended finance, green bonds) from broad range of financing sources (climate finance, development finance, domestic finance – national forest funds, special taxation scheme, etc.).	This is challenging in the current implementation context. However, the project will be designed to explore and – as possible – identify and implement innovative financing tools.

### 1.5 Incremental/Additional Cost Reasoning

The project will build upon the baseline as described above. Under the existing scenario, Yemen agriculture producers will be faced increasing threats as a result of climate change impacts. These threats and associated impacts will result in declining resilience for agriculturalists as well as adverse impacts to the nation's highly important biodiversity values. With the additionality of GEF resources, stakeholders will be in a much better position to address climate change impacts and drive forward biodiversity and SLM gains as described in the project's theory of change. These impacts and resulting will be quantified and monitored through project effort.

Much of this baseline, including re-oriented and supportive government contributions, will represent co-financing support. FAO is very active in Yemen and has a large portfolio of projects that will provide additional project co-financing reinforcement. Each of these projects represents an opportunity for the proposed GEF project to assist with more fully integrating conservation priorities to amplify long-term impact. The proposed GEF project will align with activities related to land and water management, improvement in productivity and value chains of crops and livestock, supporting the role of women in agriculture, improvement in the diet and nutrition at the households, and building institutional capacity of GoY to support agriculture development to scale up and replicate the activities of the current portfolio and extend the assistance to new districts and reach populations still facing high levels of food insecurity while more fully integrating issues to address environmental security and climate change risk reduction.

The following list is indicative.

Title	<b>Strengthening Agriculture Productivity and Resilience Project Plus (SAPREP+)</b> -
Funder	Global Agriculture and Food Security Program (GAFSP) with the World Bank as Supervising Entity -
Agency	FAO
Project Period	- 2020–2023 -
Total Budget	- US\$ 36 M -
Project Description	The project goal is to reduce poverty and food insecurity in the seven governorates that are most vulnerable to and worst hit by the on-going humanitarian crisis in Yemen. The project has four components: (I) small-scale farmers' access to water and land resources improved; (II) increased performance of nutrition-sensitive crop, livestock, and fisheries target value chains; (III) increased household's adoption of appropriate diet and nutrition practices; and  (IV) improved technical capacity of key national and sub-national agricultural institutions

	<p>... improve technical capacity of key national and sub-national agricultural institutions on policy development, extension, certification, and diagnostics and surveillance.</p> <p>-</p>
Alignment	<p>The proposed GEF project will align with activities related to land and water management, improvement in productivity and value chains of crops and livestock, supporting the role of women in agriculture, improvement in the diet and nutrition at the households, and building institutional capacity of GoY to support agriculture development to scale up and replicate the activities of the current GAFSP-supported project and extend the assistance to new districts and reach populations still facing high levels of food insecurity.</p> <p>-</p>

Title	Consolidating the Decentralized Integrated Water Resource Management System in Sana'a Basin, Yemen (Sana'a Basin Project Phase II) -
Funder	Netherlands -
Agency	FAO
Project Period	2020-2023
Total Budget	US\$ 5 M
Project Description	The project's objective is to enhance the capacity of the WUAs in the Sana'a Basin in water governance. The project's expected results are to: formulate a participatory sustainable agriculture sector plan that encompasses IWRM principles; enhance agricultural productivity through the introduction of climate-smart agricultural practices, improved irrigation technologies and practices and utilization of appropriate crops; to increase food production per unit resources (more crop per drop); enhance community cohesion and strengthen the capacity of local communities to manage natural resources and resolve water-based conflicts using conflict resolution committees, WWUGs, YWUGs, and standard operating procedures. -
Alignment	Opportunity exists for the proposed GEF project to assist with more fully integrating conservation priorities within the existing Sana'a basin project to amplify long-term impact. -



Title	Integrated water management for food security and resilience -
Funder	Emirates Fund -
Agency	FAO
Project Period	2020-2023
Total Budget	US\$ 12 M
Project Description	The project will strengthen resilience and improve food security through increased access to water resources. The expected impact is strengthened resilience and improved food security of farming communities through increased access to water resources. The project is built around four components: meet immediate food needs while rehabilitating water-related infrastructure; enhance agricultural productivity of small-scale farmers; strengthen the capacity of local communities to manage natural resources and resolve conflicts; and, reduce the spread of waterborne diseases through the recycling of wastewater for irrigation.

Title	<b>Resilient livelihoods for the most vulnerable communities in Yemen</b> -
Funder	Kuwait -
Agency	FAO
Project Period	2020-2022
Total Budget	US\$ 7 M
Project Description	The overall objective is to strengthen the resilience of rural households by improving productive capacities, food access and availability. The expected results include: nutrition through cash transfers for the most vulnerable households; livelihoods resilience through increased agriculture productivity of small-scale farmers; better availability and quality of livestock products, and, strengthened capacity of local communities to manage natural resources

Title	Enhancing food availability through increased agriculture production for subsistence farmers in Hadramout Governorate in Yemen. -
Funder	Kuwait
Agency	FAO
Project Period	2019-2021
Total Budget	US\$ 2 M
Project Description	The overall project objective is to enhance food security by improving farmers' access to water resources for agriculture production and promoting economic self-reliance in Hadramout Governorate. The project aims to provide sufficient cash to access the minimum expenditure basket in line with the recommendations of the Food Security and Agriculture Cluster (FSAC) through conditional cash transfers because of participation in cash-for-work (CFW) activities linked to the rehabilitation of productive water infrastructure. At the household level, building assets is fundamental to strengthening individual and household coping strategies, while at the community level, infrastructure that is shared within the community will strengthen resilience to shocks and stresses.

Title	Supporting Resilient Livelihoods and Food Security in Yemen Joint Programme (ERRY II) -
Funder	European Commission
Agency	FAO
Project Period	2019-2022
Total Budget	US\$ 9 M
Project Description	The FAO-ERRY project is dealing with the neediest small producers in Yemen. The project's intended impact is to assist communities to be better able to manage local risks and shocks for increased resilience. This includes skills developed, and food security improved for vulnerable farming households. The project will assist farmers to improve Sorghum /Millet Value Chain through the provision of improved seeds and capacity building; improve tomato value chain development through the provision of improved seeds, fertilizers, marketing and capacity building; and, support farmers to improve livestock productivity through provision and development of feed resources, fodders and capacity building.

## 1.6 Benefits

<b>Biodiversity Conservation Benefits</b>	
Ö	45,000 hectares of productive landscapes under improved management to benefit biodiversity (CI 4.1 GEFTF)
Ö	100,000 hectares of marine habitat under improved practices to benefit biodiversity (CI 5 GEFTF)
Ö	3,000 hectares of High Conservation Value Forest (HCV) avoided and managed at ecosystem scale (CI 4.4 GEFTF)
Ö	(TBC) fisheries that meet national or international third party certification that incorporates biodiversity considerations
<b>SLM Benefits</b>	
Ö	70,000 hectares of productive land achieving Land Degradation Neutrality (CI 4 GEFTF, i.e. 4.4)
<b>Socio-economic Benefits</b>	
Ö	60,000 men and 60,000 women in rural areas benefiting directly from GEFTF investment (CI 11)
<b>Climate Change Adaptation (LDCF) Benefits</b>	
Ö	115,000 hectares of land under climate resilient management (LDCF CI 2)
Ö	20,000 men and 20,000 women in rural areas shifting to climate change adaptation positive practices, as a direct result of the training they benefited from (LDCF CI 4)
Ö	57,500 men and 57,500 women in rural areas reporting increased food security as a result of project efforts (LDCF CI 1)

It must be noted that level of ambition is dictated by the context, where wars have led to poor infrastructure, low electrification, extreme poverty and low technical capacity. The cost of intervention is high. To mitigate these challenges, the project has been designed as a 7-year effort, in order to achieve meaningful and enduring impacts.

### Aichi Targets

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

Target	Anticipated Contributions
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Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. -	The project will assist rural communities of Yemen to come to a much greater understanding of biodiversity value through awareness building, including mainstreaming of biodiversity concerns within productive sectors through participatory spatial planning.
Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems. -	The project will pay particular attention to mainstreaming biodiversity concerns with sectoral planning and policies related to development and poverty reduction.
Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	This project is designed to deliver GEF-7 mainstreaming objectives, including elimination of incentives for biodiversity negative actions.
Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits. -	The project's efforts with regards to spatial planning, capacity building, and policy improvements will result in contributions to this target.
Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	Project effort is designed to reduce loss of natural habitats, including globally significant forests currently under threat by productive practices.

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	The project will contribute to the realization of more sustainable fisheries management, including improvements related to reducing overfishing and conservation of depleted stocks.
Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Efforts are designed specifically to incentivize sustainable management of agriculture to ensure biodiversity conservation.

### 1.7 Innovativeness, sustainability and potential for scaling up

**Innovation:** Yemen is a currently a challenging location to implement conservation and development programming. This demands an innovative approach to avoid potential issues. FAO has led the way in Yemen in showing that projects can be successful if accompanied by an innovative project design using community-based approaches supported by capacitated national expertise. This innovation is closely followed in the proposed project design. The project will align three productive sectors (agriculture, fisheries, livestock) using a common and/or highly similar approach to deliver social, economic, and global environmental benefits across three large landscapes.

**Sustainability:** The project will ensure sustainability through capacity building and mainstreaming of best practices within government offices, community institutions, and the private sector. This includes the completion of spatial plans which will be legally binding. Financial sustainability is a challenge under the current situation where the Government of Yemen has very little capital. The project addresses this challenge by building the capacity of private enterprise to reach a level of profitability where improved value chains, investment returns, and market access generate financial incentives to engage in conservation-oriented production and sustain conservation-oriented production. In cases where the government is required to play a larger role in regulating and monitoring project emplaced activity, the project will make allowances for payment structures such as access fees, licenses and permits. These small fees will be reinvested to make certain finances are available to support government oversight and monitoring.

**Up-Scaling:** The project builds upon existing models of success, e.g., WUAs and fishing associations. The project is designed to upscale these models to deliver impacts at a much larger human and spatial scale. This includes transferring lessons learned from Socotra (e.g., basic spatial planning) and applying this to the biodiversity significant landscapes of Al-Mahrah. Once project successes are in place and well proven through monitoring and evaluation, upscaling will be further advanced through national and governate level capacities built through project effort. This is one reason that the project takes a “trainer of trainers” approach throughout many of its component work. The method has proven successful with other FAO programs in Yemen.

**Competencies and Lessons Applied:** As noted, FAO’s has significant experience with successful project design and implementation in Yemen. These competencies and lessons learned have been applied throughout the project design.



### 1b. Project Map and Coordinates

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

Proposed Project Site	Coordinates
Socotra Archipelago	N 12° 27' 48.3 1" E 53° 49' 53.0 0"
Al-Mahrah Governate	N 17° 11' 01.4 8" E 54° 05' 32.9 7"
Sarawat Mountains	N 14° 37' 19.2 1" E 44° 21' 28.6 1"

## 2. Stakeholders

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

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

The Government of Yemen was fully engaged during PIF development. This included a multi-day working group meeting with FAO/Yemen, FAO/Rome, and Government of Yemen represented by EPA staff held remotely at FAO regional headquarters in Cairo. At the national level, FAO had conversations regarding the project design with multiple agencies with on-going and planned efforts in Yemen. Highlands area stakeholders were engaged through two means. FAO/Yemen has extensive contacts with farmers through a network of NGOs and CBOs currently working on various agriculture initiatives in the region. This includes the WUA efforts described within the PIF. Discussions were held between FAO/Yemen and representatives of this network. FAO/Yemen works closely with the private sector coffee producers. This includes national interests currently supporting efforts to re-establish export markets. Conversations were held with these interests regarding the project design/approach during PIF development. After an initial draft PIF was developed, the head of EPA traveled to the Socotra site. One purpose of this travel was to participate in Man and the Biosphere support meetings. During this mission, the EPA discussed the draft PIF with key stakeholders including fisheries and PA staff. To engage stakeholders at the Al-Maharah site, the EPA reached out multiple times to their representatives working in the target area to make certain the project aligns with stakeholder priorities and needs.

Logistical challenges resulted in somewhat limited stakeholder engagement during the PIF development process. However, strong efforts were made by both Government and FAO. Feed-back received from all parties was positive. As noted, during the PPG phase, a more comprehensive stakeholder engagement strategy will be designed and implemented.

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

The following stakeholder table reflects those identified for consultation during the project development phase. A full stakeholder engagement plan will be developed during the PPG phase.

Stakeholder	Mandate	Potential Project Role
<b>Government</b>		
Ministry of Water and Environment (MWE)	Overall responsibility for conservation matters, including agencies such as:	Will provide guidance and support for project activities, particularly related natural resource conservation

	EPA  General Department of Forestry and Combatting Desertification	vation
Environmental Protection Authority (EPA)	Agency within MWE responsible for implementation of environmental policies, PA management, international conventions, etc.	Direct project implementation support, including through field offices at project sites. Inclusive of P A, spatial planning, BD conservation, etc.
Ministry of Agriculture and Irrigation	directs issues related to food security, agriculture and irrigation. Including various agencies such as:  General Authority of Rural Water Supply;  National Water Resource authority; and,  Agriculture Research and Extension Authority.	Critical partner for sustainable agriculture and livestock management, including extension
Ministry of Planning and International Cooperation	Assists with national planning and issues of international cooperation	Will assist with making certain conservation is mainstreamed in national planning and policy, including making certain adequate funding exists to move forward project implemented success.
Ministry of Fishery Wealth	Regulates fisheries, including monitoring of fish stocks, harvests, etc.	Important partner for mainstreaming biodiversity conservation within fisheries sector
Ministry of Finance	Proposes and oversees budget allocations through planning	Will assist with policy issues and helping to ensure sustainable funding
National Women Committee	Oversees issues of gender	Will provide project support for mainstreaming gender issues, including guiding implementation activities

Local Government	Local government bodies (Governorates, Districts, etc.) have authority over some natural resource issues. Most have representatives in their offices from national level agencies.	Provision of support for field-based activities, including capacity building for planning initiatives, extension, etc.
<b>Donors</b>		
World Bank	GEF agency with history of conservation and development work in Yemen	World Bank is not active at this time. WB works primarily through FAO. May be important stakeholder as conflict is reduced.
UNDP	GEF agency with history of conservation and development work in Yemen	UNDP works closely with FAO on a number of relevant projects. Will support project through uptake and amplification.
UNEP	GEF agency with history of conservation and development work in Yemen	UNEP works closely with FAO on a number of relevant projects. Will support project through uptake and amplification. Historical baseline work at Socotra.
FAO	GEF agency with history of conservation and development work in Yemen	GEF Agency for project. Will support implementation and technical back-stopping.
<b>Academia</b>		
Aden University	Major national university.	Will assist with capacity building, particularly for communities to improve agriculture and livestock management.
Aden Marine Centre	Marine research centre	Will assist with fisheries management improvements.

<b>CSO's</b>		
Friends of the Environment	Large NGO focused upon environmental conservation.	May be engaged to support project activities relevant to conservation planning and stakeholder awareness
Yemen Ornithological Society	Active birding and avian conservation organization.	May be engaged to support project activities relevant to conservation planning and stakeholder awareness
Alliance of Nature Protectors (ANP)	Large NGO focused upon environmental conservation.	May be engaged to support project activities relevant to conservation planning and stakeholder awareness
Environmental School Clubs	Affiliation of school-based clubs to support environmental conservation.	May be engaged to support project activities relevant to conservation planning and stakeholder awareness
Ras Omran Marine Turtles Protection Society	Group focused upon conservation of turtles in Al-Mahrah	May be engaged to support project activities relevant to conservation planning and stakeholder awareness
Al Hassawah Environmental Women Society	Women's organization working on income, health, and advocacy	May be engaged to support project activities relevant to conservation planning and stakeholder awareness with focus upon issues of gender
Yemen Society for Natural Resource Sustainability	Large NGO focused upon environmental conservation.	May be engaged to support project activities relevant to conservation planning and stakeholder awareness
<b>Private Sector</b>		

Private Producers (Livestock, fisheries, and agriculture)	Responsible for small businesses associated with product sectors	Important stakeholders for all components. Will be engaged through organizations and individuals to support and benefit from project activity.
Commercial Enterprises	Input suppliers and commodity purchase/sale relevant to for fishing, agriculture and livestock sectors.	Stakeholders to be engaged for value-chain improvements, marketing, and support for implementation of spatial planning.

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

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

The project is designed to be consistent with the GEF "Policy on Gender Mainstreaming" and the GEF "Policy on Gender Equality". FAO is a leader in promoting great gender equity and empowerment in Yemen. For instance, the board of each WUA established with FAO support must have at least 30% membership by women and each female board member must be given the power to veto any board decision. This same or similar model will be upscaled and replicated through the proposed project's community-based approaches.

However, Yemen gender disparities are significant with women having substantially lower opportunities to engage meaningfully in economic, social and political sectors. The proposed project will acknowledge gender differences, it will assess and comprehensively understand them, and it will then design and implement activities that promote women's empowerment and gender equality. The Project will seek to lessen the impact of climate change on women and other particularly vulnerable groups and contribute to women's empowerment and gender equality.

The project will adopt a participatory approach for maximum impact through the inclusion of all relevant social groups, including marginalized people (e.g. unemployed youth), with attention to the participation and inclusion of women whilst respecting the norms, values and customs of targeted communities. A project specific gender mainstreaming plan will be developed during the project design (PPG) phase, with actions to be taken under each component and necessary budgetary provision as appropriate. The assessment will determine at the household and State levels: the number of female resource users; the number of women headed households; the differentiated impacts of climate change and drought on women; the different knowledge base of men and women; strategies for mainstreaming gender into natural resource management; strategies for optimizing the participation of women in natural resource management and optimizing their economic benefit.

Specific targets will be set during project design (PPG phase) and reflected in the results framework to ensure inclusion and participation of women and girls both in site-based project activities (such as the development of alternative income generating activities, conservation actions, and activities aimed at capacity enhancement), as well as ensuring that opportunities are created for women to take up positions of leadership within the management hierarchy of the project governance structures. The initial gender target is that at least 50% of those directly benefitting from the project will be women.

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

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

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

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

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

Yes



#### 4. Private sector engagement

Will there be private sector engagement in the project?

Yes

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

As detailed in the project framework, the main beneficiaries and project stakeholders are private sector fisheries, pastoralists and farmers. These private sector actors will be actively engaged in project activities, including implementation. The project will work with fisheries exporters on the island of Socotra to secure value chain improvements. The project will work with international boutique coffee exporters. This includes Port Mokha a group that is familiar with FAO's efforts in Yemen and has expressed a desire to coordinate with this proposed project.

## 5. 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)

### *Conflict and Project Design/Implementation*

The final project design will fully consider potential conflicts and security and how these issues will impact both the achievement of project objectives.

GEF's Independent Evaluation Office recently released a draft approach paper for "Evaluation of GEF Engagement in Fragile and Conflict-Affected Situations". The draft approach estimates that over one-third of GEF project recipients have implemented projects during a period of conflict in their country. As the draft states: "Conflict-sensitive conservation improves the quality and sustainability of environmental outcomes in conflict-affected areas. Well-planned environmental projects and programs that account for cooperation, equity, and institution-building can improve the process of conflict management, prevention, and recovery. They also build public support and cohesion, rather than provide a flashpoint for conflict."

Yemen is experiencing a period of armed conflict. The associated opportunities and challenges were fully considered during the design of this PIF. This is reflected within the Risks/Mitigation Table listed below.

The project will carefully consider how implementation will avoid contributing to any conflict related issues. The project will incorporate approaches that intentionally bring together divided groups to cooperate around shared environmental interests. The final project design will benefit from a strategic action plan that focuses upon issues of conflict and security, including an early warning system for avoidance of conflict related impacts. This action plan will be informed by development organization guidelines along with FAO's own internal guidance for working within conflict zones.

The proposed mainland project sites are each located in areas where conflict has been and should continue to be minimal. FAO has work on-going in the Sarawat Mountains. International organizations are active in Socotra. The Al-Mahrah region can be safely accessed via neighboring Oman. Other than flight interruptions and some increase in military presence, the island of Socotra has been completely out of the conflict zone.

Project's implementation partners are well aware of the on-going situation, potential levels of risk, and required mediation measures. FAO has maintained staff and an office in Yemen throughout the conflict period. The partners view the implementation of this project a highly timely and necessary, particularly because of the conflict and the need to strengthen conservation efforts to limit further risk exposure to local communities resulting from degradation.

**Risk Table**

The following risks have been identified with preliminary mitigation measures. Risks will be reviewed comprehensively, and mitigation measures will be strengthened during the PPG phase.

Risk	Impact/Probability Rating (Low: 1 to High: 5)	Management Strategy
Security challenges hinder timely project implementation, human welfare, and/or site-specific activity.	Impact: 4 Probability: 3	The conflict in Yemen presents significant issues in terms of project implementation and safety. The project has been designed specifically to work in areas where security has not been an issue over the past several years. This may change. As noted, the final project design will take this into consideration and will benefit from a security action plan that will be revised and updated regularly.
Logistical challenges increase project costs, delay implementation, and/or decrease effectiveness.	Impact: 4 Probability: 3	The ability for international and national experts to travel freely and/or reach Yemen safely is a major concern. For instance, Socotra seems to be currently insulated from the conflict but transport in/out of the archipelago is complicated and unreliable. The project will be designed to provide for remote support as required. For Socotra, full-time staff will be positioned on the island to avoid complicated logistics associated with shorter term missions. This approach adds upfront costs but will lower longer-term and persistent logistical problems.
		The number of national level government stakeholders is large. This reflects the multi-dimensional approach required to address identified environmental concerns. The civil war further complicates this issue. To date, government officials and technical

Inadequate government support and/or inter-agency coordination limits project effectiveness.	Impact: 4 Probability: 3	<p>al staff continue to receive salaries and carry out basic functions. This may change.</p> <p>The project will alleviate this issue by focusing effort at the local level, working directly with lower level government administrations and, more importantly, with local communities and private producers who are very eager to benefit from improved production practices that result in the maintenance of the ecosystem services upon which they depend.</p>
Economic, social and food security hardships challenge stakeholder participation.	Impact: 4 Probability: 3	<p>As noted, a great number of Yemenis are already dependent upon humanitarian assistance for their survival. This limits the options in terms of generating value chain improvements. This also challenges the ability to capture “new” value streams such as tourism and to channel these streams towards more sustainable approaches. The project will be designed with these issues in mind and will work to assist private enterprises, including marginal agriculture, livestock, and fisheries producers to better insulate themselves and their communities from economic and food security hardships. FAO’s core competency is to improve food security while mainstreaming biodiversity conservation and climate change adaptation within these systems. This expertise will ideally assist to alleviate food security challenges.</p>
		<p>The project is designed to address and alleviate the current exposure of rural Yemenis to natural resource risks, including those related to climate change, drought and food insecurity. Each of the project activities is directed to take an integrated approach to these issues, shifting current unsustainable management/production regimes to sustainable</p>

<p>Natural resource constraints – including climate change, drought, and food security - impact project ability to achieve intended results.</p>	<p>Impact: 3 Probability: 3</p>	<p>management, production regimes to sustainable management/production. This includes enhancing the ability of highland producers to move away from current unsustainable crops to more integrated cropping patterns that provide cash (via coffee) and food security through farmstead diversification. This will directly alleviate impacts related to climate change and, particularly, water scarcity. Likewise, similar approaches will be applied to fisheries and livestock sectors. The project will assist producers to approach these sectors using practices designed to improve marine and landscape management and production to enhance CC resilience, reduce drought exposure, and improve long-term food security. In addition, the project's final results framework to be designed during the PPG will integrate these specific natural resource risks. This will include monitoring progress against improvements to CC resilience/adaptation, exposure to drought risks, and improvements to food security and nutrition.</p>
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In line with FAO's Environmental and Social Safeguards, the project has been screened against Environmental and Social risks and rated as moderate (see certification in annex along with the climate change risk screening). The risk level will be further re-confirmed at PPG in line following FAO's stakeholder engagement processes. The Agency will make sure that all mitigation measures vis a vis any potential adverse impact are duly considered in the co-endorsement package.

## 6. Coordination

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

### FAO Coordination Capacity

FAO is one of the most active and effective development agencies currently working in Yemen. As discussed in other sections of this PIF, FAO has a full-time office in Sana'a and has maintained a strong track record of project delivery throughout the conflict period. FAO enjoys very strong and on-going coordination efforts with all relevant agencies. This same coordination approach will be applied to the implementation of this project.

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

FAO will be responsible for ensuring coordination with other internationally supported initiatives, including those financed by GEF. Final implementation arrangements will be identified during the PPG based upon best available information and practices. Under most project currently implemented, FAO is responsible for coordination at the site and national level through a number of identified stakeholders, primarily NGOs.

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### Coordination and Alignment with GEF Financed Projects

FAO/Yemen works extremely closely with UNEP, IFAD and UNDP. For instance, IFAD does not have an office in Yemen. FAO generally assists IFAD with implementation support.

The final project document will reflect a coordination mechanism to make certain that this proposed project is well aligned with and benefitting from engagement with the on-going suite of GEF financed initiatives. Coordination will make certain that other GEF projects are engaged through invitation to participate in appropriate capacity building efforts and the provision of outputs and knowledge products. Coordination will also include regular meetings and discussions to be facilitated by this proposed project between executing agencies responsible for implementation of the various GEF financed initiatives. The specific coordination mechanisms will be reflected in the final project document's management description and reflected in the stakeholder engagement strategy designed during the PPG.

Following are the primary GEF projects that the FAO/GEF project with which the proposed FAO/GEF project will closely align. Of these, only the UNEP/GEF Socotra project is currently operational. FAO/Yemen maintains regular and nearly constant contact with each of these agencies as well as relevant government counterparts. This coordination will be continued throughout the implementation of the proposed project. This will include generating a coordination strategy during the PPG phase with full-integration with on-going/potential GEF and other relevant investments. This strategy will detail how each of these projects will work together to share lessons, upscale investments, and make certain that all aspects of implementation are extremely well-coordinated.

*UNEP/GEF "Support to the Integrated Program for the Conservation and Sustainable Development of the Socotra Archipelago" 2013 – ongoing GEF US\$ 4.8 million.*

This project has four components: (1) Improved Biodiversity Conservation/Protected Area Management (BD/PAM), (2) Invasive Alien Species (IAS) Management, (3) Sustainable Land Management/Land Degradation (SLM/LD), and (4) Enabling Environment (related to the institutional framework, capacity development and sustainable financing).

The existing UNEP/GEF project intends to update protected area management and generate SLM strategies. These efforts that will result in improving strategic approaches underpinned by a number of project generated assessments. Long-term implementation is to be supported through policy improvements and a planned trust fund. The UNEP project intends to trial on a very limited basis actual improvements to productive sector. This is mostly predicated upon implementing farmer field schools based upon FAO models. The fact that the UNEP/GEF project continues to make progress during the conflict period is promising.

The UNEP/GEF project creates a strong baseline for this proposed FAO/GEF project. There is now an evolving baseline upon which FAO may apply its core competencies relevant to fisheries, livestock production, and agriculture to tangibly address existing threats at an ecosystem level. The FAO/GEF project would apply GEF-7 principles to mainstream biodiversity much more broadly. This would include reference to protected areas. However, the primary focus will be working with the productive sectors of fisheries, tourism, and agriculture/livestock to mainstream biodiversity conservation within these sectors and across the entire land and seascape. This two-pronged approach would make certain that both the protected and productive land and seascapes of the Socotra Archipelago will be managed cohesively to deliver global environmental benefits.

*IFAD/GEF "Rural Adaptation in Yemen" Pending. GEF US\$ 10 million*

This LDCF project is designed to be fully integrated into the IFAD-supported Rural Growth Programme under IFAD's Adaptation for Small Holder Agriculture Programme. The GEF project is built around three components working primarily with the Ministry of Agriculture and Irrigation (MoAI). Under Component 1, the project intends to build community empowerment and resilience. This will primarily involve Community Development Associations to generate knowledge related to climate change adaptation and risk management in farming and rangeland practices. Under Component 2, the project will generate resilient investments in natural resources management and agriculture development. This will focus upon creating community action plans for land, water, rangeland, and agricultural production. Under Component 3, the project will contribute to climate change downscaling. Here the project will build institutional capacity for informed and participatory decision-making.

The project is not currently operational. Once operational, the project could be highly compatible with the proposed FAO/GEF project. This includes potential for coordinating and upscaling lessons learned in vulnerability assessment and improved adaptation interventions.

*IFAD/GEF "Fisheries Investment Project" Pending. GEF US\$ 9 million*

The goal of this project is to improve the economic status of small fisher households by creating sustainable economic opportunities. The project hopes to improve knowledge regarding the status of fisheries resources by developing and implementing plans for regeneration and sustainable management of fisheries resources. The project would like to assist with the development of better enforcement, including an enhanced licensing system. The project will support safer fishing practices, including development of safety-at-sea regulations. The project will work with mainland processors to improve value chains for local fishing interests and help develop modern processing infrastructure. The project will also investigate potential for aquaculture.

The project is not currently operational. The project area is focused upon the mainland and will not cover areas considered by the proposed FAO/GEF project. However, synergies will be generated in terms of building the capacity of stakeholders to promote sustainable fisheries across a larger seascape.



## 7. Consistency with National Priorities

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

Yes

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

The proposed project is consistent with relevant national priorities as indicated by several strategies and plans.

International Conventions	Yemen is a party and active participant of the Convention on Biological Diversity, the United Nations Convention on Combating Desertification (UNCCD) and the United Nations Convention on Combating Desertification (UNFCCC), including both the Kyoto Protocol and Paris Agreements.
Initial National Communication (INC) (2013)	Strongly recognizes the link between unsustainable agriculture, fisheries, and livestock production and climate change and urges concrete action to be taken to mitigate potential impacts.
The National Adaptation Plan of Action (NAPA) (2009)	States that Yemen's population is rural based and engaged in farming and pastoralism. The NAPA identifies three main sectors that are vulnerable: water resources, agriculture, and coastal zones. The NAPA states the linkages between these vulnerabilities and unsustainable production practices and calls for strategic approaches to address these issues.
National Biodiversity Strategy and Action Plan (NBSAP)	Stated principle and objectives include: a) striving to maintain the integrity of Yemen's land and marine resources and their biotic wealth; b) respect for the intrinsic value of all forms of life, while uses need to be made both sustainable and equitable; c) pursuit of collaborative management agreements and institutions; d) indigenous natural resource management systems of the Yemen people will be supported, protected, utilized and seen as a rich natural heritage; e) responsible public management based on accountability, transparency, participation in decision making and a full analysis of impacts; and, f) the Precautionary Principle (as defined in the Rio Declaration on Environment and Development).

Poverty Reduction Strategy Paper and Vision 2025	Support and recognize the need for environmental protection recognizing the nexus between environmental degradation and human development challenges.
National Food Security Strategy (2011)	Key objectives are to reduce food insecurity by one third by 2015, to make 90 percent of the population food secure by 2020, and to reduce child malnutrition by 1 percent annually. The NFSS is multi-sectoral and includes measures for restructuring the national budget, promoting rapid economic growth, improving risk management, investing in agricultural development and natural resource management, strengthening service delivery particularly for health, family planning, nutrition, and promoting women's empowerment. Because of the prevalence of food insecurity in rural areas, and the strong linkages between agricultural production and food security, a large part of the implementation of the NFSS is through the investment program for agriculture. In particular, the agricultural sector is to contribute to several key elements of the action plan, including goals to: (a) increase incomes through higher productivity and development of value chains; (b) promote high value alternatives to Khat; (c) improve targeting of public investments and improved service provision for agriculture and poverty-reducing rural development; and (d) promote women's empowerment through better access to agricultural assets and services.
National Agriculture Sector Strategy (2012, updated 2013)	Aims to increase growth, sustainability, and equity by raising agricultural output, and to increase rural incomes, particularly for the poor. Four specific goals are outlined: i) increase domestic food production through improving input supply, increased farmer awareness, and greater availability of agricultural credit; ii) fight rural poverty through increasing income of farmers, especially women, and continued promotion of rural development; iii) preservation of the environment and natural resources, and activating the role of community participation to ensure sustainability; and iv) improving market efficiency, lessening post-harvest losses and developing the capacity to export. The updated strategy further emphasizes: (a) improving productivity in rainfed agriculture; (b) more efficient agricultural water management; (c) an increased recognition of the role of rural women in meeting food needs, improving nutrition and protecting the environment; (d) a strong focus on improving productivity and sustainability of livestock production (as livestock is the principal asset and economic activity of the poorest and landless); and (e) diversification of cropping patterns.

	<p>erns into new or revived cash crops and into more nutritious foods. The NASS update also promotes for a new institutional emphasis on: (a) demand-driven and participatory approach factoring in the needs and views of the farmers, particularly the poorest from the bottom up, (b) a decentralized approach; (c) increased reliance on the private sector and on public/private partnerships wherever feasible, and (d) efficient use of scarce public finances.</p>
National Water Sector Strategy and Investment Program (NWSSIP)(2007)	<p>Objectives include: Ensure coordination among all partners working in urban and rural water supply and sanitation sub-sectors, within and outside the MWE; Ascertain that policies in each of these two sub-sectors are unified and that investments are equitably allocated among governorates according to unified rules and that no projects are duplicated, especially in rural areas, so as to ensure that investments complement each other; Ascertain integration of water policies and national policies of sustainable growth and poverty reduction; Ensure that sector financing effectively supports sector goals; and, Monitor and evaluate performance.</p>
National Fisheries Strategy (2012 – 2025)	<p>Calls for an increased contribution of the fishery sector to national economy, food security and employment generation especially of women and youth while ensuring sustainability of marine resources.</p>

*FAO Strategic Objective:* The project will be designed to fit FAO Strategic Objective (SO) 5 “Increase the resilience of livelihoods from disaster” and SO 2 “Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner”.

*FAO’s Country Programming Framework:* The project fits well within FAO’s CPF. The outcome of FAO’s technical support is to be “combating the food and nutrition insecurity through the establishment of an enabling development policy and strengthened regulatory framework for improved management and conservation of the natural resource base and its sustainable use to increase agricultural and fisheries production and productivity and to alleviate rural unemployment and poverty”.

The CPF outcome is to supported by five immediate objectives: (1) Support strategic planning and design of enabling development policy and strengthening agricultural information systems; (2) Increase agricultural and fishery production through effective agricultural research and extension programs and facilitate utilization of improved inputs and practices that would contribute to raising productivity and increased self-reliance in basic food commodities; (3) Support development, conservation, sustainable management and optimal use of the available natural agricultural and marine resources with due regard to climate change mitigation and adaptation to its impacts; (4) Provide appropriate conditions for promoting value addition, agro-processing, marketing and trade and for enhancing and expanding sphere of activities of the private sector in agricultural development; and, (5) Support improved livelihood and enhanced food and nutrition security for vulnerable farming and rural communities through generation of rural employment and sustainable increase in rural households' incomes and through disaster risk reduction and emergency management.

## 8. Knowledge Management

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

Knowledge management will be an integral part of the project, enabling institutional memory, promoting learning and continuous improvement, generating documents for up-scaling of lessons and best practices. Specific knowledge management activities are incorporated within the project's components and will be conducted in support of capacity building and training actions under the different components. The broader dissemination of experience and lessons learnt generated by the project will be also pursued through engaging national and regional technical and educational institutions, and regionally and internationally through South-South cooperation mechanisms.

FAO will also take a lead in disseminating knowledge projects regionally and globally. For example, the FAO regional programme is helping countries to achieve sustainable food security and helping vulnerable communities to cope with shocks and crises. It is notably doing this through several targeted initiatives on water scarcity, building resilience and nutrition. The proposed Project lessons learnt will feed into these initiatives (as well as benefitting from them). Finally, FAO will ensure that knowledge is circulated at the global level.

Climate change adaptation remains a relatively new sector and much knowledge needs to be acquired, assessed, stored and shared. This needs to happen at the State, national and international levels. Hence this project has activities to contribute to this process. The knowledge management activities are to be planned from the onset and will feed into existing systems for knowledge management. Component 3 includes activities to capture knowledge through the Project activities, including the generation of best practices document and other media supports. The following section explains how that knowledge will then be stored and disseminated at appropriate levels.

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

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

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Mr. Ammar Al-Aulaqi	EPA Secretary-General	Environment Protection Agency	3/23/2020

# ANNEX A: Project Map and Geographic Coordinates

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



