



Project Identification Form (PIF) entry – Full Sized Project – GEF - 7

Sustainable Luangwa: Securing Luangwa's water resources for shared socioeconomic and environmental benefits through integrated catchment management

Part I: Project Information

GEF ID

10412

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

☐ CBIT

☐ NGI

Project Title

Sustainable Luangwa: Securing Luangwa's water resources for shared socioeconomic and environmental benefits through integrated catchment management

Countries

Zambia

Agency(ies)

WWF-US

Other Executing Partner(s)

Executing Partner Type

Ministry of Water Development, Sanitation and Environmental Protection -
Environmental Management Department

Government

GEF Focal Area

Multi Focal Area

Taxonomy

Land Degradation, Focal Areas, Sustainable Land Management, Sustainable Livelihoods, Improved Soil and Water Management Techniques, Sustainable Forest, Community-Based Natural Resource Management, Biodiversity, Protected Areas and Landscapes, Terrestrial Protected Areas, Community Based Natural Resource Mngt, Productive Landscapes, Strengthen institutional capacity and decision-making, Influencing models, Demonstrate innovative approach, Convene multi-stakeholder alliances, Type of Engagement, Stakeholders, Consultation, Information Dissemination, Participation, Partnership, Beneficiaries, Local Communities, Private Sector, SMEs, Individuals/Entrepreneurs, Communications, Awareness Raising, Behavior change, Civil Society, Non-Governmental Organization, Community Based Organization, Gender Mainstreaming, Gender Equality, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Knowledge Generation and Exchange, Participation and leadership, Capacity Development, Access and control over natural resources, Innovation, Capacity, Knowledge and Research, Knowledge Generation

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 0

Duration

48 In Months

Agency Fee(\$)

260,023

Submission Date

10/11/2019

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-1	GET	1,614,613	11,400,000
BD-2-7	GET	1,076,409	7,600,000
LD-1-4	GET	198,133	2,448,276
Total Project Cost (\$)		2,889,155	21,448,276

B. Indicative Project description summary

Project Objective

To reduce forest and land degradation of the Luangwa Upper Sub-Catchment for enhanced protection of water resources, biodiversity and associated community livelihoods.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 1: Protected area management and establishment in the Luangwa headwaters	Investment	Outcome 1.1: Improved management effectiveness of the Mafinga Hills National Forest Reserve in the Luangwa headwaters.	<p>1.1.1: Boundary demarcation of Mafinga Hills NFR (with beacons).</p> <p>1.1.2: Management Plans for Mafinga Hills NFR developed and endorsed</p> <p>1.1.3: Training and equipment provided for fire management, including the establishment of firebreaks.</p> <p>1.1.4: Assisted regeneration of degraded forest and grassland areas undertaken.</p> <p>1.1.5: Training and operational support (including vehicles, motorcycles, maintenance, equipment, and field supplies) provided for patrolling and monitoring activities undertaken by the Mafinga District land and natural resources management departments.</p> <p>1.1.6: Awareness raising on environmental values and NFR regulations undertaken with local communities in and around Mafinga Hills NFR in the upper headwaters.</p> <p>1.2.1: Water Resource Protection Area (WRPA) proposal submitted by WARMA for the Upper Sub-Catchment including:</p> <ul style="list-style-type: none"> - biological and physical surveys - community consultations 	GET	1,296,936	3,000,000

- participatively proposed boundary
- participatively proposed restrictions and regulations

Outcome 1.2:
Enhanced
protective status
of the source of
the Luangwa
River.

Component 2. Community management of the Luangwa headwaters (Mafinga District).	Investment	Outcome 2.1: Buffer zone and community lands under improved management to benefit forest cover, biodiversity and land protection in the Luangwa headwaters.	<p>2.1.1: Community Conservation Agreements negotiated with local farmers and monitored.</p> <p>2.1.2: Implementation manuals for community forest management and conservation farming developed.</p> <p>2.1.3: Key conservation agriculture actions by farmers around the Mafinga Hills NFR supported and linked to markets, e.g.: i) crop intensification to reduce expansion; ii) provision of quality seed; iii) introduction of composting and mulching systems; iv) provision of tools for minimum impact tillage which support higher efficiency/productivity; v) introduction of poultry, small ruminants and beekeeping as alternative livelihoods options; and vi) payment for agricultural produce and/or market linkages.</p> <p>2.1.4: Indigenous tree woodlots established outside Mafinga Hills NFR to reduce forest loss from wood fuel gathering In NFRs</p> <p>2.1.5: Participatory designation and management of community forest areas (2-3 areas) outside Mafinga Hills NFR.</p>	GET	1,264,640	16,000,000
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Component 3. Knowledge management and Monitoring and Evaluation (M&E).	Technical Assistance	Outcome 3.1: Increased knowledge of protected area management and establishment and community sustainable land management at national, provincial, catchment and community levels. Outcome 3.2: Informed and adaptive project management.	3.1.1: Cross-sectoral communication strategy developed to collect and disseminate project knowledge products and best practices in Zambia. 3.1.2: Knowledge products designed and distributed to relevant stakeholders. 3.2.1: Project M&E plan implemented and reports – including project progress reports, results framework, midterm evaluation and terminal evaluation – developed.	GET	190,000	1,000,000
Sub Total (\$)					2,751,576	20,000,000
Project Management Cost (PMC)						
GET					137,579	1,448,276
Sub Total(\$)					137,579	1,448,276
Total Project Cost(\$)					2,889,155	21,448,276

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(\$)
GEF Agency	WWF-US	In-kind	Recurrent expenditures	465,875
CSO	WWF Zambia	In-kind	Recurrent expenditures	600,000
Government	Ministry of Water Development, Sanitation and Environmental Protection (This includes Environmental Management Department, WARMA and other relevant departments)	In-kind	Recurrent expenditures	225,000
Private Sector	COMACO	Grant	Investment mobilized	5,750,000
CSO	WECSZ - Wildlife and Environmental Protection Society of Zambia	Grant	Recurrent expenditures	2,061,431
Government	Ministry of Agriculture (GCF) - Strengthening Climate Resilience for Agricultural Rural Livelihood in Agro-ecological region I and II (SCRALA)	Public Investment	Investment mobilized	12,345,970
Total Project Cost(\$)				21,448,276

Describe how any "Investment Mobilized" was identified

Public grant funds (GCF) and private sector financing through COMACO identified and mobilized by the Ministry of Water Development, Sanitation and Environmental Protection.

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(\$)
WWF-US	GET	Zambia	Biodiversity	BD STAR Allocation	2,691,022	242,192	2,933,214
WWF-US	GET	Zambia	Land Degradation	LD STAR Allocation	198,133	17,831	215,964
Total GEF Resources(\$)					2,889,155	260,023	3,149,178

E. Project Preparation Grant (PPG)**PPG Amount (\$)**

100,000

PPG Agency Fee (\$)

9,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
WWF-US	GET	Zambia	Biodiversity	BD STAR Allocation	93,000	8,370	101,370
WWF-US	GET	Zambia	Land Degradation	LD STAR Allocation	7,000	630	7,630
Total Project Costs(\$)					100,000	9,000	109,000


Core Indicators

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
40,500.00	0.00	0.00	0.00

Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
25,000.00	0.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
Luangwa WRPA		Protected area with sustainable use of natural resources	25,000.00			

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
15,500.00	0.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
Mafinga Hills National Forest Reserve	27023	Protected area with sustainable use of natural resources	15,500.00						

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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300.00	0.00	0.00	0.00
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Indicator 3.1 Area of degraded agricultural land restored

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

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
300.00			

Indicator 3.3 Area of natural grass and shrublands restored

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

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

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

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
40000.00	0.00	0.00	0.00

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

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

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

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

Type/Name of Third Party Certification

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
40,000.00			

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

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

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

Title

Submitted

Indicator 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	1,060			
Male	985			
Total	2045	0	0	0

Part II. Project Justification

1a. Project Description

Project scope and Environmental Significance: The project scope is the Luangwa Upper Sub-catchment, concentrated in Mafinga, Isoka, Nakonde and Chama Districts, in eastern Zambia, given the importance of the upper catchment to the long-term water flow and quality of the river and the associated ecosystems and ecosystem services of the downstream. Within that area, on-ground interventions will be concentrated around the source of the Luangwa River, in the Mafinga Hills National Forest Reserve and the surrounding agricultural land, in Mafinga District, in the north-east of Zambia, near the Malawi border. The rich forest habitats of the headwaters provide rural communities with critical ecosystem goods and services, including wood fuel and non-timber forest products (NTFPs).

The Luangwa River, is one of the major tributaries of the Zambezi River, and is one the four major rivers of the country. The Luangwa river - one of the last long free-flowing rivers[1] in Zambia and one of the largest unaltered river systems in southern Africa - is an essential source of water for adjacent populations (~1.8 million people reside in the Luangwa Catchment[2]), providing water for irrigated agriculture[3],[4], household use and hydropower[5],[6],[7] in the downstream area of the catchment. The Luangwa Catchment has globally important biodiversity assets and natural resources: the Luangwa Floodplains[8], [9] (designated Wetlands of International Importance and Ramsar site), six National Parks, eight Game Management Areas, and National Forest Reserves. In all, these protected areas cover 68,812 km² - around 50% of the total catchment area. The catchment includes large areas of Miombo Woodland, designated by Conservation International[10] as one of five High Biodiversity Wilderness Areas[11],[12] and by WWF[13] as one of the Global 200 Ecoregions[14]. These ecosystems support important terrestrial and aquatic species, including the endangered marsh mongoose (*Herpestes palustris*), African clawless otter (*Aonyx capensis*), spotted necked otter (*Lutra maculicollis*), hippopotamus (*Hippopotamus amphibious*), African wild dog (*Lycaon pictus*) and the critically endangered hook-lipped (black) rhino (*Diceros bicornis*)[15].

The Mafinga Hills NFR, a Category VI protected is an area rich in biodiversity and forms part of the Eastern Afromontane biodiversity hotspot. Due to its rich variety of endemic flora and fauna species, Mafinga Mountains, in which the NFR is contained, is a listed as a Key Biodiversity Area of Zambia (<http://www.keybiodiversityareas.org/site/factsheet/24247>).

Environmental problem and root causes: Mafinga Hills National Forest Reserve is impacted by forest use from communities living within the reserve and the reserve buffer zone. District officials reported, during PIF consultations, that the forests of the headwaters are impacted by shifting agriculture (both the direct effects of fire and the effects of land clearance) and other agricultural extensification, wood collection for fuel wood and charcoal (both home use and for sale), livestock grazing, and wildlife poaching. Small scale agriculture is a common livelihood practice in Mafinga district, and agricultural activities are concentrated in the headwaters of the Luangwa and its tributaries. The river source is particularly affected by agriculture - more than 20% of all agricultural

camps in the Mafinga district are clustered around the Mafinga Hills. These camps collectively support a population of ~20,000 people, many of whom (35%) are farmers practicing shifting agriculture, or chitemene[16],[17]. The practice of chitemene requires that large areas are cleared through burning, exacerbating the erosion of the inherently erodible soils in the Luangwa sub-catchment. Chitemene continues today, particularly in the floodplains of the sub-catchment. The soil erosion from the removal of the natural vegetation cover and inappropriate tillage practices leads to siltation of waterways. Mafinga district supports a large cattle population (~18,000 head), which contributes to land degradation through overgrazing. The degradation and loss of forest in the Luangwa headwaters threatens biodiversity, reduces water quality and flow, and impacts the associated ecosystem services to downstream communities. The environmental problem that the proposed project seeks to address is land degradation and biodiversity loss in the headwaters of the Luangwa, which threatens the ongoing ecosystem service provision across the whole catchment.

Barriers to protection of the Luangwa river source include:

- i) Protection status for the headwater forests is limited just to the area of the NFRs and the Game Management Area (GMA), but protection or sustainable use of the forests throughout the headwaters is needed for protection of the river source.
- ii) Inadequate resources for management of the forests of the Luangwa headwaters, particularly the National Forest Reserves and the forests in the buffer zones and between Reserves. The NFRs do not have management plans to guide prioritization of management activities. The reserves do not have on-ground demarcation, which can lead to unclear understanding of use areas. There are also no designated community forests, which places pressure on the NFRs and buffer zones for community use, including fuel collection and grazing.
- iii) Limited involvement of community stakeholders in management of the forest resources.
- iv) Limited proof of concept of effective and scalable sustainable land, water and other natural resources management approaches by communities and local government, including alternatives to chitemene practices.

Baseline scenario and associated baseline projects

Protected Area Management in the Luangwa Headwaters:

Department of National Parks and Wildlife (DNPW), under the Ministry of Tourism, and Water Resource Management Authority (WARMA) and the Environmental Management Department (EMD), under the Ministry of Water Development, Sanitation and Environmental Protection (MWDSEP), are the key government agencies that manage protected areas in the Luangwa Catchment.

Management of the National Parks and the Game Management Areas in Luangwa Catchment is undertaken by DNPW, often in collaboration with NGOs such as WWF, WCS and FZS. There is a strong baseline of protected area management in the 4 National Parks and 7 Game Management Areas within the Luangwa Catchment, under DNPW[18].

In the Luangwa headwaters there are three National Forest Reserves (NFRs) and one Game Management Area. The NFRs are under the mandate of the Ministry of Water Development, Sanitation and Environmental Protection. The Decentralisation Policy directs the MWDSEP to devolve management functions to district councils. As such, the Mafinga District council is responsible for on-the-ground management of the National Forest Reserves, the buffer zones, and working with communities for sustainable land management. The three NFRs provide critical forest for headwater protection, particularly Mafinga Hills where the Luangwa source is located, however, management resources at the District level are limited. The GMA is under the management of the DNPW.

The Water Resources Management Act No. 21 of 2011 (WRM Act) established the Water Resource Management Authority (WARMA). WARMA has overall authority for water resources management, including identification and designation of Water Resource Protection Areas (WRPAs). WARMA has Catchment Offices for all six catchments, including Luangwa Catchment Office, which was established in 2016 and currently has 10 staff. WWF Zambia has supported WARMA in the process of identifying key watershed areas for increased protection. WARMA and WWF Zambia are undertaking a detailed and scientific assessment of potential Water Resource Protection Areas (WRPAs) nationally[19]. The Water Resources Management Act 2011, defines Water Resource Protection Areas as areas where special measures are necessary for the protection of a catchment, sub-catchment or geographic area. Examples include river sources or headwaters, groundwater recharge zones and areas with store water (i.e., wetlands, marshes and dambos). Three specific selection criteria are listed for the definition of WRPAs: (1) areas of high importance in providing water to users in a catchment; (2) areas of high aquatic ecological importance; and (3) areas that are particularly sensitive to use and anthropogenic impact. The report will be released in late 2019, and the analysis lays the foundation for identification and justification of WRPAs.

Community Management of Luangwa Catchment:

Community Markets for Conservation (COMACO) has been operating for 15 years in Eastern Zambia and has established and partnered with ~80 community cooperatives in the region. Their aim is to remove the incentives and economic drivers of shifting cultivation, poaching and other unsustainable activities by incentivising environmental conservation. The initiative offers farmers and former poachers training and opportunity to farm organic produce that is purchased at guaranteed prices and sold under COMACO's brand ("It's Wild"). Participating communities take a conservation pledge and compliance is rewarded with an annual conservation dividend. Through improved incomes and increased food security from sustainable farming linked to conservation agreements, local participants become stewards of their land, as well as advocates for wildlife conservation. COMACO coordinates with farmers in the headwaters area, but not with all of the communities that are affecting the NFRs and other critical forest of the upper catchment.

Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia (SCRALA) is a 7-year GCF-UNDP project focusing on smallholder farmers in two agro-ecological regions of Zambia covering the five provinces of Eastern, Lusaka, Muchinga, Southern and Western. Primary direct beneficiaries include over 157,000 farming households and their families. This includes support in the Luangwa upper sub-catchment, including Mafinga and Chama Districts. The project takes a value-chain approach and provides a number of benefits to participating farmers, including increased access to climate information services, support for climate-resilient agricultural inputs and practices, sustainable water management, and alternative livelihoods. The project will be executed by Ministry of Agriculture through MNDP/NDA.

Recognizing that the people of Mafinga District are mostly traditional pastoralists who also act as guardians of biological diversity, and have a critical role in the preservation of the headwaters of the Luangwa River, the Wildlife and Environmental Conservation Society of Zambia (WECSZ) has a Conservation and Forest Management project in the Mafinga Hills priority Key Biodiversity Area (KBA), where they train community members of Mafinga District on how to raise indigenous tree nurseries. The resulting seedlings are planted along degraded riparian zones of the Luangwa river headwaters. WECSZ coordinates closely with the District authorities in such support to the communities for headwater protection.

Proposed alternative scenario

The overall vision of the project is to reduce the key threats to the Luangwa upper sub-catchment, for the purpose of protection of the free-flowing Luangwa river and the biodiversity, land and ecosystem services values of the upper sub-catchment.

If the headwaters are protected through a participatory planning and protection process resulting in a WRPA; and if the threats of unsustainable wood and wildlife offtake can be reduced for Mafinga Hills National Forest Reserve, and if sustainable and efficient productive agriculture practices replace agricultural land expansion; then the headwaters of the Luangwa Upper Sub-Catchment will be better managed and protected, contributing to the conservation of biodiversity, water, land and the associated ecosystem services supporting community livelihoods, and securing the sustainable future of the free flowing Luangwa River.

The alternative scenario will address the main barriers to reducing forest and land degradation in the Luangwa upper sub-catchment. This will be done through proposal for designation of a water resource protection area to maintain critical forest cover, and improved management of forests and land in the key protected area and agricultural lands of the upper sub-catchment. The alternative scenario will put the Luangwa upper sub-catchment on an environmentally sustainable development trajectory that maximises the flow of ecosystem services and community livelihoods through biodiversity conservation and the sustainable use of natural resources.

The project objective will be achieved through three inter-related components. Component 1 will lead to the improved management of the key protected area, Mafinga Hills, within the headwaters towards protection of the Luangwa River source and the designation of a water resource protection area for increased protection of the upper sub-catchment. Component 2 will establish sustainable community management as well as environmentally sustainable livelihoods through prioritised interventions focused on the headwaters to reduce land and forest degradation. Component 3 will ensure that the lessons learned and best practices from the project are collected and disseminated across Zambia, and that M&E is carried out to inform project decisions and adaptive management.

Component 1: Protected area management and establishment in the Luangwa headwaters.

The National Forest Reserves of the upper watershed are crucial for replenishing the Luangwa river and maintaining stream flow in the main stem. In addition, the protection of the upper watersheds will conserve indigenous forest patches, which have high biodiversity value. Mafinga Hills NFR is of particular importance as the source of the Luangwa River is located within its area. A management plan will be developed for Mafinga Hills NFR in collaboration with local communities, focusing on maintaining the supply of water from these critical watersheds. Boundaries of the NFR will be clearly demarcated on ground with beacons and the management plan will focus on defining restrictions on land-use within the NFR, along with a set of actions that focus on conserving biodiversity, improving vegetation cover and removing potential sources of erosion and pollution (Outcome 2.1). In addition, improved operational support (including training and equipment) for Mafinga Hills NFR will be put in place to protect biodiversity in the upper reaches of the sub-catchment. In addition to the improved Mafinga Hills NFR management, a proposal for designation of a Water Resource Protection Area in the headwaters will be developed. The WRPA (as defined under Statutory Instrument No. 11 of 2018) proposal will be submitted by WARMA (Output 1.2.1).

Outcomes and outputs within this component are described below.

Outcome 1.1.1: Improved management effectiveness of Mafinga Hills National Forest Reserve (MHNFR) in the Luangwa headwaters (Mafinga District).

Output 1.1.1: Boundary demarcation of Mafinga Hills NFR on ground (beacons).

Output 1.1.2: Management Plans for up to Mafinga Hills NFR developed and endorsed.

Output 1.1.3: Training and equipment provided for fire management, including the establishment of firebreaks.

Output 1.1.4: Assisted regeneration of degraded forest and grassland areas undertaken.

Output 1.1.5: Training and operational support (including vehicles, motorcycles, maintenance, equipment, and field supplies) provided for patrolling and monitoring activities undertaken by the Mafinga District land and natural resources management departments.

Output 1.1.6: Awareness raising on environmental values and NFR regulations undertaken with local communities in and around Mafinga Hills NFR in the headwaters.

Outcome 1.2: Enhanced protective status of the source of the Luangwa River.

Output 1.2.1: Water Resource Protection Area (WRPA) proposal submitted by WARMA for the Upper Sub-Catchment

Coordinated by WARMA and in line with the 2011 Water Act, one Water Resource Protection Area (WRPA) proposal will be submitted by WARMA for the Upper Sub-Catchment including:

- i) biological and physical survey results;
- ii) outcomes from community consultations;
- iii) boundary proposals; and

iv) restrictions and regulations proposals.

This will be the first implementation of the Water Act of 2011 for establishing a WRPA – with the goal of creating a model for the WRPA designation process in Zambia - and will greatly contribute to the cohesive management and protection of the Luangwa headwaters. Once an area has been defined and gazetted as a WRPA, it will legally be protected under the Water Resources Management Act No. 21 of 2011 under the mandate of WARMA and will receive protection status similar to current PAs. The actual IUCN category under which the WRPA will fall under is not yet defined, but likely Category VI.

Component 2: Community management of the Luangwa headwaters (Mafinga District).

Under Component 3 of the proposed project, land degradation will be reduced, and biodiversity will be protected through the implementation of sustainable forest, land and water management practices. This will be achieved through: i) signing and monitoring community conservation agreements; ii) implementation manuals for community forest management and conservation farming; and iii) introducing conservation agriculture to farmers around the Mafinga Hills NFR (Outcome 3.1). The project will identify and develop market linkages for agricultural products through existing social enterprises (such as COMACO^[1]). Support will be provided to establish native woodlots, outside of the Mafinga Hills NFR, to reduce offtake of timber for fuelwood from the Mafinga Hills NFR. The Mafinga District forestry staff have identified seven potential areas to be designated as community forest areas – these will be assessed, and some community forests will be designated and managed through project support. These forests will be subject to sustainable community use, to reduce the use of the NFRs by the communities.

Outcomes and outputs within this component are described below.

Outcome 2.1: Buffer zone and community lands under improved management to benefit biodiversity in the upper Luangwa Sub-Catchment.

Output 2.1.1. Community Conservation Agreements negotiated with local farmers and monitored.

Output 2.1.2. Implementation manuals for community forest management and conservation farming developed.

Output 2.1.3. Key Conservation agriculture actions by farmers around Mafinga Hills NFR supported and linked to markets, including: i) crop intensification to reduce expansion; ii) provision of quality seed; iii) introduction of composting and mulching systems; iv) provision of tools for minimum impact tillage which support higher efficiency/productivity; v) introduction of poultry, small ruminants and beekeeping as alternative livelihoods options; and vi) improved market linkages for agricultural products through existing social enterprise.

Output 2.1.4 Indigenous tree woodlots established for communities outside Mafinga Hills NFR to reduce forest loss from wood fuel gathering in Mafinga Hills NFR.

Output 2.1.5 Participatory designation and management of community forest areas (2-3 areas) undertaken with communities outside Mafinga Hills NFR.

Component 3: Knowledge management and Monitoring and Evaluation (M&E).

This component will establish an effective strategy for knowledge management and sharing of project lessons in Zambia. Stakeholder engagements will be undertaken to identify appropriate knowledge products to be developed and distributed to users at national, local, catchment and community levels. M&E plans will contribute lessons learned and best practices to inform adaptive management of the project. By making knowledge available to all stakeholders, the project will contribute to the replication of the protected area management approach, the WRPA model, and community engagement in sustainable land management, across Zambia, as well as other sub-Saharan countries.

Outcomes and outputs within this component are described below.

Outcome 3.1: Increased knowledge of protected area management and establishment and community sustainable land management at national, provincial, catchment and community levels.

Output 3.1.1: Cross-sectoral communication strategy developed to collect and disseminate project knowledge products and best practices in Zambia.

Output 3.1.2: Knowledge products designed and distributed to relevant stakeholders.

Outcome 3.2: Informed and adaptive project management.

Output 3.2.1: Project M&E plan implemented and reports – including project progress reports, results framework, midterm evaluation and terminal evaluation – developed.

Alignment with GEF focal area and/or Impact Program strategies

The proposed project is multifocal and is aligned with the GEF Focal Areas of Biodiversity and Land degradation.

Objective BD-1-1: Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors.

Aligned with the GEF 7 Biodiversity priorities, the project will support the mainstreaming of biodiversity into local farming and land use in the Luangwa headwaters under Component 2.

Objective BD-2-7: Address direct drivers to protect habitats and species and improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate.

The project will increase coverage and strengthen the protection of the global protected area estate under Component 1 by delivering increased forest under protected area status (estimated 25,000 ha under proposed WRPA status) and improving protected area management effectiveness for an area of at least 15,000 ha of national forest reserve. The project will increase management effectiveness of the Mafinga Hills National Forest Reserve in the Luangwa headwaters by demarcating NFR boundaries, providing equipment and training for fire management, undertaking assisted regeneration of degraded forest and grassland areas, and providing training and operational support for patrolling and monitoring activities.

Objective LD-1-4: Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape.

The project is well aligned with the Land Degradation focal area focus on addressing drivers of land degradation through a comprehensive landscape approach. The project will address the main threats to land conservation in the upper catchment of Luangwa, including shifting agriculture, non-sustainable local farming, wood offtake in woodlands, all of which have led to land degradation and loss of water flow and quality in the Luangwa River. The project will address barriers to reducing land degradation in the Luangwa upper sub-catchment through roll out of local level sustainable land use in an estimated area of 40,000 ha.

Through proposal of water resource protection areas, and community-based forest management and land management through interventions in conservation agriculture with private sector partners, the project will improve management of protected areas and agricultural land in a critical upper sub-catchment area, to deliver multiple environmental benefits including forest protection, wildlife and habitat conservation, resilience and land protection.

Incremental/additional cost reasoning and expected contributions from the baseline

Building off a baseline of sectoral-focused and site-specific approaches, the project will adopt a cross-sectoral and community-government-private sector approach to connect land and water use planning and management in the Luangwa upper sub-catchment, to generate biodiversity, land management and livelihood benefits. In this regard, the project will support integrated land and water management and restoration in the critical Luangwa Upper Sub-catchment of Zambia and will balance the need for sustainable economic and livelihoods development in Mafinga District with environmental and conservation priorities for the Luangwa Upper Sub-catchment. This will be achieved through: i) protecting critical upper watersheds; and ii) supporting communities and private sector in sustainable land and water management practices to reduce land and water resources degradation in the headwaters..

Baseline	Proposed Alternative	Environmental Benefits
Protected Area Management of Luangwa upper sub-catchment		
In the headwaters, forests are protected in 3 National Forest Reserves and 1 buffer zones and one Game Management Area, and forest also remains outside of these areas in the productive landscape. The forest reserves are key to the protection of the Luangwa headwaters, especially Mafinga Hills NFR, in which the source of the Luangwa is located. The NFRs are managed by the District of Mafinga under the Environmental Management Department of MWDSEP, the project will support Mafinga Hills NFR demarcation, management plan development, law enforcement, and assisted regeneration, to protect the forest of the Luangwa river source and to restore degraded areas.	Led by the District of Mafinga under the Environmental Management Department of MWDSEP, the project will support Mafinga Hills NFR demarcation, management plan development, law enforcement, and assisted regeneration, to protect the forest of the Luangwa river source and to restore degraded areas.	Increased management effectiveness of the Mafinga Hills National Forest Reserve of the Luangwa headwaters, leading to biodiversity conservation, improved security of water quality and flow and ecosystem service provision for the whole Luangwa Catchment.

<p>igwa is located. The NFRs are managed by the District of Mafinga, however, they have two staff and limited resources. The GMA is better resourced, managed by the DNPW.</p>		
<p>Zambia's 2011 Water Resources Management Act defines Water Resource Protection Areas (WRPA) as an area "where special measures are necessary for the protection of a catchment, sub-catchment or geographic area," further defined in the Technical Content for the Statutory Instruments for Water Resource Protection Areas for Zambia (2015 draft). However, no WRPAs have been designated yet, nationally.</p>	<p>Led by WARMA, the project will support a process of biological and physical surveys to identify key areas for protection within the Luangwa headwaters, consultation with communities to assess whether there is support for WRPA designation, and participative development of proposed restrictions and regulations; and based on that, submission of a WRPA proposal from WARMA to the Permanent Secretary.</p>	<p>Increased protection status of the forest and land resources of the headwaters, leading to improved security of water quality and flow and ecosystem service provision for the whole Luangwa Catchment.</p>
<p>Community management of Luangwa upper sub-catchment</p>		
<p>A small number of villages are utilizing the forests of the NFRs, which is leading to some degradation. This includes offtake of wood for fuel wood or charcoal and wildlife poaching. Additionally, shifting agriculture is affecting the forests of the buffer zone and forests of the productive landscape.</p> <p>COMACO, a private sector entity that supports conservation farming and markets, is working in Mafinga District, but not with the specific villages of the NFRs.</p> <p>Within the productive landscape, the District has identified seven possible</p> <p>https://gefportal.worldbank.org</p>	<p>The project will support the COMACO model to be rolled out at key villages (to be identified in Project Development phase, based on threat analysis for key forest areas). Project support will include identification of committed community members, negotiation of conservation agreements, support for conservation farming methods (including quality seed, tools, training), and agreements for purchase of the farm produce for sale by COMACO.</p> <p>The project will also support communities to develop native woodlots, to reduce pressure on the forests for fuel wood.</p>	<p>Reduced threats to the forests of the NFRs and buffer zones, and reduced threats to the lands in the productive landscape, leading to reduced forest loss and degradation and reduced land degradation in the headwaters. This contributes to protection of the globally significant forests and wildlife of the upper sub-catchment, as well as protection of the river source and the associated ecosystem services that are accessed by the Luangwa Catchment population.</p>

<p>district has identified seven possible areas that could be designated as community forest but have not had the resources to undertake a process of community consultation and participative designation and management of such areas.</p>	<p>Finally, the project will support the District and communities to identify and designate community forest areas (2-3 areas), as areas that are forest-use areas for communities as an alternative to accessing resources from Mafinga Hills NFR.</p>	
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Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

Overall, the project will contribute to:

- protection of miombo woodland and other globally significant habitat,
- increased protection of the Mafinga Hills NFR, which is part of the Mafinga Mountains Key Biodiversity Area and the Eastern Afromontane biodiversity hotspot,
- increased protection of one of Africa's largest free flowing rivers, and its associated ecosystems and wildlife,
- protection of ecosystem services that benefit the communities of the Luangwa Catchment.

Specifically, the proposed project will contribute to four GEF Core Indicators: i) terrestrial protected areas created or under improved management for conservation and sustainable use; ii) area of forest land restored; iii) area of landscapes under improved practices; and iv) number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment.

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

Under Component 1, a proposal to designate a WRPA in the Luangwa upper sub-catchment will be submitted — based on recognition as critical upper watersheds for the Luangwa river. The WRPA will be further protected through the development of the management plan for Mafinga Hills NFR (Sub-Indicator 1.1: Terrestrial protected areas newly created and Sub-Indicator 4.1: Area of landscapes under improved management to benefit biodiversity). The management plan for Mafinga Hills NFRs will include: i) restrictions on land-use within the NFR; and ii) actions to remediate land degradation and conserve biodiversity. It is provisionally estimated that the WRPA proposal will result in a proposal for a new protected area of 25,000 ha.

Mafinga Hills NFR will be brought under improved management through project support (Sub-Indicator 1.2: Terrestrial protected areas under improved management effectiveness). Mafinga Hills NFR is where the Luangwa river source is located, and this project support will result in increased protected area management effectiveness for 15,500 ha.

Core Indicator 3: Area of land restored

Contributing to Sub-Indicator 3.2, the project will support around 300 ha of forest and forest land restored. This will be achieved through assisted regeneration of degraded forest in the area of the source of the Luangwa River inside the Mafinga Hills NFR.

Core Indicator 4: Area of landscapes under improved practices.

Environmentally sustainable livelihoods introduced under Component 2 will improve the management of the Luangwa headwaters for an estimated area of 40,000 ha (Sub-Indicator 4.3: Area of landscapes under sustainable land management in production systems). Including communities in sustainable water and land-use practices (such as community forest management and conservation agriculture) will result in sustainable land-use management of the critical water source areas for the Luangwa river

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

The proposed project will directly benefit approximately 2000 farmers/community members in the headwaters. Of these, it is expected that around ~52% will be women, based on actual figures from COMACO on farmers supported in both Muchinga and Central Provinces, and by project activities to proactively support women in conservation farming. Women, as well as female-headed households, will be engaged to contribute to identifying environmentally sustainable livelihoods that will support them in safeguarding natural resources and promoting their economic development. See Section 3 below or the provisional gender analysis for more details. It is estimated that around 50 government staff will receive direct project support, such as training, tools, equipment.

Innovation, sustainability and potential for scaling up

Innovation

The project provides a model for protection and management of the critical headwaters of a globally significant river. The project will: increase the protection status of currently unprotected but critical headwater forests; improve the management effectiveness of the protected forests of the river source; and support community sustainable land management in the headwaters, incentivised by links to the market by a private sector. This represents an innovative systems approach to tackling the degradation of the forest and lands of the headwaters, by bringing together multiple government agencies, farming communities, and the private sector.

Sustainability

By building on the existing capacity of relevant institutions in Zambia, including a strong baseline of existing Government and partner programs and initiatives, and by the involving relevant stakeholders (including communities and private sector) in the program development and implementation, the program's long-term sustainability will be inbuilt. In this regard, the programme will address the following key parameters of sustainability:

Institutional Sustainability:

Through the participatory design process followed in the preparation of this project, the ownership and involvement of all key Government agencies is secured. As the officially designated Government agencies for this area of work, their mandate stretches beyond the period of the project, ensuring continuity. The project will have a strong focus on building capacity of government staff at national and local levels. This will ensure that experiences, lessons learned, and best practices generated by the project are maintained within the government structure.

Financial Sustainability:

Firstly, the project builds strongly on the existing programs and initiatives supported from Government budget, at both national and local level. This support will continue beyond the scope of the project. Secondly, one of the areas of focus of component 2 of the project is to demonstrate and prove viable models for community and private sector led approaches that would form the basis of a sustainable catchment economy, with the key objective of ensuring that the landscape plans and investments proposed under the project will become self-sustainable.

Social sustainability:

The engagement of non-governmental stakeholders, including communities and the private sector, is a key factor in assuring the long-term sustainability of GEF investments in the sector. In this regard, a considerable part of the project is dedicated to enhancing community and private sector participation in sustainable forest and land management, including the establishment of the necessary incentive and benefit-sharing systems that are crucial to ensure their longer-term engagement.

Scaling up:

By linking field level interventions with national level policy dialogue and capacity building at local and national level, the project is also set to lay the foundations for up-scaling sustainable landscape options in other catchments and landscapes in Zambia. It should be noted, in this regard, that the project as such will not be able to address the entire catchment area from a restoration and management perspective, but it will lay the basis for expansion.

[1] WWF defines a free-flowing river as one which flows undisturbed from source to mouth, without encountering infrastructure such as dams, weirs, dykes etc.

[2] World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. State of the Basin, 3.

- [3] Extraction for irrigation is currently low, ~120 km³ annually, but the potential for extraction is high.
- [4] World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. State of the Basin, 3.
- [5] Three small hydropower stations are located on tributaries of the Luangwa river, namely the: i) Mulungushi power plant (Mulungushi river, 16 MW); ii) Lunsemfwa powerhouse (Lunsemfwa river, 18 MW); and iii) Lusiwasi powerhouse (Lusiwasi river, 4 MW).
- [6] Global CSS Institute. 2012. A risky climate for southern African hydro: assessing hydrological risks and consequences for Zambezi River basin dams. Available online at: <https://hub.globalcssinstitute.com/publications/risky-climate-southern-african-hydro-assessing-hydrological-risks-and-consequences-zambezi-river-basin-dams/>
- [7] World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. State of the Basin, 3.
- [8] The Luangwa Floodplains is Ramsar site no. 1660, WDPA ID 903030.
- [9] The Annotated Ramsar List: Zambia. Available online at: http://archive.ramsar.org/cda/en/ramsar-documents-list-anno-zambia/main/ramsar/1-31-218%5E15789_4000_0_
- [10] High-Biodiversity Wilderness Areas (HBWA). Available online at: <http://www.biodiversitya-z.org/content/high-biodiversity-wilderness-areas-hbwa.pdf>
- [11] These are large intact ecosystems of the world that hold significant levels of global biodiversity.
- [12] Brooks, T.M., et al. 2006. Global biodiversity conservation priorities. *Science* 313 (5783), 58.
- [13] Olson, D.M. & Dinerstein, E. 2002. The Global 200: Priority ecoregions for global conservation. *Annals of the Missouri Botanical Garden* 89(2):199–224. Available online at: <https://www.worldwildlife.org/publications/global-200>
- [14] These are defined as terrestrial, freshwater, and marine ecoregions that harbour exceptional biodiversity and are representative of earth's ecosystems.
- [15] Dallas, H. 2015. 558: Middle Zambezi – Luangwa. *Freshwater Ecoregions of the World*. Available online at: http://www.feow.org/ecoregions/details/middle_zambezi_luangwa
- [16] Grogan, K., et al. 2012. Transition of shifting cultivation and its impact on people's livelihoods in the Miombo Woodlands of northern Zambia and southwestern Tanzania. *Human Ecology* 41:77–92. DOI: 10.1007/s10745-012-9537-9
- [17] Chidumayo, E.N. 1987. A shifting cultivation land use system under population pressure in Zambia. *Agroforestry Systems* 5(1): 15–25.
- [18] For example, management of the Nyika-North Luangwa component of the Malawi-Zambia Transfrontier Conservation Area (TFCA), including through EU funding since 2018 to consolidate six community conservation areas into a single corridor that connects North Luangwa National Park in Zambia to protected areas in Malawi. The North Luangwa Conservation Programme is a long-term initiative (1986–ongoing) funded by GIZ and USAID and implemented through a partnership between the Frankfurt Zoological Society and the Zambia Department of National Parks and Wildlife. It strives to conserve wildlife and ecosystems by involving local communities in management decisions to generate social capital and socio-economic benefits that will then improve conservation outcomes.
- [19] Bernhard Lehner and Günther Grill, Department of Geography, McGill University, for WWF Zambia & WARMA, 2019. Identification of Water Resource Protection Areas (WRPAs) for Zambia (in finalization)

[20] See baseline section.

1b. Project Map and Coordinates

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



Map showing Luangwa Upper Sub-catchment districts of Nakonde, Isoka, Mafinga and Chama.



Map of Luangwa catchment with inlet of Upper sub-catchment where proposed project interventions will take place.

Mafinga Hills geo-reference: S 10° 0' 0" E 33° 20' 0'

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:

To date, three field trips have been conducted to inform the development of the PIF, the first in November 2018, with a follow-up mission to the Luangwa sub-catchment in January 2019 and an additional site visit to Mafinga Hills during August 2019. During the field trips a variety of stakeholders were engaged, including those from government (e.g., WARMA and Environmental Management Department from Ministry of Water Development, Sanitation and Environmental Protection, provincial departments of Ministry of Agriculture, and Mafinga District Commissioner and government staff), the private sector (e.g., COMACO, Mfuwe Tourism Business Association and Biocarbon Partners) and local communities (e.g., local chiefs within the Njimba and Mafinga district, COMACO lead farmers in Mafinga District). In addition, two validation workshops have been undertaken, involving a dedicated Technical Working Group with representation from key Government institutions, including Water Resources Development Department from Ministry of Water Development, Sanitation and Environmental Protection, Climate Change Department from Ministry of Lands and Natural Resources, Department of Wildlife and National Parks from Ministry of Tourism and Wildlife, and others including Zambia Environmental Management Authority (ZEMA) and Zambia Electricity Supply Corporation (ZESCO).

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 proposed project will continue to use a participatory approach and conduct ongoing stakeholder consultations throughout the project design and implementation periods. These consultations will include community surveys, consultative and decision-making meetings and technical project design workshops. An indicative list of these stakeholders — and the roles that they will play in project design — is provided in Table 1 below. The stakeholders and their respective contributions and roles in the project will be confirmed during the project development phase. The project will also ensure that representatives of relevant initiatives and projects are regularly consulted with to enhance effective and informed collaboration during the project development and implementation phases. A comprehensive list of these initiatives and projects is provided in Section A.5.

Table 1. List of potential key stakeholders and their possible contributions and roles in the proposed project.

Stakeholder type	Stakeholder list	Possible contributions and roles in the project
Government ministries (at central and provincial levels)	<ul style="list-style-type: none"> Ministry of Water Development, Sanitation and Environmental Protection – WARMA – Environmental Management Department 	<p>MWDSEP will lead project development implementation and have been involved in development of this project proposal.</p> <p>Beneficiaries of capacity-building; delivery of technical components of programmes according to project design.</p>

	<ul style="list-style-type: none"> - Water Resources Development Department <ul style="list-style-type: none"> • Ministry of Lands and Natural Resources - Climate Change Department <ul style="list-style-type: none"> • Ministry of Tourism and Wildlife • – Department of Wildlife and National Parks • Ministry of Agriculture 	<p>ding to sectoral expertise; coordination with local authorities; mobilisation of human and financial resources. Provision of technical advice; provision of specialist services.</p> <p>WARMA is the key government agency for submission of WRPA proposal, and EMD is the key government agency for co-financing and implementing component 2 and 3 on protected area management and community management of the catchment.</p>
Regional and local administrations	<ul style="list-style-type: none"> • Muchinga Province • Mafinga District 	Beneficiaries of capacity-building; local coordination of activities; issuance of any relevant authorisations and permits.
Community-level stakeholders	<ul style="list-style-type: none"> • Village leaders • Natural resource user groups • Women's groups • CBOs 	Community mobilisation; selection of appropriate interventions; delivery of programme components; beneficiaries of capacity-building and on-the-ground interventions
CSOs	<ul style="list-style-type: none"> • World Wide Fund for Nature (WWF) Zambia • Zambia Climate Change Network • Zambia Community Based Natural Resource Management (CBNRM) Forum • Wildlife and Environmental Conservation Society of Zambia • Frankfurt Zoological Society 	Provision of technical advice; delivery of training and assets; social mobilisation; monitoring of ecological conditions.
Private Sector	<ul style="list-style-type: none"> • COMACO 	Will be engaged for conservation farming support and community conservation agreements
Research institutions	<ul style="list-style-type: none"> • University of Zambia • Southern Africa Science Services Centre for Climate Change and Adaptive Land Management 	Provision of scientific support; undertaking of research activities.

	<p>ement</p> <ul style="list-style-type: none">• Centre for Environmental Research, Education and Development• Zambia Agricultural Research Institute• Independent Researchers	
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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).

In Zambia, despite a national focus on mainstreaming gender considerations into plans and policies across all sectors — including the National Gender Policy (2014)[1] — women remain marginalised and usually: i) have lower incomes and fewer livelihood opportunities compared with men; ii) have historically experienced difficulty in accessing resources such as land and education; iii) rely more on natural resources for their livelihoods; and iv) bear the main responsibility for household food and water security[2]. As a result, women are disproportionately affected by the negative impacts of environmental degradation, which include reduced: i) water availability; ii) agricultural productivity; and iii) provisioning of ecosystem services[3]. These impacts add to the significant domestic burden already experienced by women, threaten their food security and inhibit their opportunities to generate an income. Future climate change is predicted to exacerbate the negative impacts associated with environmental degradation, leaving women more vulnerable than before.

The negative impacts associated with environmental degradation and climate change are especially severe in the east of the country, where poor smallholder farmers who rely primarily on rain-fed agriculture for subsistence and livelihood generation face reduced water availability. This is as a result of the inter-connected impacts of climate change and over-abstraction from rivers[4]. These smallholder farmers must also contend with increased land degradation as a result of unsustainable agricultural practices, encroachment and poor land management policies[5]. As women in Zambia make up the majority of small-scale farmers and produce ~80% of locally consumed food[6], they are disproportionately affected by these impacts on the environment. Additionally, women in Zambia are constrained by unequal access to land, information and improved agricultural inputs[7]. Their participation in national development has been impeded by limited access to education[8],[9], limited access to and control over resources, traditional division of labour and cultural norms[10]. Furthermore, women in Zambia are generally excluded from participating in local and national decision-making processes relating to land and water management, despite their positions as informal land managers[11]. These constraints have reduced the efficacy of local land management strategies and have limited agricultural productivity and other economic activities[12]. Indeed, Zambia's Seventh National Development Plan (NDP7) lists reduction of gender inequality as one of the main strategies to reduce developmental inequalities[13].

In order to achieve gender equity and equality, the GoZ, with the help of international organisations, has developed several policies and plans, including the: i) National Gender Policy 2014[14]; ii) Climate Change Gender Action Plan of the Republic of Zambia 2016[15]; and iii) Gender Equity and Equality Act 2015[16]. The commitment to end discrimination against women is also highlighted in the Constitution of Zambia[17]. However, women are still largely discriminated with regards to access to and ownership of land. The result of this is that women are often constrained in their access to water for both agricultural production and household uses. Women and girls in Zambia take primary responsibility for household use and management of water resources, sanitation and health. They are also disproportionately at risk from health risks[18] and gender-based violence when required to walk long distances to access water sources[19]. Nonetheless, water resource and land management remain male-dominated at an institutional level and women need to overcome existing social barriers (e.g., limited education and cultural norms) to fully participate in decision-making[20]. These factors all compromise women's ability to meet their livelihood requirements, leaving them more vulnerable than men to the ongoing impacts of land degradation, especially under future climate change. Improved access to information, legal recourse, financial assistance and technology are needed to capacitate women, particularly in rural areas[21].

The proposed project will promote gender equality, women's rights and the empowerment of women in several ways. Firstly, the activities will be designed take into account that in Zambia: i) women are the primary resource managers for households and should be included in any interventions concerning natural resource management, land-use planning and decision-making; ii) conservation incentives differ for men and women; iii) gendered division of labour needs to be understood prior to the introduction of any livelihood interventions; and iv) women need to have access to, and control over, ecosystem goods and services. Secondly, an understanding of gender mainstreaming in relevant sectors and associated ministries will be developed, and gaps in gender equality will be identified and addressed in all aspects of project design. Lastly, women will be actively involved in identifying environmentally sustainable livelihoods that will support them in safeguarding natural resources and promoting their economic development, with specific strategies being developed to target and include female-headed households. To ensure that the project activities are both gender-responsive and are designed in a gender-sensitive manner, a gender analysis and action plan will be developed during the project preparation phase. Gender issues will be included in the different outcomes, outputs and activities, including the various plans, the multi-stakeholder platforms, and the implementation of activities on the ground, and this will be identified in the gender action plan. This analysis and action plan will be used to further refine the activities, and to develop gender-sensitive indicators for the proposed project. Furthermore, national experts on gender will be included in stakeholder consultations and form part of ongoing project management to ensure that context-specific gender considerations are mainstreamed throughout the project. The GEF policy on gender equality will be applied throughout development and implementation of the proposed project.

[1] Ministry of Gender and Child Development. 2014. National Gender Policy. Republic of Zambia. Available online at: <http://extwprlegs1.fao.org/docs/pdf/zam152916.pdf>

[2] Ministry of Gender and Child Development. 2016. Climate Change Gender Action Plan of the Republic of Zambia (ccGAP:ZM).

[3] Nwokoro, C.V. & Chima, F.O. 2017. Impact of environmental degradation on agricultural production and poverty in rural Nigeria. *Am Int J Contemp Res*, 7, p.2.

[4] Hamududu, B.H. & Ngoma, H. 2018 Impacts of Climate Change on Water Availability in Zambia: Implications for Irrigation Development. Technical Paper No. 7. Indaba Agricultural Policy Research Institute.

[5] International Resources Group. 2011. Zambia Environmental Threats and Opportunities Assessment. USAID.

[6] Katongo M. 2015. Zambia: Women Are Critical In Driving Agriculture. *Times of Zambia*. Available online at: <https://allafrica.com/stories/201506150280.html>

[7] Rozel Farnworth, C., & Munachonga, M. 2012. Gender Approaches in Agricultural Programmes: Zambia Country Report'. A Special Study of the Agricultural Support Programme (ASP). UTV Working Paper 2010: 8. Stockholm, Sweden: SIDA.

[8] The Gender Parity Index as of the 2010 census was 0.96, indicating gender inequality in school attendance.

[9] Although a greater percentage of females complete primary education compared to males (~57% female, ~40% male), females have lower completion percentages for secondary (~31% female, ~43% male) and tertiary (~11% female, ~18% male) education. Central Statistical Office. 2012. 2010 census of population and housing. National analytical report. Available online at: https://www.zamstats.gov.zm/phocadownload/2010_Census/2010%20Census%20of%20Population%20National%20Analytical%20Report.pdf

- [10] Ministry of Gender and Child Development. 2014. National Gender Policy. Available online at: <http://extwprlegs1.fao.org/docs/pdf/zam152916.pdf>
- [11] United Nations Development Programme. 2017. Gender Mainstreaming Guidance Series: Women and sustainable land management. UNDP. New York.
- [12] Ministry of National Development Planning. 2017. Seventh National Development Plan 2017–2021.
- [13] Ibid.
- [14] Ministry of Gender and Child Development. 2014. National Gender Policy.
- [15] Ibid.
- [16] Government of the Republic of Zambia. 2015. Gender Equity and Equality Act [No. 22 of 2015]. Available online at: <http://www.parliament.gov.zm/sites/default/files/documents/acts/The%20Gender%20Equity%20and%20Equality%20Bill,%202015.pdf>
- [17] Government of the Republic of Zambia. 2016. The Constitution of Zambia. Available online at: http://www.parliament.gov.zm/sites/default/files/documents/amendment_act/Constitution%20of%20Zambia%20%20%28Amendment%29%2C%202016-Act%20No.%202_0.pdf
- [18] Including exposure to water borne diseases
- [19] Ministry of Gender and Child Development. 2014. National Gender Policy. Available online at: <http://extwprlegs1.fao.org/docs/pdf/zam152916.pdf>
- [20] United Nations Department of Economic and Social Affairs (UN DESA). 2005. Report on the World Social Situation 2005. The Inequality Predicament. Available online at: <https://www.un.org/esa/socdev/rwss/docs/2005/rwss05.pdf>
- [21] UN DESA. 2005.

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

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

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

generating socio-economic benefits or services for women. Yes

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

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

The project has as one of its specific targets to promote the engagement of private sector in sustainable investments, water and land management in the project area. In this regard, a close connection will be established, among others, with the Community Markets for conservation (COMACO) Initiative, a social enterprise that has been operating for 15 years in Eastern Zambia and has established and partnered with ~80 community cooperatives in the region.

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)

#	Identified risk	Potential consequence	Counter measure	Risk rating (R) & Category (C)	Probability (P) & Impact (I) (1–5)
1	There is limited uptake of sustainable forest and land management approaches by stakeholders, or they cease to implement interventions after project lifetime.	If there is limited uptake by stakeholders or if they cease to implement project interventions after the project lifetime, it would result in continued unsustainable land use and management practices in the landscape.	<ul style="list-style-type: none"> Stakeholders will be actively involved in the design, development and implementation processes of the project, through a bottom-up approach. Awareness will be raised on environmental conservation through sustainable use of natural resources. 	R = Medium C = Social	P = 3 I = 4
2	Disagreement among stakeholders with regards to their different roles and responsibilities in the project.	Project interventions could be delayed or duplicated because of uncertain role allocation. Effectiveness of project management would be reduced.	<ul style="list-style-type: none"> Capacities of relevant government departments will be developed, resulting in better delineation of their roles in project implementation. 	R = High C = Institutional	P = 3 I = 4
3	Capacity constraints of local and national institutions to undertake the required project interventions.	Project interventions could be delayed and there may be insufficient capacity to overcome potential implementation challenges.	<ul style="list-style-type: none"> Institutional and technical capacities of government line departments will be built. 	R = Medium C = Institutional	P = 3 I = 2
4	Insufficient financial capacity limits the replicability of project area and lifespan.	Interventions do not scale beyond the project area and lifespan.	<ul style="list-style-type: none"> An upscaling strategy will be developed and institutionalised. This strategy will 	R = Medium C = Economic	P = 3 I = 3

	reproducibility of project interventions as well as the implementation of project-sponsored plans and strategies.	et area and incspan. The government cannot implement plans and strategies.	ationised. This strategy will focus on cost-effective implementation measures.		
5	High turnover of staff members in implementing and executing agencies.	This could lead to a loss of institutional knowledge regarding project interventions, and less effective implementation.	<ul style="list-style-type: none"> Relationships with the appropriate individuals in respective government bodies will be established through clear institutional mandates for roles and responsibilities in the project A knowledge management platform and will be developed to facilitate the transfer of knowledge regarding project interventions. 	R = Medium C = Institutional	P = 4 I = 4
6	Other economic developments, such as hydropower development or dam construction, may compete with the implementation of project activities.	Project activities may be compromised, resulting in continued unsustainable land use and management and continued degradation of the sub-catchment.	<ul style="list-style-type: none"> Critical upper watersheds will be identified and related management plans will be developed to provide a basis for appropriate trade-offs. 	R = High C = Economic	P = 2 I = 5
7	Unfavourable climate conditions, including current climate and seasonal variability and/or extreme weather events may negatively affect project implementation.	Conservation agriculture and sustainable land and water management interventions could be negatively impacted, hindering the progress towards a sustainable economy for the sub-catchment's population.	<ul style="list-style-type: none"> Current climatic variability will be taken into account in the design and during the implementation of all interventions. Climate-resilient varieties of crops and plants will, where possible, be used in establishment of natural resource-based interventions. 	R = High C = Environmental	P = 2 I = 4

6. Coordination

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

The Ministry of Water Development, Sanitation and Environmental Protection will be the Executing Agency for this project. The project will be led by two entities under the Ministry: the Water Resources Management Authority (WARMA), who are mandated for water resource regulations, including planning and stakeholder platforms, and; the Environmental Management Department (EMD), who are responsible for on-ground management. Under EMD, the Mafinga District will be engaged in management of the national forest reserves, and facilitation of community based management. COMACO will be a partner to engage with communities in conservation agriculture and market linkage.

Project oversight and strategic guidance will be provided by a national Project Steering Committee (PSC), which will include at the minimum the key Government Agencies to be responsible for the delivery of the project, and other key partners as appropriate.

Day-to-day management of the project will be assured through a Project Management Unit, potentially to be housed in the EMD. The main function of the PMU will be to coordinate efforts between the various technical departments and partners in the project, and to which staff will be seconded to the project as appropriate. The PMU will also be responsible for the recruitment of consultants to undertake specific technical roles in the project, as well as for overall reporting, monitoring and evaluation functions.

The Ministry will appoint a Project Director who will be charged with the responsibility of overall administration and supervision of the PMU. The Permanent Secretary of Ministry of Water Development, Sanitation and Environmental Protection will take the overall fiduciary responsibility of the project as well as forming and leading the supporting the Project Steering Committee (PSC).

Coordination with other GEF-projects and other initiatives:

There are several GEF and non-GEF projects currently being implemented in Zambia that focus on natural resource use, catchment management, land management, biodiversity and climate change adaptation. The proposed project will coordinate with and build on several ongoing projects and initiatives to: i) benefit from lessons learned on protected area management and sustainable land management practices; and ii) ensure little to no overlap between proposed project activities and those from ongoing initiatives to maximise efficiency and effectiveness. Relevant ongoing GEF-funded projects and initiatives are described below.

The **Zambia Integrated Forest Landscape Project (ZIFLP)** is being implemented between 2018 and 2023 by the World Bank with a total budget of US\$63,250,000. Of this, US\$8,050,000 is being provided as a grant from GEF, while the remainder is being sourced as co-financing. The objective of the ZIFLP is to improve landscape management and increase environmental and economic benefits for targeted rural communities in the country's Eastern Province. The project also plans to improve communities' capacity to respond to emergencies such as extreme weather events. Consultations will be held with the executing entity of ZIFLP (Ministry of Water Development, Sanitation and Environmental Protection) to collate information on successful landscape management practices and sustainable economic opportunities for rural communities. This will inform the selection of appropriate interventions in the proposed project.

The **Zambia Lake Tanganyika Basin Sustainable Development Project** has received US\$7,334,246 from GEF and US\$26,562,630 in co-financing and is being implemented between 2017–2021. The project objective is to improve natural resources management and the livelihoods of communities in Zambia's Lake Tanganyika Basin through the sustainable and integrated use of lake resources. This will be achieved by improving landscape and forest management and diversifying livelihoods through the development of sustainable agricultural and forest ecosystem practices. Coordination between these projects will thus be very beneficial in order to collate information on sustainable livelihoods and natural resource use.

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 aligned with the strategies and plans described in the table below.

National Strategies/Plans	Alignment
Sustainable Development Goals (SDGs)	The proposed project's primary focus will be on protecting, restoring and promoting sustainable use of terrestrial and freshwater ecosystems, sustainably managing forests, and halting and reversing land degradation and biodiversity loss (SDG 15) in the Luangwa sub-catchment of Zambia. In addition, the proposed project will contribute to ending poverty in all its forms (SDG 1) and to achieving gender equality and empowering all women and girls (SDG 5).
The 7 th National Development Plan 2017–2021 (NDP 7)	The NDP 7 has a strong focus on: i) increasing agricultural production; ii) job creation and increased incomes; and iii) increasing foreign exchange by promoting climate-smart and organic agriculture, as well as sustainable forestry. Priority development outcomes are identified to operationalise the strategy, including <i>inter alia</i> : i) diversified and export-oriented agriculture; ii) diversified tourism; iii) improved energy production; iv) improved water resources development and management; and v) enhanced job opportunities. There is a strong focus on organic agriculture and the development of export-oriented value chains. The proposed project contributes directly to the achievement of these highlighted priorities.
Zambia's Intended Nationally Determined Contribution (INDC) to the 2015 Agreement on Climate Change	The proposed project is well-aligned with two priority actions in Zambia's INDC. These actions are: i) Priority 3 – protection and conservation of water catchment areas and enhanced investment in water capture, storage and transfer (linked to agriculture, energy, ecological, industrial and domestic use purposes) in selected watersheds; and ii) Priority 4 – institutionalise integrated land use planning compatible with sustainable management of natural resources and infrastructure development.
National Policy on Environment (2007)	The vision of Zambia's National Policy on Environment is to ensure that the country's environment and natural resources are managed sustainably and retain their integrity to support the needs of current and future generations. The proposed project is aligned with this vision as it will contribute to achieving improved land and water management, as well as reduced land degradation and environmentally sustainable livelihoods in the Luangwa sub-catchment.

National Environmental Action Plan (1994)	The proposed project aligns with Zambia's National Environmental Action Plan as it will contribute directly to two of the plan's fundamental principles, namely: i) the right of citizens to a clean and healthy environment; and ii) local community and private sector participation in natural resources management. This contribution will be achieved through improving land management practices in the Luangwa sub-catchment, thereby increasing the provision of ecosystem goods and services.
National Conservation Strategy (1985)	The objectives of conservation in Zambia outlined in the Conservation Strategy are to: i) ensure the sustainable use of Zambia's renewable resources; ii) maintain Zambia's biological diversity; and iii) maintain essential ecological processes and life-support systems. The proposed project has a similar objective, but at the level of the Luangwa sub-catchment this objective is to ensure integrated management of natural resources and biodiversity in the sub-catchment through various outcomes. By achieving this objective, the proposed project will contribute to the National Conservation Strategy's objectives.
National Biodiversity Strategy and Action Plan 2 (NBSAP2) (2015) under UNCBD	The Second National Biodiversity Strategy and Action Plan (NBSAP 2), prepared in response to Zambia's UNCBD commitments, calls for a 25% reduction in deforestation by 2020. In addition, it is proposed that "By 2025, Zambia takes deliberate actions to protect critical ecosystems of the Zambezi, Kafue, Chambeshi, Bangweulu and Luangwa watersheds". The proposed project represents a direct contribution to the achievement of this target. Additionally, NBSAP 2 emphasises the need for: i) awareness-raising on biodiversity values; ii) mainstreaming of biodiversity into planning processes and sustainable land management; and iii) the establishment of co-management frameworks for natural resources. The proposed project is aligned with these priorities and, furthermore, directly contributes to the action plan's call for the sustainable management and the mainstreaming of biodiversity into agriculture, aquaculture and forestry.
Poverty Reduction Strategy Paper	This paper – prepared in response to requirements of Zambia's membership in the World Bank – is the central policy document to guide fiscal decisions. In alignment with the priorities presented in the NDP 7, it also places a strong emphasis on agriculture, tourism and energy, as well as on social sectors. The interventions proposed for this project are aligned with these priorities.
Second National Communication to the UNFCCC	The Second National Communication identifies that the largest contributions to GHG emissions in Zambia are from deforestation and forest degradation. The proposed project is in alignment with suggested efforts to reduce GHG emissions such as sustainable forest management and promotion of additional sources of livelihoods to local communities.

National Agricultural Policy (NAP) draft (2015)	The proposed project is in alignment with the vision of the National Agriculture Policy to promote the development of an efficient, competitive and sustainable agriculture sector, which assures food security and increased income. The project will contribute to these objectives through the promotion and implementation of conservation agriculture and sustainable land and water management practices in local communities.
National Forestry Policy (2014)	The proposed project is well-aligned with two specific objectives of the National Forestry Policy, namely: i) Objective 4 – to ensure sustainable management of forest ecosystems and biodiversity through the application of both scientific and local knowledge; and ii) Objective 5 – to improve the role of forests in the provision of ecosystem services and abatement of climate change. The proposed project will contribute towards achieving these objectives through promoting sustainable land management and environmentally sustainable livelihood options in local communities to disincentivise wood harvesting from forests.
National Wetlands Policy (2014 – still under development)	Several objectives of the proposed project align with those of the National Wetlands Policy, including: i) the promotion of integrity and natural productivity of wetland ecosystems and the maintenance of their functions and values to conserve their biodiversity; and ii) the promotion of community participation and the equitable sharing of benefits.
National Policy on Climate Change (NPCC) (2016)	This policy provides a framework for long-term, coordinated response to climate change. It provides guidance on how the economy should grow in a sustainable manner thereby fostering smooth implementation of the Seventh National Development Plan (NDP 7). While the proposed project does not directly address climate change as a focal area, activities will contribute to building local communities' resilience to climate change impacts by improving ecosystem functioning within the Luangwa sub-catchment.

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 important consideration under all components of the proposed project, but will be specifically addressed through Component 3. Lessons learned during project implementation, in addition to those from past and current aligned initiatives, will be collated and disseminated. The process for the collection and dissemination of knowledge, best practices and lessons learned from the project will be detailed in the cross-sectoral communication strategy developed under Output 3.1.1. Findings, information and lessons learned from the project will be contributed to a knowledge management platform, hosted by a relevant research institution, will be accessible to stakeholders and decision-makers to facilitate replication and upscaling across Zambia, as well as other sub-Saharan countries.

Further details of the project's approach to knowledge management will be determined during the PPG phase in consultation with the relevant stakeholders.

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

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

Name	Position	Ministry	Date
Godwin F. Gondwe	Director/GEF Operational Focal Point	Ministry of Water Development, Sanitation and Environmental Protection	10/10/2019
Godwin F. Gondwe	Director/GEF Operational Focal Point	Ministry of Water Development, Sanitation and Environmental Protection	10/23/2019

ANNEX A: Project Map and Geographic Coordinates

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



Map showing Luangwa Upper Sub-catchment districts of Nakonde, Isoka, Mafinga and Chama.



Map of Luangwa catchment with inlet of Upper sub-catchment where proposed project interventions will take place.

Mafinga Hills geo-reference: S 10° 0' 0" E 33° 20' 0'