



GEF-7 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: FULL-SIZED PROJECT

TYPE OF TRUST FUND: GEF TRUST FUND

PART I: PROJECT INFORMATION

Project Title: Sustainable Luangwa: Securing Luangwa's water resources for shared socioeconomic and environmental benefits through integrated catchment management			
Country:	Republic of Zambia	GEF Project ID:	10412
GEF Agency:	WWF-US	GEF Agency Project ID:	G0022
Project Executing Entity(s):	Ministry of Green Economy and Environment– Environmental Management Department	Submission Date:	17 August 2021 6 October 2021
GEF Focal Area (s):	Biodiversity, Land Degradation	Expected Implementation Start	March 2022
		Expected Completion Date	March 2027
Name of Parent Program	N/A	Parent Program ID:	N/A

FOCAL/NON-FOCAL AREA ELEMENTS

PROGRAMMING DIRECTIONS	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Confirmed Co-financing
BD-1-1	Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors	GEF TF	1,614,613	11,500,000
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	GEF TF	1,076,409	7,800,000
LD-1-4	Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape	GEF TF	198,133	2,549,200
Total project costs			2,889,155	21,849,200

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 Components	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
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 (Mafinga District), as indicated by: METT score increased from 26 to 68; whole boundary demarcated and awareness raised in	1.1.1: Boundary demarcation of Mafinga Hills NFR (with beacons). 1.1.2: Participatory management plan for Mafinga Hills NFR developed and endorsed 1.1.3: Assisted regeneration of degraded forest and grassland areas undertaken	GEFTF	1,350,829	3,200,000

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		<p>25 villages (baseline partially marked (7 beacons, 132 marker posts); 1 technical & 20 HFO staff from communities (baseline 1 technical & 5 community volunteers); training provided for all staff (no monitoring in progress); technical assessments for NFR completed (baseline – no assessments done); mgt plan endorsed (baseline – no mgt plan in use); stakeholder engagement mechanism formalized (baseline - no formal mechanism in place).</p> <p>Outcome 1.2: Enhanced protective status of the source of the Luangwa River, indicated by: WRPA proposal approved by MWDSEP; Water quality of headwater streams in the Upper Sub-catchment stable or improving over baseline for key parameters including nitrates, phosphates and turbidity (baseline tbc in Year 1)</p>	<p>through community engagement</p> <p>1.1.4: Training and operational support for management of Mafinga Hills NFR and surrounding areas</p> <p>1.2.1: Proposal prepared through a participatory process leading to gazettelement of the Luangwa headwaters as a Water Resource Protection Area (WRPA)</p>			
Component 2: Community management of the upper Luangwa Sub-Catchment (Mafinga District).	Investment	<p>Outcome 2.1: Buffer zone and community lands under improved management to benefit biodiversity and ecosystem services in the Luangwa headwaters, indicated by: 50% reduction in rate of loss of miombo woodland in project area over baseline rate of 0.03%; 200 households practising conservation agriculture in Upper Sub-catchment (disaggregated by gender) (baseline 0); 200 households establishing woodlots (baseline 0)</p>	<p>2.1.1: Community landscape management plans and conservation agreements negotiated with local farmers and monitored.</p> <p>2.1.2: Key conservation agriculture actions by farmers around the Mafinga Hills NFR supported and linked to markets</p> <p>2.1.3: Community woodlots provided through natural regeneration areas to reduce forest loss from wood fuel gathering within Mafinga Hills NFR</p> <p>2.1.4: Participatory designation and management of community</p>	GEFTF	1,144,772	16,200,000

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		and 1000 individuals trained in community forest management (baseline 0).	forest areas undertaken with communities outside Mafinga Hills NFR.			
Component 3: Knowledge management and monitoring and evaluation (M&E).	Technical Assistance	Outcome 3.1: Increased knowledge of sustainable catchment management supports replication of the project approach in other headwater areas, indicated by: 5 knowledge products completed to disseminate best practices (baseline 0); 2 agreements for replication of the WRPA model in Zambia (baseline 0).	3.1.1: Cross-sectoral communication strategy developed and implemented to support sustainable catchment management in headwater areas 3.1.2: Knowledge products designed and distributed to relevant stakeholders.	GEFTF	263,026	1,000,000
		Outcome 3.2: Informed and adaptive project management, indicated by: 5 annual reflection workshops linked to annual stakeholder forums (baseline 0).	3.2.1: Project M&E plan implemented and project progress reports, results framework, midterm evaluation and terminal evaluation used to inform adaptive management			
Subtotal				GEFTF	2,758,627	20,400,000
Project Management Cost (PMC)				GEFTF	130,528	1,449,200
Total Project Cost					2,889,155	21,849,200

CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount (\$)
GEF Agency	WWF US	In-kind	Recurrent	346,699
Civil Society Organization	WWF Zambia Country Office	In-kind	Recurrent	600,000
Civil Society Organization	WWF Zambia Country Office	Grant	Investment Mobilized	480,100
Recipient Country Government	Ministry of Water Development, Sanitation and Environment Protection (This includes Environmental Management Department, WARMA and other relevant departments)	In-kind	Recurrent	225,000
Civil Society Organization	COMACO	In-kind	Recurrent	2,250,000
Civil Society Organization	COMACO	Grant	Investment Mobilized	3,500,000
Civil Society Organization	WECSZ	In-kind	Recurrent	1,359,431
Civil Society Organization	WECSZ	Grant	Investment Mobilized	702,000

Recipient Country Government	Forestry Department	In-kind	Recurrent	40,000
Recipient Country Government	Green Climate Fund	Public Investment	Investment Mobilized	12,345,970
Total Co-financing				21,849,200

Describe how any “Investment Mobilized” was identified.

Co-financing type has been allocated in accordance with GEF co-financing policy, using conservative estimates and definitions. Any budget that cannot be expected to be repeated annually into the future is considered as Investment Mobilized. ‘Investment Mobilized’ figures include budget for related development / conservation / sustainable agriculture projects and for repair or improvement of relevant infrastructure.

Investment Mobilized funds include new support from COMACO for conservation agriculture and marketing that will contribute towards sustainable land use and biodiversity conservation; project-related support from WECSZ for biodiversity conservation and community engagement; and support from the Ministry of Agriculture was identified as public investment from the Green Climate Fund project Strengthening Climate Resilience for Agricultural Rural Livelihood in Agro-ecological region I and II (SCRALA). WWF Zambia co-finance was identified as grants from Dutch government and GIZ via WWF Office.

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

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
WWF-US	GEFTF	Zambia	Biodiversity	n/a	2,691,022	242,192	2,933,214
WWF-US	GEFTF	Zambia	Land Degradation	n/a	198,133	17,831	215,964
Total GEF Resources					2,889,155	260,023	3,149,178

DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund).

PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Update the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in **Annex F** and aggregating them in the table below. Progress in programming against these targets is updated at mid-term evaluation and at terminal evaluation. Achieved targets will be aggregated and reported any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCC.

Project Core Indicators		Expected at CEO Endorsement
1	Terrestrial protected areas created or under improved management for conservation and sustainable use (Hectares)	40,500
2	Marine protected areas created or under improved management for conservation and sustainable use (Hectares)	
3	Area of land restored (Hectares)	900
4	Area of landscapes under improved practices (excluding protected areas)(Hectares)	40,000
5	Area of marine habitat under improved practices (excluding protected areas) (Hectares)	
	Total area under improved management (Hectares) <i>(Note – the area target for CI3 is included within areas for CI1&4)</i>	80,500
6	Greenhouse Gas Emissions Mitigated (metric tons of CO ₂ e)	
7	Number of shared water ecosystems (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited marine fisheries moved to more sustainable levels (metric tons)	
9	Reduction , disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)	
10	Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ)	
11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment	2,600 (1310 men; 1290 women)

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided.

Core Indicator 1 – This refers specifically to the following:

- A) **Improved management effectiveness over 15,500 ha (Sub-Indicator 1.2: Terrestrial protected areas under improved management effectiveness).**

Outcome 1.1: Improved management effectiveness of Mafinga Hills National Forest Reserve (MHNFR) in the Luangwa headwaters (Mafinga District).

The project will focus on Mafinga Hills NFR (15,500 ha), which is of particular importance as the source of the Luangwa River is located within its area. The four Outputs (1.1.1-1.1.4) will address gaps and weaknesses identified in the baseline METT assessment through demarcating and raising awareness of the boundaries of the NFR, putting in place a participatory management plan, addressing the risk of forest fires, rehabilitating degraded habitats within the NFR and providing operational support for its management. Collectively, these measures will strengthen the management effectiveness of the NFR, securing the ecological integrity of the Luangwa headwaters within its boundaries.

B) Creation of a new protected area (c.25,000 ha) (*Sub-Indicator 1.1: Terrestrial protected areas newly created*)

Output 1.2.1: Proposal prepared through a participatory process leading to gazettelement of the Luangwa headwaters as a Water Resource Protection Area (WRPA)

This will be the first implementation of the WRM Act of 2011 or any related Act for establishing a WRPA – with the goal of creating a model for the WRPA designation process in Zambia. Once an area has been defined and gazetted as a WRPA, it will be legally protected and 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 which is protected area with sustainable use of natural resources¹. It is provisionally estimated that the WRPA proposal will result in a proposal for a new protected area of approximately 25,000 ha, the exact area of which will be decided through the participatory assessment process.

Core Indicator 3

Contributing to Sub-Indicator 3.2, the project will support around 900 ha of forest and forest land restored, accomplished through two Outputs: **Output 1.1.3: Assisted regeneration of degraded forest and grassland areas undertaken through community engagement:** the activities under this Output will focus on degraded areas within the Mafinga Hills NFR as well as adjacent community lands where there is potential for habitat rehabilitation, primarily focusing on forest habitats (300 ha).

In addition, **Output 2.1.3 Community woodlots proved through natural regeneration areas to reduce forest loss from wood fuel gathering within Mafinga Hills NFR** aims to provide an alternative source of fuelwood through the establishment of community woodlots on deforested and abandoned areas, and also to support the recovery of degraded forest areas through natural regeneration (500 ha) and forest restoration (100 ha).

The habitat restoration will take place within the project areas planned for PA management effectiveness and improved management for biodiversity, therefore the 900 ha total for habitat restoration is not additional to Core Indicators 1 and 4.

¹ <https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-vi-protected-area-sustainable-use-natural-resources>

Core Indicator 4

The area of landscape outside protected areas under improved practices for biodiversity (Sub-indicator 4.3) will total some 40,000 ha, contributing towards sustainable catchment management for the critical headwater areas for the Luangwa river. This area will be covered by the participatory landscape management plan and community conservation agreements and supported by interventions that include conservation agriculture, community forestry, community-based natural resource management, forest restoration and sustainable catchment management. These will be mainly supported by the project interventions planned in Component 2.

Core Indicator 11

The targeted project beneficiaries focus on two main groups – community members resident in the project landscape, and government staff. The target for community members is 2,500 of which at least 50% will be women. Women, as well as female-headed households, will be engaged to contribute towards environmentally sustainable livelihoods that will support them in safeguarding natural resources and promoting their economic development. The target communities mainly comprise the villages located in the project landscape that will be involved especially in the sustainable catchment management activities including community co-management, conservation agriculture, community forestry, community based natural resource management, participatory planning and monitoring, etc. Government staff will benefit from training, capacity development, knowledge sharing activities, technical and equipment support (an estimated 100 staff, from different levels and agencies; at least 40% women). The project will also indirectly benefit the downstream population through sustained river flows, comprising a large proportion of the ~1.8 million people residing in the Luangwa Catchment². Some 25 chiefdoms rely on the Luangwa River for water, food, and livelihoods. The entire economy of the Luangwa Valley, based primarily on tourism and agriculture, is reliant on the river³.

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

³ <https://news.mongabay.com/2019/07/zambia-halts-plans-to-dam-the-luangwa-river/>

PROJECT TAXONOMY

Please update the table below for the taxonomic information provided at PIF stage. Use the GEF Taxonomy Worksheet provided in **Annex G** to find the most relevant keywords/topics/themes that best describe the project.

Level 1	Level 2	Level 3	Level 4
Influencing Models	Strengthen institutional capacity and decision-making Convene multi-stakeholder alliances Demonstrate innovative approaches		
Stakeholders	Private Sector	SMEs	
	Beneficiaries		
	Local Communities		
	Civil Society	Community Based Organization Non-Governmental Organization	
	Type of Engagement	Information Dissemination Partnership Consultation Participation	
	Communications	Awareness raising Behaviour change	
Capacity, Knowledge and Research	Capacity development		
	Knowledge generation and exchange		
	Innovation		
	Stakeholder engagement plan		
Gender Equality	Gender mainstreaming	Beneficiaries Women's groups sex-disaggregated indicators Gender-sensitive indicators	
	Gender results areas	Access and control over natural resources Participation and leadership Capacity development Awareness raising Knowledge generation	
Focal Area/Theme	Biodiversity	Protected areas and	Terrestrial protected

		landscapes	areas Productive landscapes Community based natural resource management
		Biomes	Rivers Tropical Dry Forests Grasslands
	Land degradation	Sustainable land management	Restoration and Rehabilitation of Degraded Lands Ecosystem Approach Community-based NRM Sustainable livelihoods Sustainable agriculture Sustainable forest management Improved soil and water management
Rio Marker			0

PART II: PROJECT JUSTIFICATION

DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF

1a. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects; 3) the proposed alternative scenario with a brief description of expected outcomes and components of the project; 4) alignment with GEF focal area and/or Impact Program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovativeness, sustainability and potential for scaling up.

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

Project Scope and Environmental Significance

The project scope is the Luangwa Upper Sub-catchment in Mafinga, Isoka, Nakonde and Chama Districts of Muchinga Province in eastern Zambia, given the importance of this region to the long-term water flow and quality of the Luangwa River and associated downstream ecosystems and ecosystem services. Within the Upper Sub-catchment, the project will focus on the source of the Luangwa River, in the Mafinga Hills National Forest Reserve and the surrounding agricultural and forested land in Mafinga, Musipizi, Ntonga and Senje Wards of Mafinga District, near the Malawi border (**Fig. 1**) which was determined according to the application of site selection criteria (**Prodoc Appendix 7**). 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) such as mushrooms, edible caterpillars, honey, beeswax, fruits, fibre, etc.

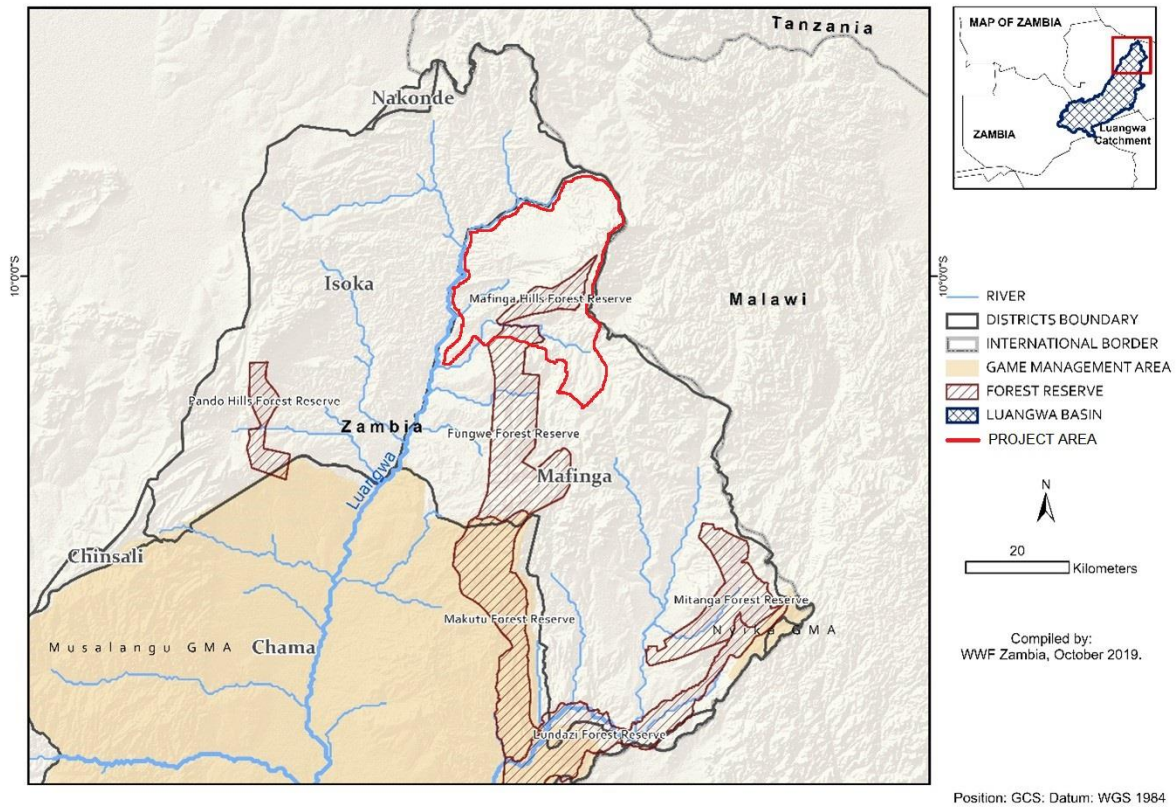


Figure 1. Map showing the Project Area in the Upper Sub-catchment of the Luangwa River in Mafinga District of Muchinga Province, Zambia

The Luangwa River originates in the Mafinga Hills on the Zambian side of the Luangwa-Malawi watershed in the north-eastern part of Zambia and flows over a stretch of 850 km⁴ to the confluence with the Zambezi River in Luangwa District. The Luangwa Catchment (**Fig. 2**) (i.e. the whole river basin) covers approximately 145,690.33 km² within Zambian territory and lies between latitudes 9°30" and 15°40" south, and between longitudes 28°00" and 33°45" east. Administratively it lies in five provinces, namely (largest to smallest in terms of area): Muchinga, Eastern, Central, Lusaka and Copperbelt. The catchment watershed forms the international boundary with Malawi to the east, and Mozambique and Zimbabwe to the south⁵.

⁴ WARMA: <http://www.warma.org.zm/catchments-zambia/luangwa-catchment-2>

⁵ WARMA;: *ibid.*

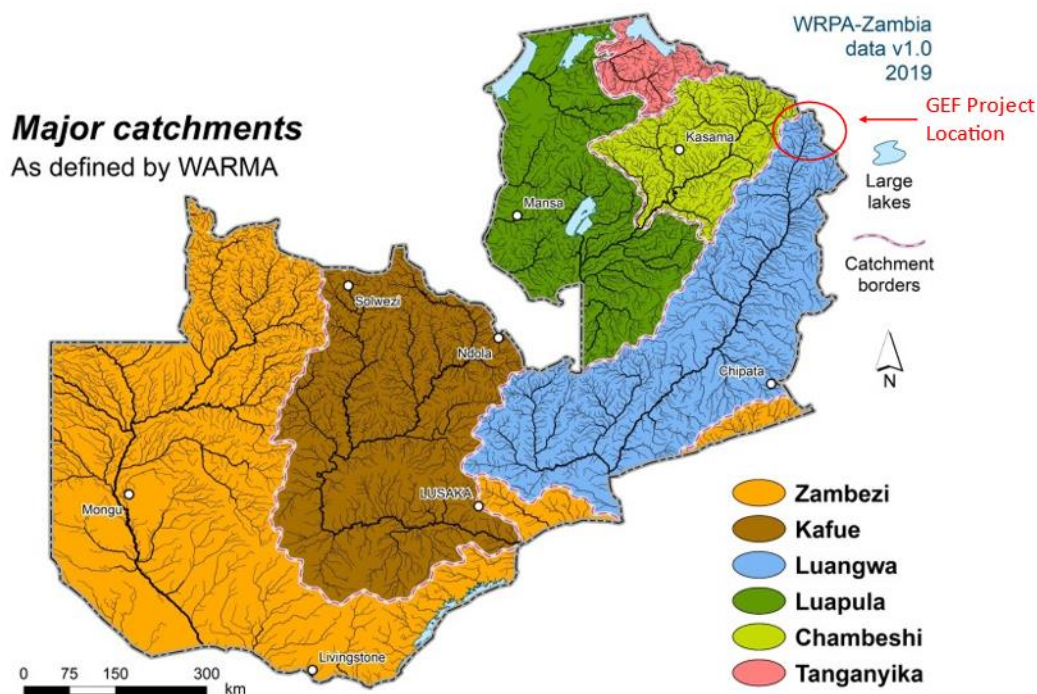


Figure 2. Major river catchments of Zambia

Source: <https://wrpa-zambia.weebly.com/data.html>

The Luangwa River is one of the major tributaries of the Zambezi River, and is one of the four major rivers of the country, forming the core of the Middle Zambezi – Luangwa Freshwater Ecoregion⁶. The Luangwa River - one of the last long free-flowing rivers⁷ in Zambia (see **Figure 3** 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 Catchment⁸), providing water for irrigated agriculture^{9,10}, household use and hydropower^{11,12,13} in the downstream area of the catchment. The Luangwa Catchment has globally important biodiversity assets and natural resources: the Luangwa Floodplains Ramsar site^{14, 15}, six National Parks, eight Game Management

⁶ <https://www.feow.org/ecoregions/details/558>

⁷ WWF defines a free-flowing river as one which flows undisturbed from source to mouth, without encountering infrastructure such as dams, weirs, dykes etc.

⁸ World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. *State of the Basin*, 3.

⁹ Extraction for irrigation is currently low, ~120 km³ annually, but the potential for extraction is high.

¹⁰ World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. *State of the Basin*, 3.

¹¹ Three small hydropower stations are located on tributaries of the Luangwa river, namely Lusiwasi (12 MW) operated by ZESCO; Mita Hills (24 MW) and Mulungushi (32 MW) operated by Lunsemfwa Hydropower Company. Source: <http://www.warma.org.zm/catchments-zambia/luangwa-catchment-2/>

¹² 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.globalccsinstitute.com/publications/risky-climate-southern-african-hydro-assessing-hydrological-risks-and-consequences-zambezi-river-basin-dams/>

¹³ World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. *State of the Basin*, 3.

¹⁴ The Luangwa Floodplains is Ramsar site no. 1660, WDPA ID 903030.

Areas, and National Forest Reserves. In all, these protected areas cover 68,812 km² - around 50% of the total catchment area.

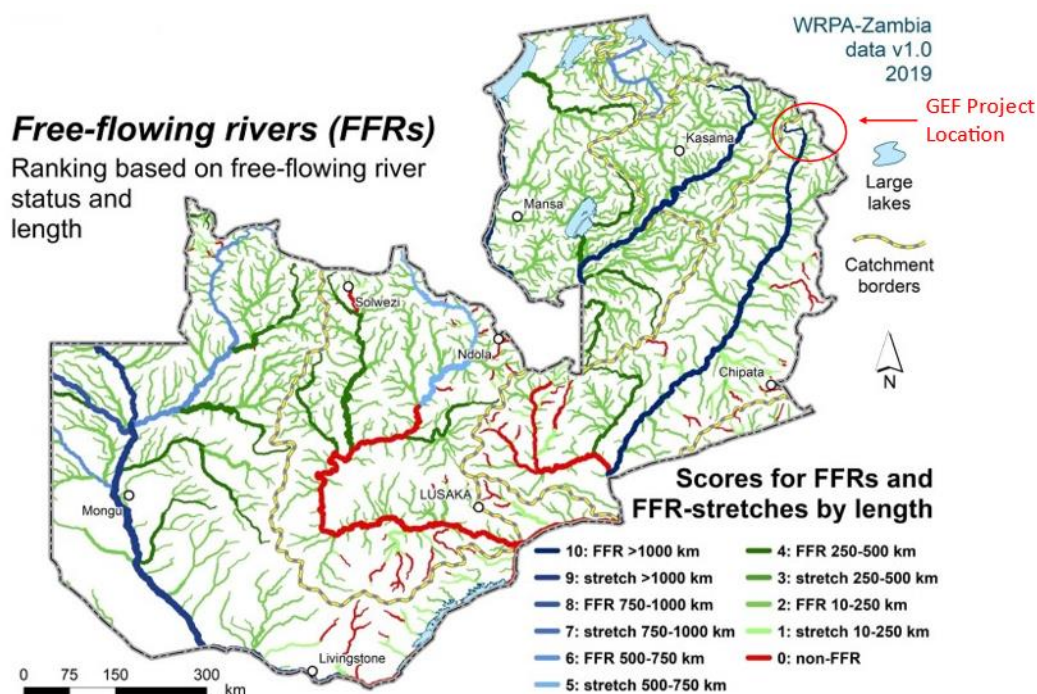


Figure 3. River systems of Zambia ranked by free-flowing river status and length.

Source: <https://wrpa-zambia.weebly.com/data.html>

The catchment includes large areas of Miombo Woodland, designated by Conservation International¹⁶ as one of five High Biodiversity Wilderness Areas^{17,18} and by WWF¹⁹ as one of the Global 200 Ecoregions²⁰. These ecosystems support important terrestrial and aquatic species, including globally threatened African clawless otter *Aonyx capensis*, spotted necked otter *Lutra maculicollis*, hippopotamus *Hippopotamus amphibious*, African wild dog *Lycaon pictus* and the critically endangered black rhino *Diceros bicornis*²¹.

The Mafinga Hills NFR, a Category VI protected area, is rich in biodiversity and forms part of the Eastern Afromontane biodiversity hotspot. Due to its rich variety of endemic flora and fauna species, Mafinga

¹⁵ 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

¹⁶ High-Biodiversity Wilderness Areas (HBWA). Available online at: <http://www.biodiversitya-z.org/content/high-biodiversity-wilderness-areas-hbwa.pdf>

¹⁷ These are large intact ecosystems of the world that hold significant levels of global biodiversity.

¹⁸ Brooks, T.M., et al. 2006. Global biodiversity conservation priorities. *Science* 313 (5783), 58.

¹⁹ 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>

²⁰ These are defined as terrestrial, freshwater, and marine ecoregions that harbour exceptional biodiversity and are representative of earth's ecosystems.

²¹ Dallas, H. 2015. 558: Middle Zambezi – Luangwa. *Freshwater Ecoregions of the World*. Available online at: http://www.feow.org/ecoregions/details/middle_zambezi_luangwa

Mountains, in which the NFR is contained, is listed as a Key Biodiversity Area (KBA) of Zambia²². A vertebrate survey of the Mafinga Hills KBA in March-April 2018 by BirdWatch Zambia²³ added 52 bird species to the existing Mafinga bird list, bringing it to a total of 207 species. KBA Trigger species were Blue Swallow *Hirundo atrocaerulea* (VU) and African Crowned Eagle *Stephanoaetus coronatu* (NT). In terms of biome-restricted species, 20 Afromontane endemics and 14 Afromontane near-endemics were recorded. In addition, a total of 15 mammal species, seven reptile species and eleven amphibian species were recorded.

WWF Zambia has supported WARMA in the process of identifying key watershed areas for increased protection (see **Figures 2-4**), with the Luangwa watershed being such a key area. WARMA and WWF Zambia have conducted a detailed and scientific assessment of potential Water Resource Protection Areas (WRPAs) nationally²⁴, laying the foundation for the identification and justification of WRPAs. Overall, the upper sub-catchment area targeted by the GEF project ranks among the most important in Zambia in terms of combined criteria for water provision, aquatic ecological importance and sensitivity (**Figure 4**), rendering it a high priority for WRPA establishment.

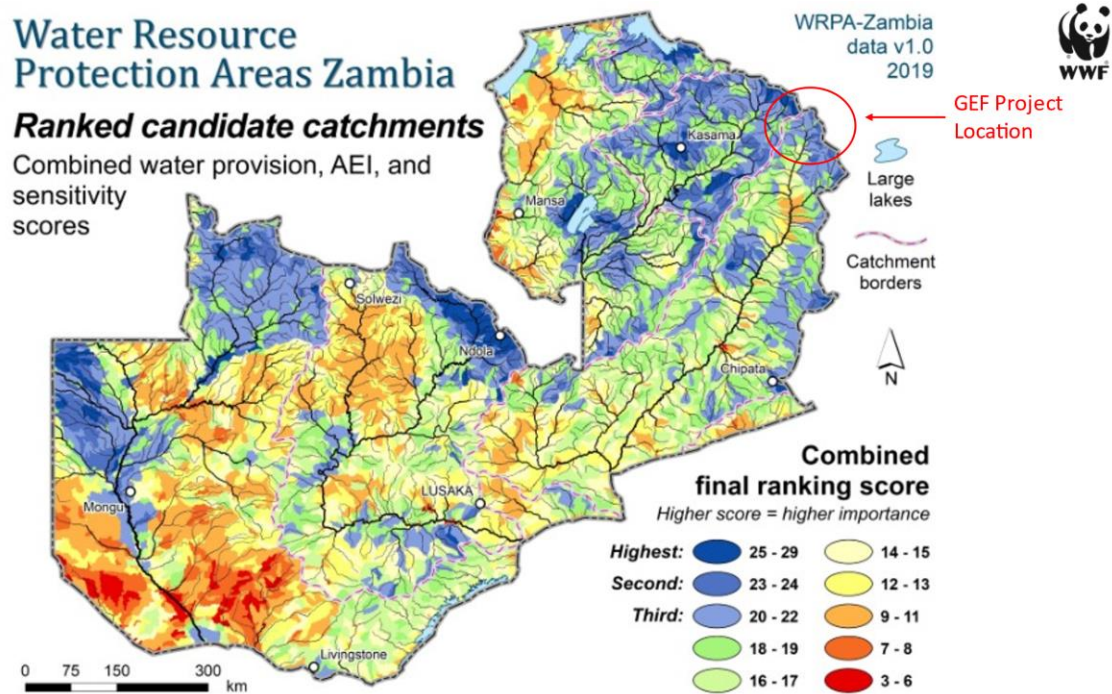


Figure 4. Catchment areas ranked by scores for water provision, aquatic ecological importance (AEI) and sensitivity (indicated by soil erosion and in-stream sediment transport).

Source: <https://wrpa-zambia.weebly.com/data.html>

²² <http://www.keybiodiversityareas.org/site/factsheet/24247>

²³ https://www.birdlife.org/sites/default/files/attachments/vertebrate_survey_of_the_mafinga_mountians-final_report-31.01.19_1.pdf

²⁴ Bernhard Lehner and Günther Grill, Department of Geography, McGill University, for WWF Zambia & WARMA, 2019. Identification of Water Resource Protection Areas (WRPAs) for Zambia. https://wrpa-zambia.weebly.com/uploads/1/2/3/8/123830567/wrpa_technical_report_mcgill_2019_07_final_low_res.pdf

Mafinga District has a projected population of 103,877 as at 2018. Of this population, 50,193 are male (representing 48.3%), while 53,684 are female (representing 51.7%) with an annual growth rate of 4.6%. The district has a total number of 12,648 households and a population density of 16.0/km².

The project landscape is generally under customary land ownership outside the National Forest Reserves. Small scale farmers using hand hoes make up the majority of all farmers in the area. The principal crops grown by these farmers include maize, soya beans, sorghum, cassava and millet. Other crops are sweet potatoes and vegetables. Most farmers also keep chickens and small livestock such as goats while a few farmers also keep cattle. The main practices used by farmers in maintaining and/or restoring soil fertility include intercropping of crops, clearing new fields and leaving degraded fields fallow for periods of 8 to 14 years. The market for these crops is limited in Zambia due to the poor road network. As a result, they sell their products across the border in Malawi, which is nearby.

Environmental Problem, Threats and Root Causes

The environmental problem that the proposed project seeks to address is forest and land degradation and biodiversity loss in the headwaters of the Luangwa, which threatens ecosystem service provision across the whole catchment. The forests of the headwaters are impacted most notably by shifting agriculture (through fire and land clearance) and other agricultural extensification, and to a limited extent by wood collection for fuel wood and charcoal (both home use and for sale). Overall, the ongoing land degradation and loss of forest in the Luangwa headwaters (see **Fig. 5**) threatens local biodiversity and the provision of ecosystem services from the upper sub-catchment to the river system downstream. In particular, deforestation and forest degradation in the headwaters area contributes towards soil erosion and sediment loading of the river system²⁵.

The landcover map for the targeted wards of Mafinga District (see **Map 2 in Appendix 1**) shows that the northern part of Mafinga hills is degraded or deforested, mainly the area of Damasika and its surroundings. On the other hand, areas with significant vegetation cover remain around Mweniwisi. In the headwaters area, the expansion of agricultural land is the main cause of deforestation and forest degradation. While there is a potentially high level of forest regeneration in fields that have been left fallow, such regeneration is not adequate – the visible large areas of young regeneration are a sign of imminent transition from forest degradation to deforestation, as the local human population is growing and fallow periods are getting shorter. Every year a new area of forest is cut down for finger millet fields, which means that new regeneration areas are under threat of being cleared.

Unsustainable Agricultural Practices

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 (see **Fig. 5**). The river source is particularly affected by agriculture - more than 20% of all agricultural camps²⁶ 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*^{27,28}. The practice of *chitemene* requires that large areas are cleared through burning, exacerbating the erosion of the inherently erodible soils in the Luangwa Upper Sub-

²⁵ WWF. 2018. Integrated Flow Assessment for the Luangwa River. Phase 1: Basin Configuration of EFlows. WWF Zambia, Lusaka, Zambia. https://wwfafrica.awsassets.panda.org/downloads/lutr_geomorphology.pdf

²⁶ Smallest agricultural extension unit under the Ministry of Agriculture at District administration level, supported by Camp Extension Workers.

²⁷ Grogan, K., et al. 2012. Transition of shifting cultivation and its impact on people's livelihoods in the Miombo Woodlands of northern Zambia and south-western Tanzania. *Human Ecology* 41:77–92. DOI: 10.1007/s10745-012-9537-9

²⁸ Chidumayo, E.N. 1987. A shifting cultivation land use system under population pressure in Zambia. *Agroforestry Systems* 5(1): 15–25.

catchment - Mafinga is a hilly area and there is high potential for soil erosion from the removal of the natural vegetation cover and inappropriate tillage practices leads to siltation of waterways. The soils of the area are mainly Leptosols of shallow depth in the valley, which are fine loamy and clay soils. However, in and around the hills, there are Leptosols which often contain large amounts of gravel and are susceptible to erosion, desiccation and waterlogging. There are also ferralsols, which are less susceptible to erosion and are well drained (see **Map 1 (Soil Map) in Appendix 1**).

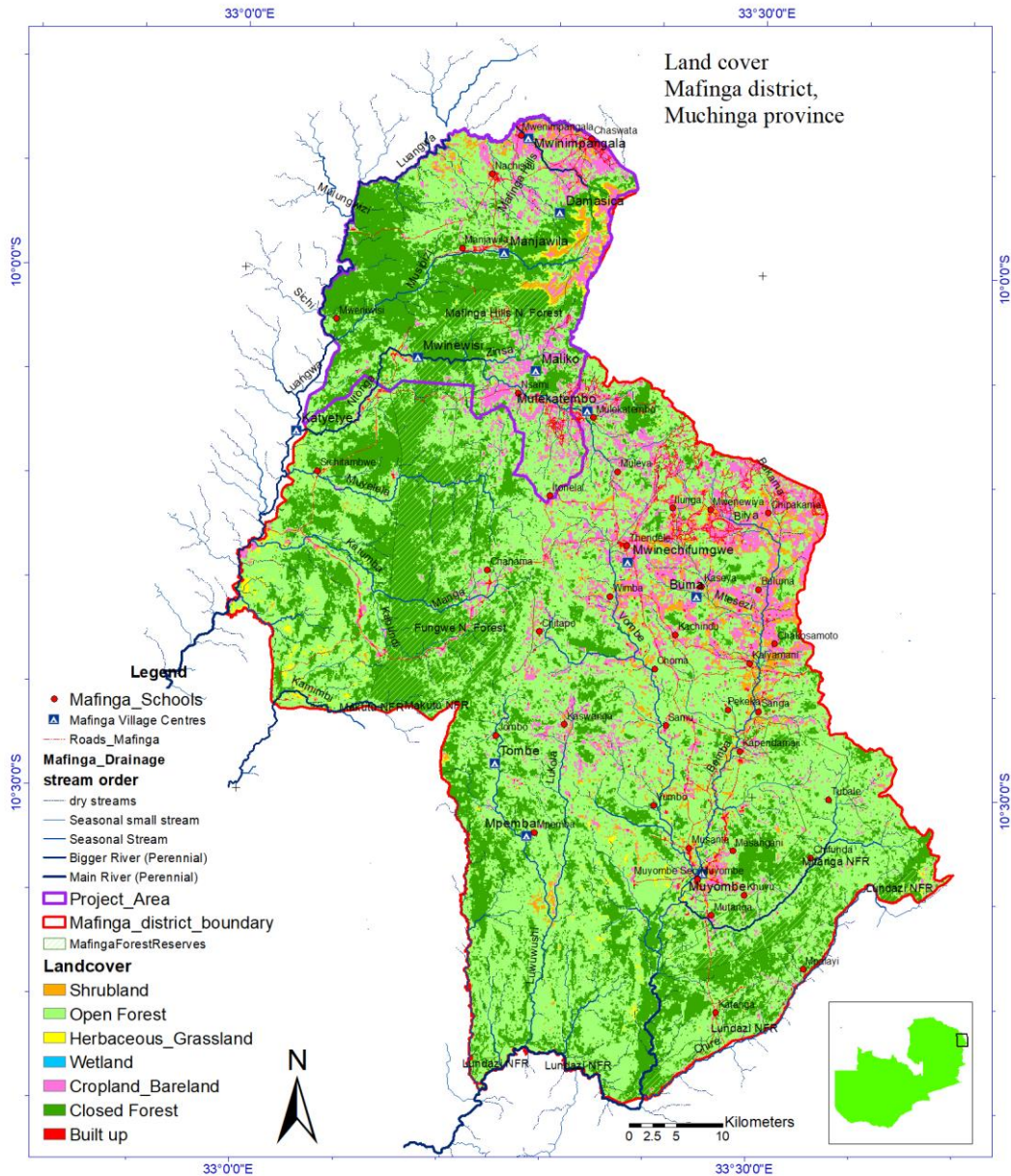


Figure 5. Map showing land cover in the Luangwa headwaters of Mafinga District

Note – Project Area is indicated by the purple border

Local communities burn wood biomass to improve soil fertility and reduce weeds, especially for finger millet cultivation. Finger millet is a major crop used for food and production of a sweet drink as well as alcohol, whose cultivation is a mainstay of local communities. Farmers cut down trees and shrubs and slash grass and allow them to dry out before burning them. After burning, the cleared areas are then planted with finger millet. Yields in these areas are usually higher than in areas that have not been burned, although only in the short term. As the human population increases, the demand for food increases and smallholder farmers in Mafinga tend to address this by opening up more land, including clearing trees along river banks as these areas are known to be more fertile.

In the project target area within Mafinga District, most areas are covered by young regenerating forests that are continuously being cut for new fields of finger millet. On the other hand, fallow periods for other crops like maize range from 8 to 10 years. With the increasing population and demand for agricultural cropping, the fallow period will be reduced and deforestation will occur since millet cultivation continuously clears young regenerating forest. Such agricultural practices in the areas of Mukundalombe and Damasika close to the source of the Luangwa pose a threat to forest cover, biodiversity, and cause the siltation of various tributaries of the Luangwa river. Local communities also cultivate along the river banks, causing soil erosion and siltation.

Unsustainable wood collection for fuelwood and charcoal production

Nationally, 87.7% of total households in rural areas use firewood for cooking and 9.5% use charcoal, while only 1.5% use electricity²⁹. In common with the national situation, firewood is mainly used for cooking by rural communities in Mafinga. However, household collection of firewood is thought to have a limited impact on forest degradation since it is mostly dead wood that is collected and only rarely are live trees cut down. Fuelwood collection does have some impact around the Damasika area, however. Sawn timber is used in construction, and for coffins, furniture and joinery. Charcoal production is mainly for supplying urban towns in Malawi and partly in Mafinga township. Charcoal production is labour intensive and is mainly carried out at the household level and mostly by men. Poles are harvested in the area for construction of houses. High value tree species such as the rosewood Mukula *Pterocarpus tinctorius* also occur in the area but the government has restricted harvesting and it has been listed under CITES Appendix II. Overall, present levels of forest exploitation for timber and charcoal are mostly for domestic use, with limited commercial use and are not a significant threat at present in the project area.

Forest fires

The Miombo woodlands tolerate or are resistant to fire, which plays a role in the natural regeneration of the forests such as breaking the dormancy of seeds. Local communities set fires late in the year as they clear the surrounding vegetation which is also used for traditional hunting. However, these late fires also represent a threat to the young trees in the forest. Consequently, there is a need for a fire management plan to reduce the impacts of late fires. There is also the risk of fires spreading into the NFRs from the surrounding landscape, therefore effective fire management is needed to protect the NFRs. As the high frequency of fires is a key conservation issue in the Mafinga Hills (for plateau grasslands as well as forest habitats)³⁰, efforts should be made to reduce fire frequency, involving awareness-raising and education among the surrounding villages.

Other threats

Other potential issues impacting biodiversity at the local level include the unsustainable exploitation of wildlife resources for subsistence consumption, which is largely traditional in the local communities in the area

²⁹ National Energy Policy, 2008

³⁰ Timberlake et al. 2018. http://www.biodiversityfoundation.org/documents/BFA%20No.24_Mafingas%20botany.pdf

but difficult to discuss openly or quantify due to the absence of data. This mainly concerns small game species, and it is not currently known to be a particular threat to globally threatened species in the area. There is no current indication of organized poaching or illegal wildlife trade in this area.

In view of the Luangwa River's status as one of Africa's longest free-flowing rivers, the issue of hydro-electric power (HEP) generation and river regulation is significant from the freshwater biodiversity conservation perspective. Dams act as barriers to aquatic biodiversity, preventing movements of fish and other species that naturally occur along rivers. They profoundly change the ecology of the upstream stretch through permanent inundation of the floodplain, and river regulation dramatically reduces downstream flows especially during dry seasons, and reduces or eliminates the flood pulses that are the lifeblood of floodplain wetlands and support the life cycles of numerous aquatic animals. There was a recent proposal for a HEP dam in the downstream region at Ndevu Gorge, but it was cancelled by the government in June 2019 following a popular campaign led by WWF³¹. So far, there are no proposals for river regulation or HEP in the Luangwa headwaters area, although small HEP stations exist on tributaries elsewhere in the Luangwa catchment - Lusiwasi (12 MW) operated by ZESCO; Mita Hills (24 MW) and Mulungushi (32 MW) operated by Lunsemfwa Hydropower Company³².

Drivers of land and forest degradation and biodiversity loss

Poverty

Poverty in Zambia remains high with 54.4% of the population living below the national income poverty line, and 21% living in severe multidimensional poverty³³; up to 80% of poor (and 90% of the extreme poor) are living in rural areas. This high level of rural poverty represents a key driver of land and forest degradation and biodiversity loss, as the rural population is heavily dependent on natural resource-based livelihoods, often as their only source of subsistence, resulting in increased pressure on natural resources and unsustainable practices, which in turn leads to land and forest degradation processes. This pattern is exacerbated by the impacts of climate change, mainly through increased variability of rainfall, with periodic floods and droughts.

Climate change vulnerability

A climate change risk analysis was conducted during the PPG (see **Prodoc Appendix 16**), which reviewed potential climate risks to the project intervention. At present, there is limited evidence of local impacts of climate change, although following the drought experienced in the 2016/17 season, the district had to be assisted with food aid³⁴. Local communities identified changes in the rainfall pattern and especially delays in the start and end of the rain season and heavy periods of rainfall as signs of change. Due to the short rainfall seasons, there is a threat to the potential for absorption of water in the Mafinga Hills, and hence potentially reduced flow or supply into the many rivers originating in the hills. While the Mafinga District government has not conducted any climate change vulnerability study, one conducted under the Transforming Landscapes for Resilience and Development (TRALARD) Project demonstrated the vulnerability of Mafinga District (**Fig. 6**). The report states that Mafinga exhibits high levels of exposure, moderately high levels of sensitivity, moderate levels of adaptive capacity and, ultimately, high vulnerability. This high vulnerability is primarily driven by significant rainfall variability, prevalent drought conditions, high flood risks, low soil moisture, steep slopes,

³¹ <https://www.worldwildlife.org/stories/big-win-zambia-halts-mega-dam-on-a-crucial-free-flowing-river>

³² <http://www.warma.org.zm/catchments-zambia/luangwa-catchment-2/>

³³ <http://hdr.undp.org/en/countries/profiles/ZMB>

³⁴ One World. 2018. District Risk Profiles and Risk & Vulnerability Report, Climate Change Risk and Vulnerability Assessment in Luapula, Muchinga, Northern and Western Provinces.

low levels of access to safe water, large distances to the electricity grid and cities, low household wealth, poor infrastructure development and low surface water availability³⁵.

In terms of existing land use, the continuing deforestation and forest degradation will reduce resilience to the negative impacts of climate change, thus endangering the livelihoods of smallholder farmers, whose crops can be wiped out by droughts, floods, pests and diseases.

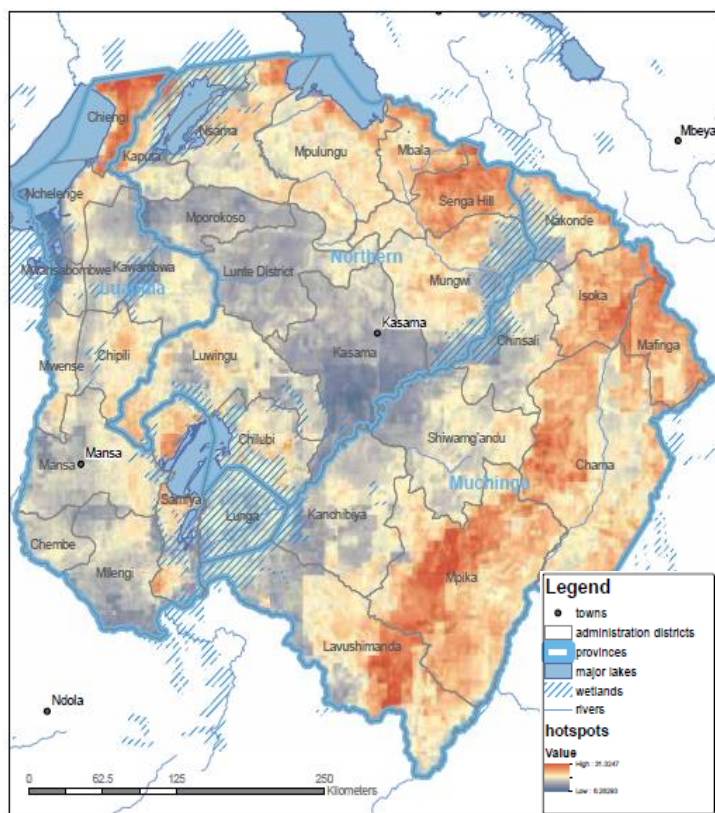


Figure 6. Climate change vulnerability map

Mafinga District can be seen in the NE of Muchinga Province (Source: Petrie et al. 2018 Ibid.)

Barriers addressed by the project

1.Lack of protection and management designations and of capacity for the effective management of headwater forests in order to secure the Luangwa river sources

Protection of the Luangwa headwater forests is currently limited to the area of the existing National Forest Reserves (**Fig.1**): Mafinga Hills NFR, Fungwe NFR, Mitanga NFR, Lundazi NFR, as well as Nyika Game Management Area

³⁵ Petrie, B., Rawlins, J., Tsilik, P., Chapman, A., Kalaba, J. (2018). Transforming Landscapes for resilience and Development in Northern and Southern Zambia (TRALARD-Zam) Project: Landscape Vulnerability Decision Support Framework. One World Sustainable Investment, Cape Town, South Africa

(GMA), but protection or sustainable use of the forests throughout the headwaters is needed to ensure the adequate protection of the river source areas. The lack of coverage of forested headwater areas in the Luangwa Upper Sub-catchment is clear from the landcover and topography and drainage maps (**Fig. 5; Maps 2 and 4 in Appendix 1**). Denuded lands that are now croplands and bare land are clearly evident in the land cover map focusing on the project target area (Mafinga, Musipizi, Ntonga and Senje Wards³⁶ of Mafinga District), illustrating the inevitable changes in land use that will occur without watershed conservation measures in place. The upper slopes of the Mafinga Hills are also largely unprotected despite their significant interest for biodiversity conservation, in addition to their watershed function³⁷.

Scope for the protection of key water resource areas including headwaters is provided for in the Water Resource Management Act 2011 under the authority of WARMA, but this mechanism has yet to be rolled out and tested. The river catchments and sub-catchments throughout the country have been mapped and WWF Zambia has supported WARMA to identify key watershed areas for increased protection laying the foundation for the identification and justification of WRPAs (see **Figures 2-4**) to help enable WRPA establishment. The Luangwa upper sub-catchment area targeted by this GEF project ranks among the most important in Zambia in terms of combined criteria for water provision, aquatic ecological importance and sensitivity (**Figure 4**), rendering it a high priority for WRPA establishment.

The Forestry Department lacks the financial and management capacity at the provincial and district levels to manage the NFRs in the upper sub-catchment area. Consequently, management including law enforcement and monitoring is ineffective and leaves the NFRs open to deforestation and forest degradation due to overexploitation of forest resources, illegal encroachments and other infringements. Currently, the NFRs lack resource inventory information and do not have management plans to guide the prioritization of management activities. The reserves have minimal on-ground demarcation (see WECSZ work with CEPF grant under baseline section), which can lead to unclear understanding of use areas and conflicts with neighbouring land users. The baseline METT assessment for Mafinga Hills NFR (**Prodoc Appendix 11**) illustrates the low level of management effectiveness typical of such remote NFRs, with a total baseline score of only 26. While the NFR was gazetted in the 1970s, and a management plan was developed at this time, it is no longer accessible to staff and has not been updated. There is only one Forestry Department staff for Mafinga District to support management of the NFRs, no infrastructure on site, and no vehicles or equipment for forest management. There are no resource inventories or planning system in place to support the management of the area. The current staff need training especially in participatory and collaborative natural resource management.

Outside the NFRs, there are no designated community forests to provide for local needs for fuelwood, NTFPs and grazing areas, placing pressure on the NFRs and surrounding forest areas as sources of these communal resources. While the Forest Act and Community Forest Management Regulations provide for the development and implementation of community-based forest management, there is very limited local capacity within the Forestry Department to develop, administer and monitor these agreements with local communities. Also at the community level, there is no existing capacity to effectively regulate, monitor and enforce forest resource use rights under community forest management agreements.

In view of these significant sector capacity limitations that constrain the establishment and management of protected areas in remote headwaters regions, responses to this barrier must be cost-effective, practical alternatives that engage local communities and provide them with the capacity and incentives to support the collaborative management of such headwater protection.

2.Limited involvement of community stakeholders in management of headwater forest resources.

³⁶ Ntonga Ward was recently divided into two Wards – Ntonga and Senje at the time of submission in August 2021

³⁷ See: Timberlake et al. 2018. http://www.biodiversityfoundation.org/documents/BFA%20No.24_Mafingas%20botany.pdf

Communities living in the project landscape in the headwaters of the Luangwa Catchment have the potential to participate in various forms of forest management under the Forest Act and Water Act, but this has yet to be realized due to the lack of local capacity and demonstration of such management actions.

Headwater forest resources in the upper sub-catchment area either fall under the above-mentioned National Forest Reserves and Game Management Area classified as State land, or under Customary tenure, which is the dominant system among rural communities, including in the proposed project area. The Forest Act provides for sustainable management of forest resources including community forest management (CFM), joint forest management (JFM) and private forests, under which Community Forest Management Groups (CFMGs) are empowered to conduct the sustainable management of forests. While these provisions allow for community engagement in forest management, to date they have not been applied in the headwaters forest area. Similarly, the Water Resources Management Act, No. 21 promotes community management of water resources but this provision has not yet been applied in this area. In addition, there are no incentives to encourage the conservation and sustainable use of forests in protected areas, or to add value to forest products, therefore other economic uses are considered to be more profitable in the short term, especially agriculture.

State land can also be leased through a Statutory Leasehold tenure system, under which obtaining or acquiring leasehold titles to land (leased from Government) has an in-built check on the capability to develop (e.g. make land productive through growing of agriculture crops, construction of house) and related permission to develop. This reflects the conditional nature of leasehold land and the government's requirement that it is used in the best interests of the country before allocation can be made. These checks and balances are exercised by a variety of departments and ministries.

Under Customary tenure, land is without title and falls under the jurisdiction of traditional leaders who include Chiefs and Headmen/women. Under this system, which is common to most, if not all Zambian tribes, specific plots of land are assigned either temporarily or permanently in most cases through a male head of a family for cultivation, while other areas are held in common for pasture, forestry, and collection of wild plants and game. The mode of acquisition of land under customary tenure is relatively easy when compared to statutory leasehold under modern tenure. The major forms of acquisition in case of a member of the community are by: Grant from the Chief/Headman; Clearing of virgin land and asset possession rights over the pieces of land; Inheritance from deceased relations; and: Gift from either a relative or from any member of the community.

In case of a person from another community or tribe, the person has to be accepted by the community through either the chief or headman before any land can be allocated to them. In both cases there are neither sketch maps, survey diagrams nor documents to be filled in. The ease of mode of acquisition has led to many virgin forests being cleared for agriculture, but abandoned after the land has been degraded (due to poor land husbandry practices). The traditional tenure system usually leads to fragmentation with time, hence making land management and planning difficult at macro-level.

Overall, this lack of engagement in forest resource management coupled with limited local awareness of environmental issues beyond traditional practices and lack of incentives for sustainable use of forest resources has contributed towards the progressive degradation of headwater forests through use of fire, shifting cultivation and agricultural extension, and overexploitation of forest resources.

3.Limited proof of concept of effective and scalable sustainable land, forest and watershed management approaches by communities and local government, including alternatives to *chitemene* practices that are climate-resilient and sustainable.

While other projects have sought to address the loss and degradation of miombo woodlands in Zambia and other southern African countries, this project has the specific intention of addressing the degradation of upper

catchment areas in the headwaters of the Luangwa River system. Outside the existing protected areas, the landscape is under community tenure and mainly dominated by smallholder farming combined with use of forest and grassland resources for food, materials, fodder and grazing land. The existing forest and grassland resources provide essential livelihood support and income, from the sale of honey for example. The crops are rainfed and therefore vulnerable to climate change impacts such as periodic droughts. As such, the maintenance of catchment forest areas is important to preserve the vital water sources in the Mafinga Hills that support these isolated communities in addition to downstream populations, as well as the NTFPs that support their livelihoods.

The current patterns of shifting cultivation and expansion of fields for finger millet cultivation through slash and burn techniques in the upper sub-catchment are unsustainable, leading to forest degradation, deforestation and land degradation through soil erosion and loss of fertility. Consequently, local communities require environmentally sustainable, conservation agriculture techniques as an alternative path to avoid deforestation and land degradation. Such alternatives have been developed in other parts of Zambia but not in Mafinga District, therefore in-country capacity exists to provide the technical assistance required to introduce conservation agriculture to local communities. A further constraint is access to markets in view of the remote location and poor road infrastructure in this area, with communities trading across the border into Malawi as a more convenient route yielding better returns.

Significant forest cover remains outside protected areas in large parts of the upper sub-catchment, which is used by local communities but not under any management regime, allowing forest degradation to occur through unregulated harvesting practices (eg for fuelwood and charcoal). The introduction of community forestry practices in such areas through the establishment of Community Forest Management Groups would empower local communities to take responsibility for the conservation and management of forests on their lands, contributing towards watershed protection.

As a headwater area, water resource management needs to be considered as a key element of the overall land use planning for these areas under community tenure. Under the National Water Policy 2010, the focus is on managing water resources using the catchment as the management unit. This approach centres on empowering stakeholders in a particular locality with the ability and responsibility to make decisions regarding the management of water resources in a specific catchment. This approach to catchment management is supported by the Decentralisation Policy whose goal is to empower local communities by devolving decision making authority, functions and resources from the centre to the lowest level (district and provincial levels). Under the National Water Policy, the management of water resources will be carried out by catchment councils, who will have as its members, representatives of the provincial administration. Catchments will be divided into smaller units called sub-catchments (as in the case of the project area) which will have as its members' representatives of all the Local Authorities in the sub-catchment and representatives of the traditional authorities in the sub-catchment. All district and provincial plans will be integrated into the catchment and sub-catchment plans.

To date, none of these approaches – conservation agriculture, community forest management and water catchment management – have been demonstrated in the project area, and the capacity of local government at the District and Ward levels lack the experience of supporting such an integrated approach to catchment management.

2) the baseline scenario and any associated baseline projects;

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

The Forestry Department under the Ministry of Lands and Natural Resources, the Department of National Parks and Wildlife (DNPW), and the Water Resource Management Authority (WARMA) and the

Environmental Management Department (EMD) under the Ministry of Water Development, Sanitation and Environmental Protection (MWDSEP)³⁸ are the key government agencies that have the mandate to manage protected areas in the Luangwa Catchment. EMD will take the coordination role of all other government agencies and partners under this project, as the project executing agency.

Management of the National Parks and the Game Management Areas in the 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 four National Parks and seven Game Management Areas within the Luangwa Catchment, under DNPW³⁹; however, these lie mostly in the downstream area of the catchment outside Mafinga District in the Luangwa headwaters, where there are three National Forest Reserves (NFRs) (see **Fig. 5**) under the management of the Forestry Department. The Decentralisation Policy requires that Central Government devolve management functions to district councils. As such, the Mafinga District Council is responsible for on-the-ground management of the NFRs, 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 management effectiveness tracking tool baseline assessment for Mafinga Hills NFR scored 26 (see **Appendix 11**), illustrating the weak state of management, with only one permanent staff of the Forest Department responsible for the management of the reserve, lack of transportation and equipment for fieldwork, no forest resource inventory conducted, no management plan, limited demarcation of boundaries and no fire management in place.

In line with the National Water Policy (2010), the management of water resources now centres on the catchment as a management unit, to be carried out by catchment councils, who will have as their members, representatives of the provincial administration. Catchments will be divided into smaller units called sub-catchments which will have as their members' representatives of all the Local Authorities in the sub-catchment and representatives of the traditional authorities in the sub-catchment. All district and provincial plans will be integrated into the catchment and sub-catchment plans.

The Water Resources Management Act No. 21 of 2011 (WRM Act) established the Water Resource Management Authority (WARMA) under the MWDSEP. 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 in Zambia, including the Luangwa Catchment Office, which was established in 2016 and currently has 10 staff. The estimated baseline contribution from WARMA's Luangwa catchment office is some USD 180,000 over the five years of the project, plus a further USD 45,000 from MWDSEP⁴⁰. The environment and natural resources priorities and investment targets in the Luangwa catchment under MWDSEP's mandate include: urban environmental management, industrial waste/pollution interventions, community-based natural resource management, sustainable natural resource-based enterprises,

³⁸ Following elections held in August 2021, and in accordance with the government gazette notice No. 1123 of 2021 on the statutory functions, portfolios and composition of government, the Environmental Management Department previously under MWDSEP is moving under the Ministry of Green Economy and Environment at the time of re-submission (October 2021). Everywhere MWDSEP is listed in the document is now the Ministry of Water Development and Sanitation (MWDS). The Ministry of Green Economy and Environment will replace MWDSEP as Lead Executing Entity for the project. This change has been updated in the Institutional Arrangements section of the document.

³⁹ 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.

⁴⁰ See National and Sectoral Context section above for more information on MWDSEP and EMD's role

management of critical ecosystems and biodiversity hotspots, climate change adaptation or mitigation initiatives, and emerging issues accepted by the Joint Steering Committee as relevant to the projects purpose.

In line with MWDSEP's mandate of ensuring that water is available for various uses in an environmentally sustainable manner for the benefit of the people of Zambia, the Ministry in collaboration with WWF-Zambia has in the recent past paid attention to the drying of once-perennial rivers across the country. This work is being conducted through the context of developing WRPAs, using environmental and ecosystem restoration measures and integrated watershed management. In order to bring about the protection of key rivers, the mapping and delineating of potential WRPAs was a critical initial step towards achieving the broader environmental protection and human well-being agenda. The government of Zambia in its five-year national plan the Seventh National Development Plan (7NDP) set a target of declaring 12 WRPAs by 2021. Thus, to support this ambitious target, from 2017 to 2019 WWF in collaboration with WARMA, the University of Zambia, consultants from McGill University in the USA, and FRC South Africa, together with other stakeholders who have livelihood and economic stakes and expertise, conducted a national assessment of potential WRPAs. This assessment involved all sub-catchments and river reaches of Zambia being analyzed and ranked regarding their importance for water provision, aquatic ecology, and their sensitivity to impact (see website <https://wrpa-zambia.weebly.com/>). The main goal of this assessment was to broadly identify areas in Zambia that should be prioritized as candidate sites for protection because they are important for water provision, aquatic ecology, and their sensitivity to impact and to guide decision-making processes for infrastructure development. In addition, a scientific product ([Hydro Atlas](#)) which contains a series of hydro-environmental sub-basin and river characteristics has been produced and can be used as a scientific justification for protection as per requirement when looking towards declaring an area as a WRPA (see **Figures 2-4**), with the Luangwa watershed being such a key area. WARMA and WWF Zambia have conducted a detailed and scientific assessment of potential Water Resource Protection Areas (WRPAs) nationally⁴¹, laying the foundation for the identification and justification of WRPAs. 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.

With this strong foundation and the lessons learned from this past programme, WWF-Zambia with funding from WWF Netherland office is now looking to take the next step needed to advance water resource management by expanding lobbying and advocacy efforts with the aim of protecting the middle and upper Luangwa headwaters (Luangwa headwaters in Mafinga, Luangwa mainstem channel and alluvial belt of Mushibemba catchment). The desired outcome is that freshwater habitats are secured by the protection of at least 30% of the Luangwa River by MWDSEP and political will is gained to scale up WRPAs to cover additional key river stretches in Zambia to enhance biodiversity and protect important ecosystem services by 2022.

WWF is also working with WARMA and other partners in the Lower Kafue Sub-Catchment and specifically the headwaters of Magoye River, where WWF has mobilized other stakeholders and is applying a community involvement approach for protection of WRPAs. In this work, some of the key benchmark activities

⁴¹ Bernhard Lehner and Günther Grill, Department of Geography, McGill University, for WWF Zambia & WARMA, 2019. Identification of Water Resource Protection Areas (WRPAs) for Zambia. https://wrpa-zambia.weebly.com/uploads/1/2/3/8/123830567/wrpa_technical_report_mcgill_2019_07_final_low_res.pdf

implemented were stakeholder consultations, rapid assessment, audit of hydraulic infrastructure, assessment of hydrological regime/river flows and e-flows, land use audit, and hydro-geomorphological assessment.

The second element of WWF Zambia's programme for the Luangwa is *Inclusive Conservation for Environmental Compliance* through enhancing the role of citizens and the long-term sustainable economic visioning, and engaging on the review of environmental impact assessment, supported by WWF Netherlands.

In addition, WWF's pioneering partnership with World Rowing is building a 'water leadership centre' on the banks of the Kafue River, where communities, scientists, conservationists and decision-makers will come together to better understand, manage, sustainably use and enjoy the freshwater resources they depend on. The Kafue River and Rowing Centre (KRRC) aims to connect freshwater experts and researchers from across Africa and the world, who will use it to study freshwater challenges and find solutions. Building on the ethos of the KRRC, WWF has been working with WARMA to develop a Citizen Science-water quality monitoring project along with the water quality network for Zambia. This project focuses on bridging the water quality data gap and enhancing community management of water resources. Three parameters are currently being monitored i.e. nitrates, phosphates and turbidity as they only require a basic level of understanding⁴². To date, WWF Zambia and WARMA have trained seven communities and five local schools to conduct water quality monitoring citizen science in the Lower Kafue flats, and a further eight communities in the Upper Zambezi (Kabompo). WWF Zambia is now looking to expand this work to the Luangwa Catchment focusing on the Luangwa headwaters in Mafinga, Luangwa mainstem channel and alluvial belt of Mushibemba catchment in line with the potential WRPAs.

The third element of WWF's Luangwa programme is *Improving Community Management of Natural Resources in the Luangwa Catchment*. Downstream of the GEF project area in the Eastern part of the Luangwa Catchment, WWF Zambia with funding from the German Government (GIZ) (Jan 2021 to Dec 2022) is working with other partners and stakeholders to implement a project focused on improving community management of natural resources around selected tributaries of the Luangwa River and sustainable fisheries management with a focus on ten small dams, where community groups (Dam Management Committees (DMCs)) have been identified to be restructured with accompanying management plans to guide sustainable management of fish stocks and other natural resources in the respective small water bodies. This will be achieved by facilitating improved community participation in sustainable natural resources management through engagement of DMCs and amplifying the experiences through selected community platforms such as radio stations. The aim here is to promote co-management approaches-involving communities, traditional leaders, fishermen, women, local authorities, government departments, and value chain actors- through the functioning dam committees and sustainable management methods. The estimated baseline contribution from WWF Zambia over the five years of the project is USD 1,080,100.

Component 2: Community management of the upper Luangwa Sub-Catchment (Mafinga District):

The local authority was created only in 2011 when the new Mafinga District was formed. Currently, the council is operating at Thendele. Mafinga Council has 11 elected councillors representing their respective wards (Mafinga, Ntonga, Thendele, Kakoma, Bemba, Luhoka, Kalanga, Mukutu, Mahobe, Musipizi and Mululu) and three traditional leaders. Overall, Mafinga council is headed by the Council Chairperson. However, in terms of administration and implementation of council policies, the council is headed by the Council Secretary, who is assisted by heads of department.

⁴² See: <https://freshwaterwatch.thewaterhub.org/research-training-quiz>

The District Commissioner (DC) is head of the civil servants in the district employed by the central government. The DC coordinates government programmes and interprets and ensures that central government policies and programmes are understood and implemented, respectively. Furthermore, the DC co-chairs the District Development Coordinating Committee (DDCC) with the Council Secretary. This is the committee which coordinates local development programmes and gives technical guidance on various developmental programmes. In addition to the District government, the Ward Development Committees are actively involved in the planning process and are positioned to take a monitoring role in development projects. The Wards to be involved during the project already have draft Development Plans. In addition, some traditional leaders are focused on ensuring that natural resources are well managed.

In Mafinga District, there are two main rural development projects in progress, both of which are being implemented through government structures with support from service providers. The first is *Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia* (SCRALA) – a US\$32 million 7-year GCF-UNDP/FAO/WFP project executed by Ministry of Agriculture through MNDP/NDA, with an estimated baseline contribution of USD 12,345,970 over the five years of the project. The project aims to address climate change risks, with the key objective to enhance the lives and livelihoods of smallholder farmers in Agro-ecological Regions I and II in Zambia to adapt and become resilient to the impacts of climate change and variability. Coordination with the SCRALA project will be achieved through the NSC at national level and also the PMU at a technical level.

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 region⁴³. 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. COMACO is currently operating in Muyombe (in Mahobe, Kakoma and Kalanga Wards of Mafinga District), close to the project area. This depth of local experience and tested approach provides a sound footing to support a shift in land use management in the project landscape area, while other approaches to alternative livelihoods may present greater risks (eg see Roe et al. 2015)⁴⁴. The estimated baseline contribution from COMACO over the five years of the project is USD \$5,750,000.

Recognizing that the people of Mafinga District are mostly traditional agro-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) completed the CEPF project Conservation and Forest Management in the Mafinga Hills priority Key Biodiversity Area (KBA), under which they trained 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 coordinated closely with the District authorities in such support to the communities for headwater protection. The results of this project included: over 500 community members from four villages (Mulekatembo, Sichitambule, Mweniwisi and Nachisitu villages) sensitised on the National Forestry Policy, National Forestry

⁴³ For example, see: <https://www.pnas.org/content/108/34/13957.short> ; <http://palevel.unza.zm/handle/123456789/4578>

⁴⁴ Roe et al. (2015) "Are alternative livelihood projects effective at reducing local threats to specified elements of biodiversity and/or improving or maintaining the conservation status of those elements?" Environmental Evidence 4:22. DOI 10.1186/s13750-015-0048-1. See: <https://environmentalevidencejournal.biomedcentral.com/track/pdf/10.1186/s13750-015-0048-1>

Act, Agricultural Policy and the National Heritage Conservation Act of Zambia; 60 members of the local community (35 men and 25 women) from three villages (Mweniwisi, Mulekatembo and Nachisitu) trained in indigenous tree nursery establishment; 7,600 indigenous seedlings planted, saplings established by the local community members; 16 (9 men and 7 women) farmers from Nachisitu area trained in modern beekeeping and management; 1 community apiary established consisting of 15 beehives; three fauna and flora ecological assessments conducted, and a checklist of plant species produced, with one possible addition to the trigger species of the KBA. WECSZ also received a small grant from CEPF to organise a range of community consultation meetings and desk reviews in preparation of a conservation programme to protect the Mafinga Hills KBA including work at Mafinga Hills NFR and has been supported by WWF for conservation efforts around Mafinga Hills. This work included installing 7 concrete beacons and 132 markers installed in-between the beacons around the boundary of Mafinga Hills NFR, a fire break around the 14 hectares of reforested area in Damasca Village, and 10 new beehives. WECSZ is based at the Mafinga District Council and is operational in Ntonga and Musipizi wards. WECSZ also work with schools under the Chongolo and Chipembebe clubs. The estimated baseline contribution from WECSZ over the five years of the project is USD \$2,061,341.

WWF Zambia has played a leading role in strengthening Forestry policy and governance at both the national and local levels. WWF Zambia is implementing the 1.2 million Euros Forests Landscape Project in close collaboration with the Forestry Department, Ministry of Lands and Natural Resources, and has collaborated with local stakeholders to foster participatory processes around community-based mapping, land use planning, monitoring of natural resources, wildlife protection, community wellbeing and the Forest Landscape Restoration (FLR) Project funded by BMZ/EG Germany.

BirdWatch Zambia also received a CEPF grant to conduct a vertebrate survey of the Mafinga Mountains in March-April 2018, resulting in significant new information especially on the bird fauna of the area, but also including surveys of mammals, reptiles and amphibians, including some first records for Zambia⁴⁵.

In addition to the above, during PPG consultations with communities, the following local level structures were identified that provide potential entry points for project engagement: women's groups/clubs – with indications are that many are inactive; beekeeping groups which combine both women and men; community-based natural resource groups; Ward Development Committees which are part of the District Council structure - communities identify their own representatives to this structure; and agricultural cooperatives.

While there are diverse international development and conservation projects of thematic relevance in Zambia (see **Appendices 13 & 14**) and numerous civil society organizations active in the country, the baseline for the project area does not directly involve most of these efforts, reflecting its relatively remote location far from the main population and economic centres. Consequently, the project strategy focuses on developing community-based governance of natural resources in the upper sub-catchment area and strengthening the technical capacity of local government to support these efforts in partnership with civil society and the private sector.

Component 3: Knowledge management and monitoring and evaluation (M&E):

As a headwater area, water resource management needs to be considered as a key element of the overall land use planning for these areas under community tenure. Under the National Water Policy 2010, the focus is on managing water resources using the catchment as the management unit. This approach centres on empowering stakeholders in a particular locality with the ability and responsibility to make decisions regarding the management of water resources in a specific catchment. However, this approach to sustainable catchment management has not been demonstrated in the Luangwa Catchment or the targeted project area and no WRPAs have been successfully established in Zambia as yet. Local government at the District and Ward levels lacks

⁴⁵ <https://www.cepf.net/sites/default/files/mafinga-hills-vertebrate-report.pdf>

the experience of supporting such an integrated approach to catchment management. While knowledge has been developed on conservation agriculture, community forestry and sustainable livelihood practices in some other parts of Zambia, these have yet to be transferred to the project area, where local capacity for sustainable catchment management remains low.

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

Project Objective and Theory of Change

The overall vision of the project is to reduce the key threats to the Luangwa upper sub-catchment for the purpose of preserving the ecological condition of the free-flowing Luangwa river and the biodiversity and ecosystem services values of the upper sub-catchment. As such, the project focuses on the upper sub-catchment of the Luangwa, within Mafinga District of Muchinga Province in north-eastern Zambia (**Annex A**).

The project seeks to achieve the following objective: *to reduce forest and land degradation of the Luangwa Upper Sub-Catchment for enhanced protection of water resources, biodiversity and associated community livelihoods.*

The theory of change for the project is illustrated below, responding to the threats and barriers described above and in the project conceptual model in **Prodoc Appendix 2**. The theory of change can be summarized as follows:

If a participatory process involving planning, resource assessment, capacity development and community engagement results in a WRPA under community-based natural resource management; and if improved management of Mafinga Hills National Forest Reserve reduces threats of unsustainable wood and wildlife offtake and forest fires; and if sustainable, climate resilient and productive conservation agriculture and community forestry practices with relevant market linkages can be successfully demonstrated; then this will reduce agricultural land expansion in key areas and the headwaters of the Luangwa Upper Sub-Catchment will be better managed and protected. This will contribute to the conservation of globally significant biodiversity, the preservation of catchment ecosystem services and sustainable land management that supports community livelihoods, thus contributing towards a sustainable future for the free-flowing Luangwa River.

Theory of change considerations include:

Improving the management effectiveness of Mafinga Hills National Forest Reserve in the Luangwa headwaters (Mafinga District) through participatory planning and capacity development, in order to strengthen the protection of important river source areas lying within the NFR;

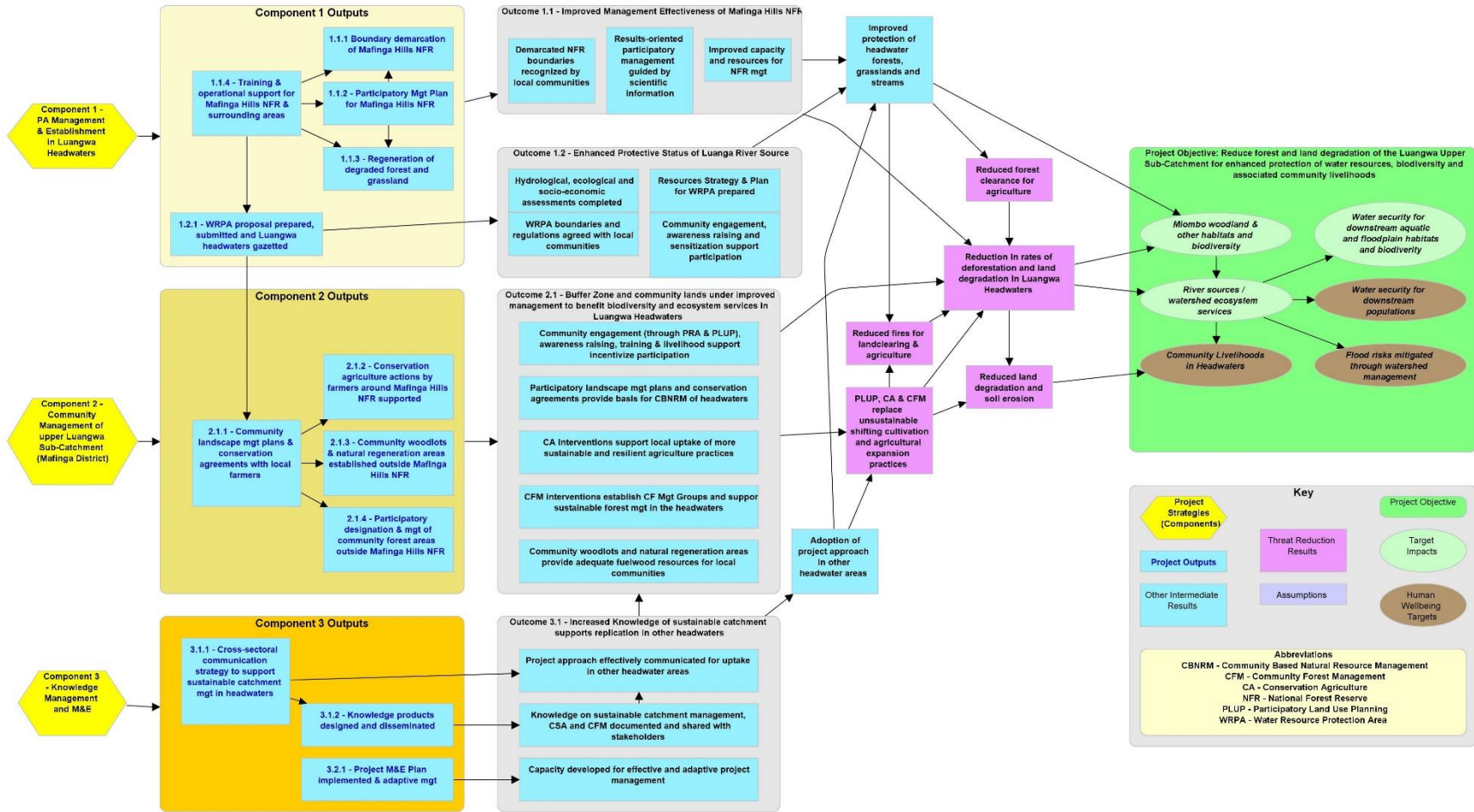
Providing improved protection to a wider area of river headwaters around the Mafinga Hills NFR through the participatory development and community-based management of a model Water Resource Protection Area;

Establishing community-based management of the upper Luangwa Sub-Catchment in Mafinga District through a participatory landscape management planning approach that incorporates environmentally sustainable and climate resilient livelihoods based conservation agriculture and community forestry practices that reduce land and forest degradation;

Developing effective communications, knowledge management and monitoring and evaluation, to ensure that improved knowledge of sustainable catchment management supports replication of the project's approach in other headwater areas.

To achieve the project objective, three strategies (Project Components) will be deployed with activities and interventions described in section 2.2. Indicators and assumptions for the accomplishment of expected Outcomes under the project Components are given in the Project Results Framework (**Prodoc Appendix 5**).

Theory of change diagram for the project



Project Components and Expected Outcomes

The table below summarises the adjustments made to the project Outcomes and Outputs within each component, in response to comments received at PIF stage, stakeholder consultations and feasibility assessments undertaken during the PPG phase. The restructuring of the project intervention strategy took into account the GEF Secretariat comment that “The GEF funding may not sufficient to carry out all the proposed activities”. Consequently, during the PPG some consolidation of the project Outputs has been undertaken: in Outcome 1, the former Output on awareness raising has now been merged into Output 1.1.1 on boundary demarcation, and the Output on fire management planning has been merged with Output 1.2 on development of a participatory management plan for Mafinga Hills NFR and Output 1.1.4 on provision of training and equipment; in Outcome 2.1, the former Output on development of implementation manuals for community forest management and conservation farming developed has been deleted as there is adequate technical capacity and expertise available without developing new manuals. In addition, the project target area has been focused on four Wards of Mafinga District in order to ensure that the project achieves a sustainable impact with the limited resources available.

	Original in the PIF	Changes at GEF CEO ER stage	Commentary on changes
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	To reduce forest and land degradation of the Luangwa Upper Sub-Catchment for enhanced protection of water resources, biodiversity and associated community livelihoods	No change
Outcome 1.1	<i>Outcome 1.1: Improved management effectiveness of the Mafinga Hills National Forest Reserve in the Luangwa headwaters (Mafinga District).</i>	<i>Outcome 1.1: Improved management effectiveness of the Mafinga Hills National Forest Reserve in the Luangwa headwaters (Mafinga District).</i>	No change
Output 1.1.1	Boundary demarcation of Mafinga Hills NFR (with beacons).	1.1.1: Boundary demarcation of Mafinga Hills NFR (with beacons)	No change
Output 1.1.2	Management Plan for Mafinga Hills NFR developed and endorsed	1.1.2: Participatory management plan for Mafinga Hills NFR developed and endorsed	Minor change in Output title to reflect participatory process. The scope of this Output embraces fire management planning and implementation which includes creating firebreaks around the NFR boundaries in cooperation with local communities

	Original in the PIF	Changes at GEF CEO ER stage	Commentary on changes
Output 1.1.3.	Training and equipment provided for fire management, including the establishment of firebreaks.	Deleted	Output contents incorporated into Output 1.1.2 (fire management planning) and 1.1.4 (training and equipment for fire management)
Output 1.1.4	Assisted regeneration of degraded forest and grassland areas undertaken.	1.1.3: Assisted regeneration of degraded forest and grassland areas undertaken through community engagement	Output title modified to reflect participatory nature of this work
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.	1.1.4: Training and operational support for management of Mafinga Hills NFR and surrounding areas	Output title simplified. Output includes training and equipment support for fire management.
Output 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.	Deleted	Incorporated in Output 1.1.1
Outcome 1.2	<i>Enhanced protective status of the source of the Luangwa River.</i>	<i>Enhanced protective status of the source of the Luangwa River.</i>	No change
Output 1.2.1	Water Resource Protection Area (WRPA) proposal submitted by WARMA for the Upper Sub-Catchment including: <ul style="list-style-type: none"> - biological and physical surveys - community consultations - participatively proposed boundary participatively proposed restrictions and regulations.	1.2.1: Proposal prepared through a participatory process leading to gazettelement of the Luangwa headwaters as a Water Resource Protection Area (WRPA)	Title modified to reflect participatory process and outcome. Detail moved to activities.
Outcome 2.1	<i>Buffer zone and community lands under improved management to benefit forest cover, biodiversity and land protection in the Luangwa headwaters.</i>	<i>Buffer zone and community lands under improved management to benefit biodiversity and ecosystem services in the Luangwa headwaters</i>	Title modified to more accurately reflect the aims of sustainable catchment management efforts in Component 2
Output 2.1.1	Community Conservation Agreements negotiated with local farmers and monitored.	2.1.1: Community landscape management plans and conservation agreements negotiated with local farmers and monitored	The project target area will be treated as a landscape and a participatory landscape management plan developed through a consultation process in

	Original in the PIF	Changes at GEF CEO ER stage	Commentary on changes
			order to identify priority areas for restoration, conservation agriculture, community forestry, woodlots, etc.
Output 2.1.2	Implementation manuals for community forest management and conservation farming developed.	Deleted	Sufficient technical guidance and in-country capacity exists to provide the TA required for CFM and conservation agriculture, therefore the manuals proposed at concept stage are not required.
Output 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.	2.1.2: Key conservation agriculture actions by farmers around the Mafinga Hills NFR supported and linked to markets	Output title simplified – the detail is retained in the Output strategy text
Output 2.1.4	Indigenous tree woodlots established outside Mafinga Hills NFR to reduce forest loss from wood fuel gathering in the NFR	2.1.3: Community woodlots provided through natural regeneration areas to reduce forest loss from wood fuel gathering within Mafinga Hills NFR	Natural regeneration areas have been added as a more efficient method of rehabilitating degraded forest areas under community use
Output 2.1.5	Participatory designation and management of community forest areas (2-3 areas) outside Mafinga Hills NFR.	2.1.4: Participatory designation and management of community forest areas undertaken with communities outside Mafinga Hills NFR	Minor adjustment of Output title – no substantive change
Outcome 3.1	<i>Increased knowledge of protected area management and establishment and community sustainable land management at national, provincial, catchment and community levels.</i>	<i>Increased knowledge of sustainable catchment management supports replication of the project approach in other headwater areas</i>	Adjustment of Outcome title in line with STAP comments at PIF stage emphasizing the value of the project in demonstrating sustainable catchment management as a basis

	Original in the PIF	Changes at GEF CEO ER stage	Commentary on changes
			for its replication elsewhere
Output 3.1.1	Cross-sectoral communication strategy developed to collect and disseminate project knowledge products and best practices in Zambia.	3.1.1: Cross-sectoral communication strategy developed and implemented to support sustainable catchment management in headwater areas	Output modified in line with STAP comments at PIF stage emphasizing the value of the project in demonstrating sustainable catchment management as a basis for its replication elsewhere in Zambia as well as internationally
Output 3.1.2	Knowledge products designed and distributed to relevant stakeholders.	3.1.2: Knowledge products designed and distributed to relevant stakeholders	No change
Outcome 3.2	<i>Informed and adaptive project management.</i>	<i>Informed and adaptive project management.</i>	No change
Output 3.2.1	Project M&E plan implemented and reports — including project progress reports, results framework, midterm evaluation and terminal evaluation — developed.	3.2.1: Project M&E plan implemented and project progress reports, results framework, midterm evaluation and terminal evaluation used to inform adaptive management	Minor adjustment in Output title only – no substantive change

The allocation of GEF funds between project components has been adjusted in order address the needs of the project Outputs following review during the detailed design (see the table below). Overall co-financing has been increased by some US\$ 400,924 over the indicative co-financing at PIF stage, representing a co-financing ratio of 7.56.

Component	PIF Stage (US\$)	CEO Endorsement Stage (US\$)
1	1,296,936.00	1,350,829.00
2	1,264,640.00	1,144,772.00
3	190,000.00	263,026.00
PMC	137,579.00	130,528.00
Total	2,889,155.00	2,889,155.00

Over the five-year project period, the project objective will be achieved through the implementation of the following three interconnected components:

1. *Protected area management and establishment in the Luangwa headwaters* - Component 1 will lead to improved participatory management of the key protected area within the headwaters, Mafinga Hills National Forest Reserve, which includes important river source areas. It will also support the development and designation of a Water Resource Protection Area that will provide a model for improved protection and community-based management of the upper sub-catchment.
2. *Community management of the upper Luangwa Sub-Catchment (Mafinga District)* - Component 2 will establish sustainable community environmental management and climate resilient livelihoods through prioritised interventions focused on the headwaters to reduce land and forest degradation that contribute towards the loss of biodiversity and ecosystem services.
3. *Knowledge management and Monitoring and Evaluation* - Component 3 will ensure that the increased knowledge of sustainable catchment management from lessons learned and best practices supports replication of the approach in other headwater areas at local and national levels, as well as being disseminated at Zambezi River Basin level and globally. M&E will be carried out to inform project decision-making and adaptive management.

COMPONENT 1: Protected area management and establishment in the Luangwa headwaters

Outcome 1.1: Improved management effectiveness of Mafinga Hills National Forest Reserve (MHNFR) in the Luangwa headwaters (Mafinga District).

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. The project will focus on Mafinga Hills NFR (15,500 ha), which is of particular importance as the source of the Luangwa River is located within its area. The Outputs will address gaps and weaknesses identified in the baseline METT assessment through demarcating and raising awareness of the boundaries of the NFR, putting in place a participatory management, addressing the risk of forest fires, rehabilitating degraded habitats within the NFR and providing operational support for its management and dedicated awareness raising and training activities with government staff and local communities based on the objectives and threats to the MHNFR. Collectively, these measures will strengthen the management effectiveness of the NFR, securing the ecological integrity of the Luangwa headwaters within its boundaries. This Outcome will secure the core area of the Luangwa headwaters, supported by wider protection under the proposed WRPA in Outcome 1.2, and sustainable land and forest management in Outcome 2.1.

Output 1.1.1: Boundary demarcation of Mafinga Hills NFR (with beacons)

While the existing boundary of the Mafinga Hills NFR is largely known, its actual demarcation on the ground is needed for clear identification and to facilitate monitoring, patrolling and law enforcement. The indicative activities to support the demarcation of the 36.43 km boundary are as described below, which will include clarification of statutory and customary boundaries with Chiefs and headmen and identification of any specific cultural practices that may be affected by access restrictions to the NFR.

1. Constitute a team of technical staff consisting of Forestry Department staff and appoint at least 20 local community members as Honorary Forest Officers to support boundary identification and demarcation, patrolling and outreach, engagement with surrounding communities and to support management plan implementation (Output 1.1.2).
2. Prepare a communication plan for component 1, including preparation of messages and awareness raising/sensitization activities regarding the NFR and its boundaries among 25 adjacent communities and other relevant stakeholders, and consultations on related social and environmental safeguard considerations as indicated in the ESMF.

3. Procure tools and equipment for boundary marking, including: GPS, measuring rods, materials for beacons, compass, axes, hoes, etc.
4. Carry out boundary demarcation works on the ground using beacons (including GIS and field observation work).
5. Produce digitized NFR boundary map(s) through a consultative process and submit to the Director of Forestry for approval.
6. Conduct regular patrolling by Forestry Dept staff and community forest volunteers, law enforcement and community outreach to secure the NFR boundaries (linked to output 1.1.4 on operational support) with due regard for social safeguard considerations.

Responsibility: Managed by the PMU, with FD, related government departments and local community members

Related projects and programmes: WECSZ

Output 1.1.2: Participatory management plan for Mafinga Hills NFR developed and endorsed

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. The management plan will focus on establishing management priorities and goals to ensure conservation of the NFR's environmental values, including 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 that negatively impact the river source area. The management plan will also incorporate climate change resilience considerations and forest fire management as forest fires are a major cause of forest and biodiversity loss in the Mafinga Hills area, associated with shifting cultivation practices. Consequently, the project will support an inclusive approach to management that embraces the Mafinga Hills NFR (15,500 ha) and its surrounding communities in order to promote local engagement and reduce external threats to the NFR. The participatory process for development of the management plan will take full account of the social and environmental safeguard considerations identified in the ESMF/PF including potential impacts on access restriction to forest resources, cultural practices, invasive alien species (IAS), pesticide application, health and safety, and engagement of vulnerable community members. It will be completed and officially endorsed within the project lifetime. The duration of the management plan will be five years, with review within or at the end of the five year period before renewal, taking into account the results of monitoring, research and evaluation. The indicative activities are as follows:

1. Conduct a workshop and meetings among local stakeholders including women and vulnerable groups to develop and raise awareness about the participatory development process for the management plan for Mafinga Hills NFR and develop a methodology for carrying out forest, biodiversity and socio-economic assessments
2. Procure equipment for forest assessment and fire management, including: tools for measuring tree heights and diameters e.g. chronometers, a camera, diameter tapes/ calliper, dumpy level, etc.
3. Conduct participatory forest, biodiversity and socio-economic assessments, prepare the assessment reports and present them to the technical team and local stakeholders for review.
4. Prepare a fire management plan as a component of Forest Management plan for the NFR in consultation with local communities, FD and related stakeholders.
5. Develop the general forest management plan for the Mafinga Hills NFR including by-laws and a workplan for its implementation with local authorities based on the assessment reports and legislative documents and an established schedule and process for periodic review and update, taking into account climate change resilience, gender mainstreaming and social and environmental safeguards considerations.
6. Review of the draft general forest management plan by stakeholders at district, provincial and national level.

7. Submit the final forest management plan to the Director of Forestry for approval.
8. Implement the forest fire management plan which includes operating costs for creating firebreaks around the NFR boundaries in cooperation with local communities

Responsibility: Managed by the PMU, with FD staff, related government department technical experts on forest management, biodiversity and socio-economic assessment, local stakeholders

Related projects and programmes: WECSZ

Output 1.1.3: Assisted regeneration of degraded forest and grassland areas undertaken through community engagement

The activities under this Output will focus on degraded areas within the NFR as well as adjacent community lands where there is potential for habitat rehabilitation, primarily focusing on forest. At least 300 hectares of degraded habitats will be rehabilitated through assisted natural regeneration⁴⁶. Rehabilitation activities will be participatory in order to engage and provide benefits to local communities, and will take into account safeguards considerations for avoiding Invasive Alien Species (IAS) and the application of pesticides⁴⁷. Indicative activities are as follows:

1. Conduct an assessment to determine areas affected by habitat degradation in degraded areas within the NFR and adjacent community lands in the four wards.
2. Develop a participatory action plan for assisted natural regeneration .
3. Demarcate the areas for assisted natural regeneration with beacons.
4. Implement participatory action plan for assisted natural regeneration with support from communities, for example control of grazing , fires and wood extraction and clearing of competing weeds.
5. Conduct monitoring for the assisted natural regeneration areas as necessary.

Responsibility: Managed by the PMU with FD/NFR staff and local communities

Related projects and programmes: WECSZ

Output 1.1.4: Training, capacity building and operational support for management of Mafinga Hills NFR and surrounding areas

This Output aims to provide the support needed to establish effective patrolling and monitoring activities undertaken by field staff in Mafinga District to support the implementation of the Management plan developed under 1.1.2. The targeted staff for training and capacity building would include: PMU and related government departments at district level. These activities would take into account safeguards requirements for health and safety at work (regarding use of equipment), and the human-rights based approach to enforcement. Indicative activities are as follows:

1. Conduct a field level training needs assessment for field staff.
2. Train field staff in various field skills related to participatory natural resource management approaches, fire management, GIS/remote sensing, resource monitoring, etc.
3. Field staff conduct training activities for local communities involved in CBNRM.

⁴⁶ ANR is a flexible approach to reforestation that assists natural regeneration of forest trees (natural seedlings and sprouts) through natural successional processes by removing barriers to natural regeneration such as soil degradation, competition with weedy species and recurring disturbances (e.g., fire, grazing and wood harvesting). Source: Ministry of Lands and Natural Resources (2017). National Investment Plan to Reduce Deforestation and Forest Degradation (2018-2022).

⁴⁷ Note – Output 1.1.3 differs from 2.1.4 in that its primary aim is habitat rehabilitation, especially in and around Mafinga Hills NFR.

4. Procure and distribute key equipment needs, including motorcycles for patrolling, maintenance, field supplies and fire control equipment.

Responsibility: Managed by the PMU, and involving District level government staff and local communities

Related projects and programmes: WECSZ

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

A key part of the demonstration value of this project is the development of a proposal for gazettement of a Water Resource Protection Area (WRPA) in the Luangwa headwaters under the Water Resources Management Act of 2011 – the first such WRPA to be established in Zambia. The WRPA proposal will be submitted to the Minister of MWDSEP responsible for water resources management for approval, leading to its gazettement within the project lifetime. The intended community-based management of the WRPA will contribute towards sustainable catchment management through sustainable land management practices, conservation of biodiversity, and provision of ecosystem services that underpin community livelihoods and climate resilience. This Outcome will strengthen the success of Outcome 1.1 by providing improved protection to a wider area of river headwaters around the Mafinga Hills NFR.

Output 1.2.1: Proposal prepared through a participatory process leading to gazettement of the Luangwa headwaters as a Water Resource Protection Area (WRPA)

In accordance with the Water Resources Management (WRM) Act of 2011, one Water Resource Protection Area (WRPA) proposal will be submitted to the WARMA Board for the Upper Sub-Catchment including: biological and physical survey results; outcomes from community consultations; boundary proposals; and restrictions and regulations proposals. Building on baseline experience involving collaboration between WARMA and WWF-Zambia on the HydroATLAS-Zambia project, the WRPA proposal will be developed through a participatory assessment and consultation process involving all affected communities and related stakeholders, with due regard for social and environmental safeguards procedures involving relevant project-affected communities. The design of the WRPA should take into account the need for effective management of forested lands around the Mafinga Hills NFR and its connectivity with Fungwe NFR immediately to the south (noting that dense forest cover remains in parts of the intervening unprotected area) – see **Fig. 5** (Land Cover Map of Mafinga District).

This will be the first implementation of the WRM Act of 2011 or any related Act 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 and will receive protection status similar to current PAs. The actual IUCN category under which the WRPA will fall is not yet defined, but likely Category VI which is protected area with sustainable use of natural resources⁴⁸. It is provisionally estimated that the WRPA proposal will result in a proposal for a new protected area of approximately 25,000 ha, the exact area of which will be decided through the participatory assessment process.

The indicative activities are as follows:

1. Conduct an awareness campaign for stakeholders on WRPA establishment in the targeted Wards. This will involve 8 months of radio programme aired in a year for three years.
2. Conduct and prepare rapid assessment report including data and information collection and analysis of surface water infrastructure, land cover land use (LCLU) surveys, water resource/hydro-geomorphology, ecological and socio-economic assessments in the proposed area.
3. Conduct consultations with local communities and other stakeholders to propose mutually agreed boundaries, restrictions and regulations of the WRPA.

⁴⁸ <https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-vi-protected-area-sustainable-use-natural-resources>

4. Develop draft WRPA protection plan taking into consideration recommendations from Environmental and Social Management Framework (ESMF) and gender action plan.
5. Conduct validation meetings for the WRPA protection plan including nature based solutions plan with key stakeholders at district, provincial and national levels .
6. Submit the proposal for declaration of a Water Resource Protection Area to the WARMA's Board for approval.
7. Support the process of the Board submitting WRPA proposal and gazetting process by the Minister responsible for Water including preparation of policy brief for Minister on protection, stakeholder consultation report, preparation for the statutory instrument (SI) for protection, amongst other technical assistance activities such as the validation of technical reports, alignment of the proposed activities in the WRPA to national policies and strategies, ground-truthing and stakeholder consultations.
8. Demarcation of WRPA Boundaries and signage and creation of buffer zones.
9. Develop and implement nature based solutions (ecosystem based solutions) for restoration and protection of the WRPA. Depending on the results of the rapid assessment above, measures such as the following may be implemented: river bank stabilisation using green infrastructure e.g., promote planting of velvet grass to hold river banks; catchment protection e.g., demarcate natural reforestation areas around the WRPA; gully restoration for groundwater recharge; and green mechanisms such as demonstration sites for rainwater harvesting.
10. Implement and Monitor WRPA protection plan with local stakeholders including Community Forestry Management Groups (established under Component 2 – Output 2.1.4). Actions on the ground will focus on the nature-based solutions above. Monitoring will include citizen science work monitoring water quality at approximately 10 sites using test kits for selected parameters, supported by field visits for guidance.
11. Support Community Forestry Management Groups in the enforcement of WRPA protection plan through provision of equipment and capacity building workshops at District level and meetings at community level .

Responsibility: Managed by the PMU, and involving relevant government authorities such as WARMA, MWDSEP, and partners such as WWF Zambia.

Related projects and programmes: Magoye Protection plan (WWF Zambia) and GIZ AWARE project.

COMPONENT 2: Community management of the Upper Luangwa Sub-catchment (Mafinga District)

Outcome 2.1: Buffer zone and community lands under improved management to benefit biodiversity and ecosystem services in the Luangwa headwaters

Under Outcome 2.1, land degradation will be reduced, and biodiversity and ecosystem services will be preserved through the implementation of sustainable forest, land and water management practices. This will be achieved through: developing, signing and monitoring community-level participatory landscape management plans and conservation agreements that identify the areas for conservation agriculture, community forestry and other forms of natural resource management; and introducing climate-resilient conservation agriculture to farmers around the Mafinga Hills NFR. The project will identify and develop market linkages for agricultural products through existing social enterprises. Support will be provided to establish native woodlots and natural regeneration areas on degraded land outside the Mafinga Hills NFR to reduce offtake of timber and fuelwood from this NFR. The Mafinga District forestry staff have identified 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 pressure on the NFR by the communities. This Outcome will contribute towards the success of Outcomes 1.1 and 1.2 by strengthening the sustainability of forest and land surrounding Mafinga Hills NFR, and land management within or adjacent to the proposed WRPA.

Output 2.1.1. Community landscape management plans and conservation agreements negotiated with local farmers and monitored

This Output aims to put in place the plans and agreements required to implement a community-led approach towards sustainable land and forest management in the Upper Luangwa Sub-catchment outside existing protected areas. This will involve a participatory rural appraisal (PRA) / participatory land use planning (PLUP) process of awareness raising, natural resource assessment and mapping, and planning that engages all affected communities including traditional leaders and relevant government agencies. The participatory land use plans will be developed by local communities with technical support from government technical departments, i.e. the District Planner working with other key Departments like Forestry, Agriculture, Community Development, Social Welfare, etc., will support the communities to plan using PLUP methodologies. The local planning authority led by the District Planner will facilitate these plans, which will feed into the District plans at higher level. The views of women and vulnerable groups will be specifically sought during these processes to ensure that the plans are gender-responsive and socially inclusive, including relevant project-affected communities. The implementation of conservation measures within the wider scope of these plans will be supported by community conservation agreements, for example to reduce the impacts of certain community activities on natural habitats or to conserve a specific element of biodiversity. Traditional knowledge held by local communities will be taken into account during the planning process.

1. Identify and engage existing community structures to take in community landscape management and conservation.
2. Conduct awareness raising activities and build capacity of the identified community structures on potential community-based natural resource management areas and the PRA / PLUP processes to develop the planning framework. This will involve radio talk shows and community live broadcast for 4 wards once a month for two years.
3. Identify key natural resource features (including natural habitats, food resources, aquatic resources) and their locations in the landscape, with community members through the PRA/PLUP process.
4. Conduct meetings to develop the desired vision for the landscape and outcomes and benefits with the local government, traditional leaders and communities through the PRA/PLUP process.
5. Design participatory landscape management plans (PLMPs) based on the stakeholder negotiation feedback, and distribution and use of resources outside protected areas e.g., forestry, water, agriculture through the PRA/PLUP process. These will be embedded in District integrated development plans for the community components.
6. Support conservation measures within the wider scope of the PLMPs through the development and signing of community conservation agreements that link to project support for conservation agriculture, community forestry and other forms of livelihood support (see Outputs 2.1.2-4 below)
7. Monitor implementation of the PLMPs and community conservation agreements

Responsibility: PMU with technical support from relevant government departments, and partners such as WESCZ (for awareness and sensitization activities)

Related projects and programmes: TRALARD and SCRALA

Conservation Agriculture (CA) is a farming system that promotes minimum soil disturbance (i.e. no tillage), maintenance of a permanent soil cover, and diversification of plant species. It enhances biodiversity and natural biological processes above and below the ground surface, which contribute to increased water and nutrient use efficiency and to improved and sustained

crop production⁴⁹. Conservation agriculture is compatible with climate-smart agriculture in that its practices are generally climate-resilient⁵⁰, and in the case of this project, informed by the project's climate risk screening (see **Appendix 16**).

Conservation agriculture (CA) and community forestry (CF) are seen as two of the most important approaches to achieve climate-resilient sustainable land and forest management in the Upper Sub-catchment area that have the potential to improve local productivity and yield sustainable socio-economic benefits while at the same time maintaining the natural capital of the natural resource base. Both approaches have been successfully demonstrated in other parts of Zambia, and extensive international guidance⁵¹ and in-country capacity exists to develop and implement them in Mafinga District^{52,53}.

Output 2.1.2. Key climate-resilient conservation agriculture actions by farmers around the Mafinga Hills NFR supported and linked to markets

Climate-resilient Conservation Agriculture (CA) practices will be supported by extension services from national experts and experienced service providers for the communities that are entering community conservation agreements per activity 6 in 2.1.1. The types of CA interventions used may include: crop intensification in suitable locations as a strategy to reduce expansion through clearing of natural habitats (as is currently practised, representing the main local cause of deforestation); provision of quality seed to increase the productivity and profitability of farming efforts; the introduction of composting and mulching systems to improve soil quality and soil moisture retention; introduction of minimum tillage practices to reduce soil erosion and damage to natural vegetation; introduction of poultry and beekeeping as sustainable livelihood options; and sustainable livestock management practices (eg using locally adapted breeds, limiting grazing pressures). This will be supported by improving market linkages for agricultural products through existing social enterprises. The implementation process will take account of elite capture risks by ensuring equitable sharing of project benefits among the targeted communities in the project landscape under this Component.

Indicative activities are as follows:

1. Identify service providers and capacity development institutions, and apply due diligence screening to selected providers to ensure that contractual engagement of communities is fair and equitable, including equitable benefit sharing procedures;
2. Conduct awareness and sensitization of targeted communities, including on related rights of engagement.
3. Identify climate-resilient CA practices suitable for the specific conditions of the Mafinga area through consultation processes with local communities and agricultural experts.
4. Support the implementation of selected CA practices through provision of TA, basic equipment (eg rubber boots, hoes, bicycles), seed, agricultural supplies, with specific attention to gender mainstreaming, the empowerment of women and engagement of vulnerable community groups, within the framework of community conservation agreements developed in Output 2.1.1.
5. Conduct an assessment of potential markets and market linkages or outgrower schemes for CA products.
6. Strengthen communication of agricultural market information, COVID situation reports and local weather forecasts via local radio broadcasts.

⁴⁹ See: <http://www.fao.org/conservation-agriculture/en/>

⁵⁰ For example, see: [https://climate-adapt.eea.europa.eu/metadata/adaptation-options/conservation-agriculture#:~:text=The%20three%20main%20principles%20of,agricultural%20practices%20to%20greenhouse%20\(](https://climate-adapt.eea.europa.eu/metadata/adaptation-options/conservation-agriculture#:~:text=The%20three%20main%20principles%20of,agricultural%20practices%20to%20greenhouse%20()

⁵¹ <http://www.fao.org/conservation-agriculture/en/>

⁵² <https://www.conservation-capital.com/conservation-agriculture-comaco>

⁵³ <https://conservationagriculture.org/>

7. Build capacity in communities on value chain development and develop market linkages for local communities or out grower scheme through a subgrant to project executing partner.
8. Provide livelihood support assistance where necessary through small community loans to cover any temporary reductions in income experienced as a result of the transition to conservation agriculture⁵⁴. This will be coordinated by the PMU in conjunction with the Ministry for Community Development in accordance with their official guidelines⁵⁵.
9. Monitor participation trends (including gender and social inclusion), productivity, profitability and economic sustainability of CA practices.
10. Monitor the environmental impacts of CA practices, especially in relation to the use of local water resources and potential impacts on water quality.

Responsibility: PMU with technical support from the Ministry of Agriculture and other relevant government departments, and partners.

Related projects and programmes: TRALARD, Conservation Farming Unit (CFU) and SCRALA

Output 2.1.3 Community woodlots provided through natural regeneration areas to reduce forest loss from wood fuel gathering within Mafinga Hills NFR

The collection of fuelwood is a significant source of forest degradation and deforestation in Mafinga District. This Output aims to provide an alternative source of fuelwood through the establishment of community woodlots through natural regeneration (600 ha) within the context of the participatory landscape management plans and community conservation agreements in 2.1.1 (see Activity 6).

Woodlots are plots of planted or naturally growing trees that provide multiple products and services such as timber, poles, fuelwood, medicine, soil-erosion control and shelter. Poles, fuelwood and timber may be used by the farmer or sold to supplement cash income for the household or community. The areas for natural regeneration will mainly be from young degenerating trees, rather than planting - trees grow faster from regeneration than from planting and success rates are higher. The activities will take due account of safeguard considerations including: use of degraded land for woodlots, avoidance of IAS and pesticides usage, as well as elite capture risks through equitable engagement and benefit sharing procedures.

Indicative activities are as follows:

1. Conduct an assessment of potential areas where forest resources have been significantly impacted by fuelwood collection (and other threats such as forest fires) and identify suitable communities to engage in demonstration activities.
2. Conduct training of community members in the skills required for woodlot development through assisted natural regeneration practices.
3. Identify degraded forest areas for community woodlots provided through natural regeneration and prepare an implementation plan through participatory consultations that take into account gender mainstreaming and social inclusion. This will include training, capacity building and field work.
4. Monitor and record natural regeneration in restoration areas and apply management measures including fire control, weeding, protection from grazing, etc.

⁵⁴ See: <http://www.fao.org/3/cb0572en/cb0572en.pdf>

⁵⁵ Operational Guidelines For Women Village Bank Program (Micro Credit To Women). Ministry of Community Development and Social Services, Department of Community Development. January 2016.

Responsibility: PMU with technical support from Forest Department and other relevant government departments

Related projects and programmes: TRALARD, SCRALA, WECSZ

Output 2.1.4 Participatory designation and management of community forest areas undertaken with communities outside Mafinga Hills NFR

The Forests Act (2015) and CFM Regulations (2018) define a procedure for how members of a community, who derive their livelihood from a nearby forest, may apply for recognition by the Forestry Department as a community forest management group (CFMG). A CFMG can manage one (normally) or more areas, depending on the location and size of the community forest areas selected by the community. Key requirements for establishment of new community forestry areas include consultations (also with adjacent communities), assessment of user rights, drafting of key documentation, and equitable benefit-sharing arrangements, with due regard for safeguards considerations including conservation of high value habitats. The project will support selected communities to follow all the necessary steps in this procedure, as well as the subsequent management of community forest areas. Areas under community forestry may fall within the proposed WRPA, providing communities with the right to manage these lands, water and forest resources. Indicative activities are as follows:

1. Conduct awareness-raising meetings for relevant communities on the process and benefits of establishing community forest areas.
2. Identify three areas suitable for community forest establishment.
3. Conduct meetings for participatory problem analysis.
4. Train communities in governance aspects of community forest management.
5. Facilitate community elections for community forest management group members, including specific attention to gender mainstreaming and the empowerment of women.
6. Apply for recognition as Community Forest Management Groups (CFMG).
7. Develop a Management Plan for each community forest area including benefit sharing arrangements and seek approval from the Forestry Department.
8. Sign a Community Forest Management Agreement and provide initial support for implementation including identification of forest areas and demarcation of boundaries, support for sustainable livelihoods, creation of the community forest user groups and support for functioning of the groups.

Responsibility: PMU with technical support from Forestry Department, with relevant government departments

Related projects and programmes: TRALARD, SCRALA, WECSZ

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

Outcome 3.1: Increased knowledge of sustainable catchment management supports replication of the project approach in other headwater areas

This Outcome will establish an effective strategy for knowledge management and sharing of project lessons at different levels (see **Appendix 9** on Knowledge Management and Communications). Stakeholder engagement activities will be undertaken to identify appropriate knowledge products to be developed and distributed to users at national, local, catchment and community levels. By making knowledge available to all stakeholders, the project will contribute towards the replication of the upper catchment management approach, including the WRPA model and community engagement in sustainable land and forest

management, within the Luangwa catchment, across Zambia, and in other Zambezi river basin countries. This is a cross-cutting outcome, supporting interventions across all three other components.

Output 3.1.1: Cross-sectoral communication strategy developed and implemented to support sustainable catchment management in headwater areas

The project will demonstrate an integrated, community-based approach towards sustainable catchment management that embraces conservation agriculture, community forestry, biodiversity conservation and other disciplines. As such it will engage diverse stakeholders, especially at the local level, which will be guided by a communication strategy that defines the purpose of communications, the key messages and modes of communication to ensure that project implementation is efficient and well supported, and to guide knowledge management. The communication strategy will enable the project experiences and lessons learned to be applied in other headwater areas of the Luangwa, across Zambia, and in other Zambezi river basin countries. It should also take the socio-economic needs of the communities into consideration.

Indicative activities include the following:

1. Identify the objectives of the communication strategy, its scope and stakeholders in line with the project Stakeholder Engagement Plan (**Appendix 15B**).
2. Develop the main communication actions, messages and information materials needed to promote sustainable, integrated catchment management and its constituent parts.
3. Identify suitable communications platforms for dissemination of information at different levels
4. Implement the communication strategy.
5. Organize information exchange and visits for key stakeholders from other priority headwater areas in the Luangwa catchment to share lessons learned and promote uptake and replication of the project approach.
6. Share lessons locally, regionally and internationally at Zambezi river basin level through various platforms and networks.

Responsibility: PMU with support from Government Departments and Partners

Related projects and programmes: Zambia Water Forum (ZAWAFE)⁵⁶, Waternet⁵⁷, and others

Output 3.1.2: Knowledge products designed and distributed to relevant stakeholders

Project knowledge products will take diverse forms including technical reports, white papers, case studies, website articles, videos, etc. These will cover technical issues and best practices experienced during project implementation, such as: a guiding manual for the WRPA development process, community-based management of WRPAs, community-based management of miombo woodland, linking incentives (such as woodlots, conservation agriculture to replace chitemene practices) to conservation and protection outcomes, gender benefits from community-based management of water resources, and wetland ecosystem service benefits from headwater protection. The knowledge products will also highlight any social issues arising from the engagement of communities in the project area.

Indicative activities include the following:

1. Identify, document and disseminate best practices and lessons from project activities through stakeholder consultations including guiding manuals for WRPA process.

⁵⁶ <https://www.zambiawaterforum.org/index.php/news>

⁵⁷ A regional network of university departments and research and training institutes specialising in water. The network aims to build regional institutional and human capacity in Integrated Water Resources Management. <https://www.waternetonline.org/>

2. Document and share traditional knowledge associated with natural resource management.
3. Prepare videos and stories of project success stories - hire a media firm to produce at least three short videos on success stories.
4. Develop case studies and project technical reports, disseminated in electronic and printed formats, to discuss specific issues in greater depth;
5. Organize project technical reports, studies and articles and make them available through project-related website(s) and in other appropriate forms for targeted stakeholder groups

Responsibility: PMU with support from relevant government Departments and other partners

Related projects and programmes: TRALARD, SCRALA, WESCZ

Outcome 3.2: Informed and adaptive project management

The project will build the capacity of project staff for effective project management at all levels of organization through establishment and sharing of clear procedures, orientation and training in line with government and WWF requirements as a GEF Project Agency.

Output 3.2.1: Project M&E plan implemented and project progress reports, results framework, midterm evaluation and terminal evaluation used to inform adaptive management

Output 3.2.1 will ensure adequate capacity for participatory and efficient monitoring and evaluation and adaptive management during project implementation. This will include the following indicative activities:

1. Training for project staff, clarification of stakeholder roles and planning processes at the Inception Workshops in Lusaka and Mafinga District, including training on WWF network standards, report writing, M&E reporting requirements, gender mainstreaming and social inclusion, and social and environmental safeguards;
2. Annual adaptive management review workshops at central and field levels to review progress and workplans;
3. Detailed planning for implementation including trimester review and planning sessions;
4. Joint annual monitoring visits to field sites;
5. Safeguard monitoring visits;
6. Training and technical support for sub-grantees on participatory monitoring and evaluation;
7. WWF/GEF reporting including biannual Project Progress Reports (PPR) and the Project Closeout Report, results framework tracking, annual work plan tracking, and quarterly Financial Progress Reports;
8. External mid-term and terminal evaluations and associated workshops plus a final project completion workshop for sharing lessons.

These activities will ensure that the project monitoring system operates effectively, systematically provides information on progress, and informs adaptive management to ensure results.

Responsibility: PMU with technical support from external consultants

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

This is a multi-focal area project aligned with the GEF-7 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.

In line 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 through participatory land use planning for the project landscape area that takes into account the protection of important biodiversity features including aquatic, forest and grassland habitats as well as the maintenance of catchment ecosystem services that benefit downstream habitats and communities.

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 15,500 ha of National Forest Reserve. The project will increase the management effectiveness of the Mafinga Hills National Forest Reserve in the Luangwa headwaters by developing a participatory forest management plan (including fire management), demarcating NFR boundaries, undertaking assisted natural regeneration of degraded forest and grassland areas, and providing training and operational support for patrolling and monitoring activities. The project will also complete a proposal for the above-mentioned WRPA including baseline assessment surveys, community consultations, proposed boundaries and regulations, and development of a resource strategy and plan.

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 integrated landscape management approach. The project will address the main threats to land conservation in the upper catchment of Luangwa, including shifting agriculture, unsustainable local farming practices, and unregulated wood offtake in woodlands, all of which have led to land and forest degradation and deforestation impacting water flow and quality in the Luangwa River catchment. The project will address barriers to reducing land degradation in the Luangwa upper sub-catchment through the roll out of local level sustainable land use practices over an estimated area of 40,000 ha.

Through the proposed Water Resource Protection Area, 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.

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

Building off a baseline of largely sector-focused and site-specific activities, 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 forest restoration in the Luangwa upper sub-catchment 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.

In the baseline, a combination of inadequate protection of the forests and river headwaters and shifting agriculture and agricultural expansion is causing deforestation and forest degradation in the Luangwa's upper sub-catchment area. There are no systems in place for catchment management, sustainable land management or community forestry practices to prevent environmental degradation that in turn will impact watershed ecosystem services and downstream ecosystems and populations. While the policy, legislative and institutional basis exists for establishing WRPAs to protect priority headwater areas such as the Luangwa's Upper Sub-catchment, this mechanism has yet to be demonstrated and shown to be workable. In the proposed GEF Alternative, the management of Mafinga Hills NFR covering much of Mafinga Hills KBA will be strengthened in order to secure the ecological integrity of key headwater streams. A participatory process will engage communities and other local stakeholders in negotiating the scope and regulations for a WRPA in the surrounding high priority headwater areas on community lands. Sustainable management of the remaining community lands in the project area will be supported through technical assistance and capacity development for conservation agriculture, community forestry and other livelihood interventions linked to participatory landscape management plans and community conservation agreements that aim to secure the ecological integrity of this key headwater area. The global environmental benefits arising are expected to include improved management effectiveness of Mafinga Hills NFR (15,500 ha); a WRPA covering at least 25,000 ha of the headwaters; and reduced threats to the forests of the NFRs and surrounding landscape areas through sustainable land and forest use over at least 40,000 ha; together contributing towards improved security of water quality and flow in the river headwaters and ecosystem service provision for the whole Luangwa Catchment.

Incremental reasoning for the GEF Alternative

Baseline	Proposed Alternative	Environmental Benefits
Component 1: Protected area management and establishment in the Luangwa headwaters		
In the targeted area of the Luangwa headwaters, forests are protected in 3 National Forest Reserves and their surrounding areas, 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, however, they have very few staff and limited resources. Current levels of management effectiveness are low, with a lack of systematic management, limited community engagement, no monitoring, little enforcement capacity and a lack of transportation and equipment for fieldwork.	Led by the District of Mafinga under the Environmental Management Department of MWDSEP, the project will support a participatory approach towards Mafinga Hills NFR demarcation, forest management plan development, patrolling and law enforcement, fire management and assisted natural regeneration, to protect the forests around the Luangwa river source and to restore degraded areas.	Increased community engagement and management effectiveness of the Mafinga Hills National Forest Reserve (15,500 ha) of the Luangwa headwaters, contributing towards enhanced biodiversity conservation, improved security of water quality and flow in the river headwaters and ecosystem service provision for the whole Luangwa Catchment.
Zambia's 2011 Water Resources Management Act defines a 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. However, no	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 the level of support for WRPA designation, and participatory	Increased protection and community co-management of the forest and land of at least 25,000 ha of the Luangwa headwaters, leading to improved security of water quality

<p>WRPAs have been designated yet, nationally. Land cover mapping of the Luangwa headwaters area in Mafinga District (Map 2 in Prodoc Appendix 1) shows that forest cover is being lost to unsustainable agricultural practices in the absence of effective protection and sustainable management, representing degradation of the watershed and threatening the water quality and natural flow regime of the Luangwa River.</p>	<p>development of proposed restrictions and regulations; and based on that, submission of a WRPA proposal to the Minister of MWDSEP, and its subsequent approval and implementation.</p>	<p>and flow in the river headwaters and ecosystem service provision for the whole Luangwa Catchment, including benefits to downstream floodplain ecosystems and human populations.</p>
<p>Component 2: Community management of the upper Luangwa Sub-Catchment (Mafinga District)</p>		
<p>A small number of villages are utilizing the forests of the NFRs, which is leading to forest degradation. This includes offtake of wood for fuel wood or charcoal and exploitation of wildlife resources. Most significantly, shifting agriculture and agricultural expansion is causing deforestation and forest degradation in the upper sub-catchment area.</p> <p>Mafinga District government and the Ward Development Committees are actively involved in the planning process and appear ready to take a monitoring role in development projects. The Wards to be involved in the project have draft Development Plans. In addition, some traditional leaders are focused on ensuring that natural resources are well managed.</p> <p>In Mafinga District, there are two large rural development projects in progress, being implemented through government structures: SCRALA – a 7-year GCF-UNDP/FAO/WFP project executed by Ministry of Agriculture through MNDP/NDA, which aims to increase climate resilience of smallholder farmers; and TRALARD, WB project that aims to improve natural resource management, sustainable and resilient livelihoods. In addition, the WECSZ has a Conservation and Forest Management project supporting the Mafinga Hills KBA.</p> <p>COMACO, a private sector entity that supports conservation farming and markets, is working in Mafinga District, but not in the specific area targeted by this project.</p> <p>Within the productive landscape, the 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</p>	<p>The project will demonstrate a participatory approach to sustainable catchment management that includes conservation agriculture, community forestry and sustainable livelihoods focused on the headwaters to reduce land and forest degradation that contribute towards the loss of biodiversity and ecosystem services.</p> <p>This will be achieved through: establishing participatory landscape management plans and community conservation agreements, followed by capacity development and technical assistance for introducing climate-resilient conservation agriculture to farmers around the Mafinga Hills NFR. The project will identify and develop market linkages for agricultural products through existing social enterprises (such as COMACO).</p> <p>Support will be provided to establish native woodlots and also to support the recovery of degraded forest areas through assisted natural regeneration (600 ha) to reduce offtake of timber for fuelwood from the Mafinga Hills NFR.</p> <p>The Mafinga District forestry staff have identified potential areas to be designated as community forest areas – these will be assessed, and some community forests will be designated and managed as an alternative to accessing resources from Mafinga Hills NFR.</p>	<p>Reduced threats to the forests of the NFRs and surrounding landscape areas through sustainable land and forest use over at least 40,000 ha, leading to reduced forest loss and degradation and reduced land degradation in the headwaters. This will contribute towards the 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 support the Luangwa Catchment's downstream floodplain habitats and wildlife, human population and local economy.</p>

designation and management of such areas.		
Component 3: Knowledge management and monitoring and evaluation		
<p>As a headwater area, water resource management needs to be considered as a key element of the overall land use planning for these areas under community tenure. Under the National Water Policy 2010, the focus is on managing water resources using the catchment as the management unit. This approach centres on empowering stakeholders in a particular locality with the ability and responsibility to make decisions regarding the management of water resources in a specific catchment.</p> <p>However, this approach to sustainable catchment management has not been demonstrated in the project area and no WPRPAs have been established in Zambia as yet. Local government at the District and Ward levels lack the experience of conducting integrated catchment management.</p>	<p>The project will establish an effective strategy for knowledge management and sharing of project lessons. Stakeholder engagement activities will be undertaken to identify appropriate knowledge products to be distributed to users at national, local, catchment and community levels. By making knowledge available to all stakeholders, the project will contribute towards the replication of the upper sub-catchment management approach, including the WRPA model and community engagement in sustainable land and forest management, within the Luangwa catchment, across Zambia, and in other Zambezi river basin countries.</p>	<p>Sharing of knowledge and lessons on sustainable catchment management for the targeted headwaters area will facilitate the replication of the project approach in other headwater areas in line with MWDSEP's approach to catchment management, and inform catchment management efforts in other countries.</p>

6) global environmental benefits (GEFTF);

Overall, the project will contribute towards:

- Protection of Miombo Woodland and associated globally significant habitats, designated by Conservation International as one of five High Biodiversity Wilderness Areas and by WWF as one of the Global 200 Ecoregions;
- Increased protection of the Mafinga Hills NFR, which is part of the Mafinga Mountains Key Biodiversity Area and the Eastern Afromontane biodiversity hotspot, hosting biome-restricted bird species including 20 Afromontane endemics and 14 near-endemics, as well as Blue Swallow *Hirundo atrocaerulea* (VU) and African Crowned Eagle *Stephanoaetus coronatu* (NT);
- Increased protection of the Luangwa headwaters, one of Africa's largest free-flowing rivers, providing watershed services to floodplain ecosystems downstream including the Luangwa Floodplains Ramsar Site, and the North and South Luangwa National Parks, whose exceptionally rich wildlife populations are sustained by the river's natural flow regime; and
- Protection of ecosystem services that benefit the communities of the Luangwa Catchment (water provision for crops and household use, fisheries, natural buffering of floods and low flows, etc).

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. These are described earlier in this document (Core Indicators table).

7) innovativeness, 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 the 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. The project also integrates conservation agriculture, community forestry and sustainable livelihoods as a suite of actions that will contribute towards sustainable catchment management within the context of participatory land use planning. While the individual elements may not be new, the demonstration of such an integrated approach within a remote and undeveloped part of Zambia supporting headwater protection is innovative. Finally, while the National Water Policy 2010 and the Water Resources Management Act, No. 21 provide for the establishment of WRPAs to protect headwater areas, this has not yet been applied, therefore this will be the first time such an approach has been demonstrated in Zambia.

Sustainability

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

Institutional Sustainability:

Through the participatory design process followed during the preparation of this project, the ownership and involvement of the relevant Government agencies has been secured, especially the MWDSEP as the project Executing Agency, plus support from the Ministry of Agriculture (for conservation agriculture) and Department of Forestry (for community forestry and NFR management), and especially Muchinga Provincial Administration, Mafinga District Administration as well as the traditional Chiefdoms in the project area. The project-supported development and management of a Water Resource Protection Area under the mandate of MWDSEP is expected to provide a high-profile model that will be used to inform the development of a national system of WRPAs being developed by WARMA with ongoing technical assistance from WWF. As such the continued institutional support of MWDSEP in sustaining the project's results is strongly assured. In addition, the project will have a strong focus on building the capacity of government staff at national and local levels to support sustainable catchment management and its component practices. This will ensure that experiences, lessons learned, and best practices generated by the project are maintained within the government structure, while integrated and, to a large degree, led by the traditional Chiefdoms at the community level.

Financial Sustainability:

The project will build on existing government, ODA and CSO programs to develop local capacity for sustainable catchment management that is rooted in the communities and highly cost-effective as a result of the local benefits associated with community forestry, NTFP collection, conservation agriculture and other sustainable livelihood options, requiring minimal external inputs. The main focus of component 2 of the project is to demonstrate 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-sustaining.

Social sustainability:

The project has a strong focus on promoting community-based natural resource management as the main route towards achieving the protection and sustainable management of the Luangwa upper sub-catchment. During the project concept development and project design, the traditional leaders in the project area have been consulted and their support secured for the project. Without this, nothing could be achieved. As such, stakeholder engagement during implementation will also take account of the role of traditional leaders in Zambian society, in line with national policies for local governance. Local

government and the Chiefs have a vital role in the preservation and control of utilization of natural forests since they can facilitate local level rules and regulations or even by-laws. It is important to recognise that local communities tend to respect more the advice and decisions of the Chiefs. Therefore, development actions are passed through the Chiefs for decision-making. Strategies to lessen the pressure on natural resources will be explained to the Chiefs as this will facilitate work with local communities.

This community-based approach will be a key factor in assuring the long-term sustainability of the project approach. 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 natural resource management groups, strengthening of cooperatives, development of marketing links for produce, and development of co-management systems with government for WRPA and NFRs that will underpin long-term engagement.

Scaling Up / Replication:

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 its approach to sustainable catchment management in other catchments and landscapes in Zambia. It should be noted that the project will not be able to address the entire catchment area from a restoration and management perspective, but it will lay the basis for replication in other high priority parts of the Luangwa headwaters through the development of guidelines for WRPA management, and supporting knowledge management and exchange visits with other headwater areas. As mentioned above, the project's demonstration of WRPA development is expected to support the rolling out of a national system of WRPAs to strengthen protection of Zambia's water resources and headwater ecosystems in due course.

Ib. Project Map and Geo-Coordinates. Please provide geo-referenced information and map where the project interventions will take place.

The project will take place in the Luangwa River headwaters in part of Mafinga District, Muchinga Province of the Republic of Zambia. The coordinates for the project target area are: E 33°4' – 33°22'; S9°52' – S10°13'

See **Annex E** for a map of the project area. **Prodoc Appendix 1** has a series of GIS maps of Mafinga District including land cover, administrative boundaries, soil, geology, topography and drainage, slope, groundwater and surface water potential, sub-basins and ranked priority catchments.

Map Disclaimer: The designations of the geographical entities and the presentation of the material do not imply the expression of any opinion whatsoever concerning the legal status of any country, territory, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

2. *Stakeholders.* Please provide the Stakeholder Engagement Plan or equivalent assessment. (Type response here; if available, upload document or provide link)

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Select what role civil society will play in the project:

- Consulted only;
- Member of Advisory Body; contractor;
- Co-financier;
- Member of project steering committee or equivalent decision-making body;

- Executor or co-executor;
 Other (Please explain)

See Stakeholder Engagement Plan (**Project Document Appendix 15**)

Summary of stakeholder consultations during project preparation

Three field trips were 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 other 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).

During the PPG phase (January 2020 – August 2021), the project development process was guided by a Project Development Team consisting of representatives from MWDSEP, WWF Zambia, WWF GEF Agency, and the international and national PPG consultants. This team met virtually almost on a weekly basis throughout the PPG and reviewed draft documents. Stakeholder consultations were guided by a PPG Stakeholder Engagement Plan (see **Prodoc Appendix 15A**). However, COVID restrictions remained in force during much of this period, therefore stakeholder consultation meetings were held virtually in most cases, and field visits were constrained to one in October 2020 and a second in May 2021. **Table 2 in Prodoc Appendix 15B** lists the stakeholder consultations conducted during the PPG phase.

A virtual Kick-Off Workshop was convened on 15 July 2020, organized jointly by Government of the Republic of Zambia, WWF Zambia and WWF GEF Agency with 33 participants. The meeting aimed to launch the project development process for the preparation of the WWF GEF Sustainable Luangwa Project Document package and GEF CEO Endorsement Request among key stakeholders by: a) Developing a shared understanding of the project's concept proposal; b) Explaining the project preparation process, draft timeline and final deliverables; c) Clarifying the roles and responsibilities of the Project Design Team (PDT), consultants and partners involved in the PPG process; and d) Providing a moderated Q&A session for feedback from participants. The participants included the EMD Director of MWDSEP and GEF Operational Focal Point, and the Permanent Secretary of MWDSEP and GEF Political Focal Point, representatives of related national agencies (incl. Dept of Water Resources Development, Dept of National Parks & Wildlife, Climate Change Adaptation, Agriculture), provincial and district government agencies (incl. Provincial Water Officer, WARMA Luangwa Catchment Manager, Provincial Agricultural Coordinator, Provincial Chiefs and Traditional Affairs Officer, District Planning Officer, District Forest Officer), NGOs (WECSZ), private sector (COMACO, Conservation Farming Unit), etc.

A virtual Validation Workshop was convened at the end of the PPG phase on 11 August 2021, organized jointly by Government of the Republic of Zambia, WWF Zambia and WWF GEF Agency with 34 participants. The meeting aimed to finalize all the key elements of the project design and secure agreement and support for the project by key partners, including the opportunity for feedback from participants. The participants included the EMD Director of MWDSEP and GEF Operational Focal Point, EMD Director of Planning (Chair), WWF Zambia Country Director; WWF US/GEF Agency, representatives of the Project Design Team, other MWDSEP and WWF Zambia staff, key partners – Dept of Forestry, Ministry of Agriculture, Muchinga Provincial government (Planning, Water Development, Forestry, Chiefs and Traditional Affairs), Mafinga District (District Council, District Administration, Planning, Forestry, Chiefs and Traditional Affairs), and representatives of COMACO, WECSZ, TRALARD, SCRALA and ZIFL.

Stakeholder Engagement during Project Implementation

The project will continue to use a participatory approach and conduct ongoing stakeholder consultations throughout the project implementation period, guided by the Stakeholder Engagement Plan (**Prodoc Appendix 15B**). Key stakeholders and their potential roles in the project are indicated in the table below. The project will seek to ensure appropriate and consistent involvement of diverse stakeholders, including women and men in the targeted communities, during every stage of project implementation. The PMU will ensure that the views and inputs of stakeholders will be taken into consideration as early as possible and throughout project implementation. The consultation processes will be continued throughout the project, in order to ensure engage and motivate the participation of beneficiaries and partners, and to maintain inclusive and diverse representation, including among women and men in the targeted communities. The PMU and project partners will ensure that the information disclosed, and the format, language and methods used to communicate will be tailored to each stakeholder group. Women and men in local communities will receive information about the project via appropriate channels chosen to reflect preferences (for example gender differences in access to technology and language), such as the internet, public notices, SMS, social media, as well as national government channels and traditional mechanisms for consultations, and in person (or virtual in person).

The stakeholder engagement plan is aligned with the Gender Analysis and Gender Action Plan (**Prodoc Appendix 12A & 12B** respectively) to ensure that views of women and other relevant groups are appropriately considered (see **section on Gender**, and **Prodoc Appendix 15B: Stakeholder Engagement Plan**).

Due to the ongoing uncertainties arising from the COVID-19 pandemic, stakeholder engagement methods will be subject to government and WWF guidance in order to minimize risks to project staff and stakeholders, as reflected in the COVID-19 Analysis and Action Framework (**Prodoc Appendix 17**) and **section on Risks**.

Stakeholder Engagement during implementation will also take account of the role of traditional leaders in Zambian society, in line with national policies that have been reviewed over the years towards strengthening local communities' involvement and participation. Local government and the chiefs have a vital role in the preservation and control of utilization of natural forests since they can facilitate local level rules and regulations or even by-laws. It is important to recognise that local communities tend to respect more the advice and decisions of the Chiefs. Therefore, development actions are passed through the Chiefs for decision-making. Strategies to lessen the pressure on natural resources need to be explained to the Chiefs as this will facilitate work with local communities.

List of key stakeholders and their potential roles in the project

STAKEHOLDER	DESCRIPTION	POTENTIAL ROLE
Ministry of Water Development, sanitation and Environmental Protection (MWDSEP) Environmental Management Department (EMD) Water Resources Management Agency (WARMA)	The Ministry is responsible for the development and management of water resources, provision of water supply and sanitation as well as environmental management.	National coordination of project under EMD, with WARMA as a technical support provider. Facilitate establishment of Water Catchment Action Groups for water catchment area management
Ministry of Lands and Natural Resources Forestry Department	The Department is responsible for research, restoration of degraded and depleted areas and extension services provided for under the National Forestry Policy of 2014 and the Forests Act No. 4 of 2015 to enforce law and order regarding the management of forests and their exploitation	Community awareness raising and mobilisation Support for the creation of Community Forest Management Groups (CFMG); Provide technical support to other stakeholders (community, NGO, Private sector) in the District Monitor activities Law enforcement with communities Support communities in the development of Forest Management Plans
Ministry of Agriculture	The Department of Agriculture is responsible	Community awareness raising and

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	for the pivotal role of providing agriculture extension services in order to promote adoption of improved farming technology for farmers to achieve high production, productivity, maintain and improve the agriculture resource base.	<p>mobilisation</p> <p>Facilitate Farmer Input Support Programme;</p> <p>Promote climate resilient forms of agriculture</p> <p>Provide technical support to other stakeholders (community, NGO, Private sector) in the District</p> <p>Monitor activities</p>
Ministry of Community Development and Social Services	The MCDSS aims at empowering people to recognize their own ability to understand themselves and their environment, change their attitudes positively, so that they can take a leading role geared at increased responsibility in improving and managing their living conditions effectively and efficiently.	<p>Community awareness raising and mobilisation</p> <p>Facilitate literacy classes</p> <p>Facilitate village banking activities</p>
District Administration (Mafinga)	The office of the District Commissioner (DC) is the highest office of the Civil Service in the district. The office coordinates government programmes and interprets and ensures that government policies and programmes are understood and implemented, respectively.	<p>The Office of the District Commissioner will host the project Management Unit</p> <p>Facilitate formulation and implementation of by-laws and policies;</p> <p>Support and facilitate natural resources management programmes;</p>
Local Government Mafinga Town Council	Overall, Mafinga council is headed by the Council Chairperson. However, In terms of administration and implementation of council policies, the council is headed by the Council Secretary, who is assisted by heads of department.	<p>Integrate CFM into district development plans</p> <p>Facilitate project monitoring through the District Development Coordinating Committee (DDCC)</p>
Local Communities	These are communities living in the proposed project sites. They include women, men and youths. The local communities also include individuals that may be working for various government institutions, NGOs and private sector and living in the targeted areas.	<p>Demand support for creation of natural resource management structures</p> <p>Identify and define boundaries for natural resource conservation and management</p> <p>Active participation in project activities</p> <p>Develop criteria and plans for equitable benefit sharing of costs and benefits</p> <p>Facilitated to develop and Implement action plans</p> <p>Support needs assessment</p> <p>Develop enterprises</p> <p>Law enforcement</p>
Cooperatives in Mafinga	These are Organisations established by local communities aimed at improving their livelihoods and especially market linkages and productivity of local communities. At the moment these are mainly involved in Farmer Input Support Programmes but with potential to be transformed.	<p>Support and facilitate community engagement in identifying market</p> <p>Identify potential service providers</p> <p>Storage and marketing of products for farmers through linkages</p>
Wildlife Education and Conservation Society of Zambia (WECSZ)	WECSZ is a charitable NGO promoting the conservation and management of natural resources, including projects supporting the conservation of Mafinga Hills KBA.	<p>Participatory field level identification of project sites and households</p> <p>Awareness raising, sensitisation and training of community members</p> <p>Participatory Planning and development of actions plans</p>
Common Markets for	COMACO is an out grower social enterprise,	Provide sensitisation and awareness raising

Conservation (COMACO)	which combines with conservation activities and good agricultural practices	extension services Support an out-grower scheme by providing markets for products Capacity development for cooperatives
Transforming Landscapes for Resilience and Development (TRALARD) Project	The Project is under the Ministry of National Development and Planning. The Ministry Coordinates and prepares national development plans. The TRALARD Project aims to integrate various sectors for coordinated outputs moving away from the sectoral approach. The project intends to address agriculture, forestry, development of district plans and alternative livelihoods. Implementation target is for the whole district.	Collaborate in building market linkages for a greater impact Joint Management meetings through the District Development Coordinating Committee (DDCC) Sharing experiences in project implementation
Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia	This initiative focuses on smallholder farmers in two agro-ecological regions covering the five provinces of Eastern, Lusaka, Muchinga, Southern and Western. It will take a value-chain approach and help to provide a number of benefits, including increased access to climate information services, support for climate-resilient agricultural inputs and practices, sustainable water management, and alternative livelihoods. Implementation target is for the whole district.	Collaborate in building market linkages for a greater impact Joint Management meetings through the District Development Coordinating Committee (DDCC) Sharing experiences in project implementation

3. Gender Equality and Women's Empowerment. Provide the gender analysis or equivalent socio-economic assessment. (Type response here; if available, upload document or provide link)

See Gender Analysis Report (uploaded) – **Prodoc Appendix 12A**

A gender analysis was conducted during project development to provide the basis for mainstreaming gender into the design of the Sustainable Luangwa project (see **Project Document Appendix 12A**). The desktop analysis at national level was based on secondary data which included national policy and legal frameworks, documents shared by the MWDSEP and Ministerial statements saved on government web pages. This was complemented with key Informant interviews mainly with the MWDSEP. Primary data and information collection at District and Community level was collected through stakeholder consultations in line with the 2018 GEF Gender Guidelines. The results from these processes have been used to compile the Gender Analysis report, which provided the basis for the **Gender Action Plan** (see **Project Document Appendix 12B**). The Action Plan ensures that the following aspects have been incorporated in the project document:

- Gender indicators in the project results framework;
- Gender responsive outcomes/activities;
- Gender sensitive budget; and
- Gender responsive yearly work plan.

Conditions at Country and District Level

Zambia has a reasonably well-gendered policy and legislative environment including in the area of natural resource management and specifically, the environmental protection and water sectors. However, in practice the country remains challenged by persistent gender inequalities. In 2017, the country was ranked 125th among 160 countries in the Gender

Inequality Index and categorized as Group 3⁵⁸ in the Gender Development Index by the United Nations Development Program^{59,60}.

The persistence of gender inequalities can be attributable to the inherent patriarchal disposition coupled with inadequacies in legal provisions, a legal system that embraces both traditional and statutory laws which, in the context of gender justice, may operate at variance with each other. For instance, access to land in predominantly rural districts such as Mafinga is based on customary tenure. As the major ethnic tribes in Mafinga are patrilineal, property and land are inherited by the male lineage. Therefore, although the Interstate Succession Act of 1989 grants male and female heirs' equal rights to inherit land and non-land assets, the application of this provision excludes land held under customary tenure.

Enforcement of legal provisions is also thwarted by lack of awareness by duty bearers about their responsibilities and roles to enable rights holders to claim their rights e.g. for awareness raising and education. Rights holders may not be fully aware of their legal rights and provisions to claim their rights.

Legal provisions to support gender equity and equality may also in some cases be deficient in ensuring that rights provided for can be claimed. For instance, although the Water Resources and Management Act 2011 acknowledges the need to ensure equitable access to water resources, the provisions for constituting Water Catchment Councils do not provide for gender representation.

Gender inequalities are also evident in decision making structures at national, district and community levels. In 2017, women held only 18% of seats in parliament⁶¹. After the 2016 national elections, women councilors elected into office accounted for only 9 per cent. Mafinga District Council has only two women councilors out of the 11 seats available, accounting for 18 per cent representation.

Unequal access to and control of natural resources is one of the causes and consequences of gender inequality. For example, under customary tenure, land is without title and falls under the jurisdiction of traditional leaders who include Chiefs and Headmen/women. Under each Chiefdom, land is devolved through families. In patrilineal societies and where land falls under customary tenure, ownership is the preserve of the male family line⁶².

The Gender Inequality Index estimates that, between 2010 and 2017, only 39.2% of women aged 25 and older had at least some secondary education, compared with 52.4% in men aged 25 and older for the same period. In high- and middle-income populations, females obtain higher completion rates of lower secondary schooling than males, but in low-income populations this reverses, with an absolute decrease in completion rates for females⁶³.

Literacy levels for females when compared to males are also lower, estimated at 83 percent for adult females and 90 per cent for adult males⁶⁴. The lower levels of education and literacy are a hindrance to women's participation in decision making and in some instances access to resources.

Specific Gender Conditions at Project Level/Community level

The predominant ethnic tribes in the project area comprise the Nyika and Lambia. Both tribes are patrilineal and evidence at community level confirms that strong patriarchal tendencies shape the gender relations between men and women at all levels. The prevalence of cultural traditions/practices such as polygamy and early marriages affirm the subordinate position of women to men. Women are not recognized as equal partners with men.

⁵⁸ Countries are divided into five groups by absolute deviation from gender parity in HDI values. Group 3 signifies medium equality in human development performance between women and men.

⁵⁹ United Nations Development Programme. 2017. Gender Inequality Index (GII). Available: <http://hdr.undp.org/en/composite/GII> in Undated. GEF-7 Project Identification Form (PIF) for Sustainable Luangwa Project.

⁶⁰ United Nations Development Programme. 2017. Gender Development Index (GDI). Available: <http://hdr.undp.org/en/composite/GDI> in Undated. GEF-7 Project Identification Form (PIF) for Sustainable Luangwa Project.

⁶¹ World Bank. 2016. *Gender Data Portal*. Gender Indicators Report for Zambia. Available: <http://datatopics.worldbank.org/gender/country/zambia> in Undated. GEF-7 Project Identification Form (PIF) for Sustainable Luangwa Project.

⁶² OECD Development Centre. 2019. *Social Institutions & Gender Index: Zambia Country Report*. in Undated. GEF-7 Project Identification Form (PIF) for Sustainable Luangwa Project.

⁶³ World Bank. 2016. *Gender Data Portal*. Gender Indicators Report for Zambia

⁶⁴ <https://countryeconomy.com/demography/literacy-rate/zambia>

The prevalence of early marriages and early pregnancies both exacerbate gender inequalities in access to education. Although a re-entry policy is in place the extent of its use to ameliorate the situation is not sufficient. The resultant low education levels contribute to the further marginalising women from the decision making arena at household and community level.

Polygamy not only entrenches patriarchy while re-enforcing the subordinate position of women to men, it can also result in limiting women's rights to for instance land, family resources and inheritance⁶⁵.

In general, power to regulate access to and control over natural resources lies in the hands of traditional authorities. At community level, decision making by the traditional authorities is believed to be made in consultation with the respective communities and male members of the community take the leading role in the dialogue. Women are marginalized in this decision making process because they do not see themselves as capable to do so, are shy and believe men are better placed in terms of knowledge.

At household level and among male headed households, men have the upper hand in terms of use of resources such as land. Natural water from rivers and streams on the other hand is a community resource and no permission is required for both men and women to enable them access it.

Project-specific gender information and considerations:

The project is aimed at enhancing the protection of the water resources, biodiversity and associated community livelihoods in the Luangwa Upper Sub-catchment, concentrated in northern part of Mafinga district of Muchinga Province. The project seeks to achieve this goal by strengthening management capacity and structures as well as involving various stakeholders as facilitators in the process. An analysis of the gender relations at community level through the Gender Analysis confirms that ensuring equal opportunity and enjoyment of benefits from the project outcomes is not guaranteed because of the overall disadvantaged position of women in relation to men.

In general, management of natural resources is the preserve of the local leaders and specifically the traditional leaders. The commonly held view is that decisions made by the traditional authorities are made in consultation with the respective communities. However community consultations confirmed that it is the male members of the community that take the leading role in the dialogue. Women, when present, often do not take an active part in the conversation as they believe men are more competent. Women may also not be as assertive as the men because they may be less educated and less exposed and therefore will shy away from the discussions.

In general, women's representation in the decision making structures at local level is limited indicating a lack of voice and consequently possibilities are diminished for women to influence planned project interventions / activities. This could result in missed opportunities for addressing women's specific needs in terms of access to and use of natural resources, and as a consequence risk undermining the potential for project interventions to benefit entire households. For instance, limiting rights to water through creation of Water Resource Protection Areas (WRPA) without the full understanding of both domestic and productive uses by women, could impact negatively on household needs and labour requirements / demands.

In addition, women's ability to influence decision making at household level also varies from household to household as well as with respect to the type of decision. Among married women, men take the lead in major decisions related to productive assets such as land and financial resources. This lack of decision making power over productive resources could limit married women's ability to participate in the project livelihood interventions. Targeting women headed households would, however, broaden the opportunity for enhanced women's participation.

However, women do have some level of decision making power over land that has been allocated to them by their spouses and concerning money that they earn on their own. This provides an opportunity for the project to reach out to married women based on the specific livelihood activities they are already involved in such as bee keeping and gardening, which their spouses are already in support of.

⁶⁵ Von Struensee, S.2004. The Contribution of Polygamy to Women's Oppression, Impoverishment- An Argument for Prohibition :<https://www.researchgate.net/publication/228261954Von>

The existence of local level structures such as cooperatives, natural resource groups and women's groups can serve as entry points for enhancing women's participation during project implementation. Statistics from the Department of Cooperatives indicate that women account for 54% of the total membership in Cooperatives.

Project-specific strategies and opportunities for gender mainstreaming and desired impact

The project will employ the following strategies to mainstream gender; ensure active and meaningful participation of both women and men and equal access to opportunities, resources and benefits from the project; and to avoid perpetuating inequalities that may have been identified:

Ensure management and coordination structures at all levels include the relevant Gender Focal points so that decision making on project implementation and learning is gender responsive;

Ensure planned project activities target 50:50 participation of women and men to provide for equal participation and gender inclusive implementation;

Ensure a gender-responsive budget, which allows for sufficient institutional capabilities to effectively implement gender-responsive activities, monitor and evaluate, and communicate about gender aspects of the project;

Provide staff with basic training on gender dimensions specific to the Project to increase understanding and capacity on gender mainstreaming for implementation;

Ensure that awareness raising activities are carried out among key stakeholders/duty bearers including traditional leaders at all levels of the project to garner their support in overcoming cultural practices and traditions that may contribute to perpetuating inequalities between women and men;

Ensure that both women and men have equal access to information regarding the project taking into account mode, language and channels of communication for effective participation of both women and men;

Ensure project activities are accessible to women by taking into account all factors which may hinder their attendance in project activities e.g. location, timing, transportation, household responsibilities and permission needed from male family member(s);

Ensure project activities are accessible to women by taking into account all factors which may hinder their ability to actively participate in project activities/dialogue forums e.g. low self-esteem/lack of confidence by using participatory approaches;

Collaborate/partner with existing local level structures such as primary cooperative societies, clubs/groups that are led by women or include women in their leadership as a means to enhancing outreach for women's participation in the project activities;

Ensure gender disaggregated data are collected during activity implementation, monitoring and reporting.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women's empowerment? (yes /no) If yes, please upload gender action plan or equivalent here.

See **Gender Action Plan** (Uploaded) - **Prodoc Appendix 12B**

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

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

improving women's participation and decision making; and or

generating socio-economic benefits or services for women.

Does the project's results framework or logical framework include gender-sensitive indicators? (yes /no)

4. Private Sector Engagement. Elaborate on the private sector's engagement in the project, if any.

The project will engage with the private sector in relation to sustainable land management in the project area, including national and local partners. Private sector organizations will assist in the processing and marketing of agricultural and forest

products in the targeted communities involving cooperatives and community forest management groups. 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 some 15 years in Eastern Zambia and has established and partnered with ~80 community cooperatives in the region, including relevant experience in Muchinga Province and Mafinga District. COMACO is a non-profit company limited by guarantee that works in partnership with government to support its efforts in service delivery, especially serving the most rural and remote communities. COMACO's core strengths include wildlife conservation through changing poachers into farmers, bee-keeping and other NTFP commodities to support sustainable forest management, extension support for conservation farming linked to community conservation agreements, and marketing of sustainable produce through value chains. It currently has two processing centres in Chinsali and Mpika (Muchinga Province), representing marketing infrastructure for involved communities that adds value through processing and packaging of products for sale to consumers. COMACO was identified as a potential project contributor and co-financier during project concept development, and further consultations at national and provincial levels during the PPG have confirmed COMACO's willingness to participate and contribute significant cofinancing towards the implementation of Component 2 in particular. Potentially COMACO can provide sensitisation and awareness raising extension services, support an out-grower scheme by providing markets for products, and provide capacity development for cooperatives.

5. Risks. Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

The key risks that could threaten the achievement of results through the chosen intervention strategy are shown in the table below. The risk rating is based on the probability (P) of a given risk occurring combined with its potential impact (I) on the success of the project. The risk assessment matrix used for scoring is shown further below. For further information on climate change related risks see the Climate Change Risk Screen (see **Prodoc Appendix 16**), and for further information on COVID-19 related risks and opportunities see **Prodoc Appendix 17**.

Social and environmental risks identified during the WWF Environmental and Social Safeguards assessment process are described separately (see further below).

Risks and proposed mitigation measures

#	Identified risk	Potential consequence	Mitigation measures	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 practices causing land and forest degradation.	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. Collaborative natural resource management arrangements	R = Medium C = Social	P = 3 I = 4

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			<p>including community forestry and community-based WRPA management that provide stakeholders with a role in resource management</p> <p>Livelihood interventions, capacity development and provision of equipment will provide socioeconomic benefits to participants</p>		
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 execution would be reduced.	<p>Capacities of relevant government department staff and community leaders will be developed, resulting in better delineation of their roles in project implementation.</p> <p>Transparent application of objective criteria for determining community / stakeholder engagement in project activities</p> <p>Stakeholder Engagement Plan and Safeguards Screening ensure clear and fair basis for stakeholder involvement</p>	<p>R = High</p> <p>C = Institutional</p>	<p>P = 3</p> <p>I = 4</p>
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.	Institutional and technical capacities of government line departments will be developed as part of the implementation process.	<p>R = Medium</p> <p>C = Institutional</p>	<p>P = 3</p> <p>I = 2</p>
4	Insufficient financial capacity limits the replicability of project interventions as well as the implementation of project-sponsored plans and strategies.	Interventions do not scale beyond the project area and lifespan. The government cannot implement plans and strategies.	An upscaling strategy will be developed and institutionalised. This strategy will focus on cost-effective implementation measures.	<p>R = Medium</p> <p>C = Economic</p>	<p>P = 3</p> <p>I = 3</p>

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5	High turnover of staff members in implementing and executing agencies.	Staff turnover could lead to the loss of institutional knowledge regarding project interventions, and less effective implementation.	<p>Relationships with the appropriate individuals in respective government bodies will be established through clear institutional mandates for roles and responsibilities in the project</p> <p>A knowledge management platform will be developed to facilitate the transfer of knowledge regarding project interventions.</p> <p>Many activities will be conducted through community-led intervention processes that carry lower risks of personnel turnover</p>	<p>R = Medium</p> <p>C = Institutional</p>	<p>P = 4</p> <p>I = 4</p>
6	Other economic developments, such as hydropower, dam or highway 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.	<p>Critical upper watersheds will be identified and related management plans will be developed to provide a basis for appropriate trade-offs.</p> <p>The project's landscape approach will promote sustainable development pathways including environmental management of development projects</p>	<p>R = High</p> <p>C = Economic</p>	<p>P = 2</p> <p>I = 5</p>
7	Unfavourable climate conditions, including current climate and seasonal variability and/or extreme weather events may negatively affect project implementation.	Access to the project landscape as well as project supported agriculture and sustainable land and water management interventions could be negatively impacted, hindering progress towards a sustainable economy for the sub-catchment's population.	<p>Current climatic variability has been taken into account in the design (see Climate Change Risk Screen in Appendix 16) and will be considered during the implementation of all interventions.</p> <p>The project will support conservation agriculture, such as drought-resilient variants of crops and other plants; fire management; and community forestry as a form of ecosystem-based adaptation. Other adaptive measures to increase the climate-resilience of local communities (eg rainwater harvesting) will be</p>	<p>R = High</p> <p>C = Environmental</p>	<p>P = 2</p> <p>I = 4</p>

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			<p>considered.</p> <p>Field operations will make use of locally-based staff supported by telecommunications as far as possible, and scheduling of field activities will take account of seasonal rains in order to avoid disruption.</p>		
8	<p>Risk of the ongoing COVID-19 Pandemic or other human disease outbreaks affecting project implementation</p>	<p>During project preparation, the COVID-19 pandemic halted all international travel and social distancing measures largely prevented PPG stakeholder meetings taking place from March 2020. At the time of writing (July 2021), the scale, duration and impact of this pandemic upon project implementation cannot be confirmed, but it has the potential to be High. (See COVID-19 Analysis and Action Plan in Prodoc Appendix 17 for further information).</p>	<p>The project will comply with government directives including travel restrictions in order to reduce health risks to project staff and stakeholders. The project will also follow WWF Zambia internal policy and directives for field activities, meetings, etc.</p> <p>Project start-up may be delayed or implementation may be paused if necessary in affected areas while government public health control measures are implemented, and resumed at a later time if feasible. The original project duration of 48 months has been increased to 60 months to provide more flexibility to cope with such risks.</p> <p>The National Steering Committee will guide project responses for ongoing situations, as required.</p> <p>Revision of the project workplan may be necessary, and an extension request may be required if implementation is substantially delayed.</p> <p>Some adaptive adjustments may be needed to project strategy (eg on community livelihood development).</p> <p>Project support for PPE and IT communications to facilitate remote working will</p>	<p>R = High</p> <p>C = Social/ Environmental</p>	<p>P = 3</p> <p>I = 5</p>

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			be provided through the project budget.		
9	Impacts of exchange rate fluctuations on the budget available to support implementation plans, and economic recession or changes in government priorities impacting delivery of cofinancing commitments for project implementation	The first year of the COVID-19 pandemic in 2020-21 saw the greatest disruption of financial markets and currencies in recent decades, including shifts in the value of the USD against local currencies, adding uncertainty to the budgeting of activities. There is a significant risk of global and national economic recession impacting cofinancing commitments for project implementation. The national government could change its priorities in relation to COVID-19 impacts on the national economy, for example to stimulate economic development. (See COVID-19 Analysis and Action Plan in Prodoc Appendix 17 for further information).	<p>The budget will be reviewed during project inception and any necessary measures taken to address any shortfalls due to exchange rate fluctuations between the GEF approved budget and project start up.</p> <p>Annual budget reviews will track and respond to subsequent fluctuations.</p> <p>Changes in the scope or timing of planned activities may be necessary through workplan adjustments.</p> <p>The National Steering Committee will monitor and address any significant financial constraints arising due to exchange rate fluctuations and any delays or failures in cofinancing delivery.</p>	R = High C = Financial	P = 3 I = 5
10	Risk that livelihood incentives are insufficient to change behaviour towards achieving intended	Project-supported CA, community forestry and other sustainable livelihood activities may not gain the traction needed to actually reduce	Incentives such as basic equipment and small loans and technical assistance for sustainable livelihood activities will be targeted in specific areas where there are clear threats to resolve, including support for any COVID19 affected	R = Moderate C = Social	P = 2 I = 2

	conservation outcomes, potentially exacerbated by COVID19 impacts	unsustainable land uses, deforestation and forest degradation, which could be exacerbated if economic hardship associated with COVID19 impacts occurs in this part of Zambia. (See COVID-19 Analysis and Action Plan in Prodoc Appendix 17 for further information).	communities. Further to PPG consultations and the Stakeholder Engagement Plan and Gender Action Plan, proposals for livelihoods will be based on consultation and agreement of local communities and traditional leaders, and socialized before uptake. As far as possible, the project will seek to embed incentives and TA within government programmes and build local capacity for line agency support to strengthen sustainability of CA, Community Forestry and other livelihood support.		
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Risk assessment matrix

Risk Assessment Matrix						
		Impact				
		5-Critical	4-High	3-Medium	2-Low	1-Negligible
Probability	5- Certain / Imminent	High	High	Substantial	Moderate	Low
	4- Very Likely	High	Substantial	Substantial	Moderate	Low
	3 -Likely	Substantial	Substantial	Moderate	Low	Low
	2 -Moderately Likely	Moderate	Moderate	Low	Low	Low
	1- Unlikely	Low	Low	Low	Low	Low

A climate change risk analysis was conducted during the PPG (see **Appendix 16**), which reviewed potential climate risks to the project intervention. At present, there is limited evidence of local impacts of climate change. During consultations, local communities mentioned the delayed start and end of the rain season (although its duration appears to be relatively unchanged) and heavy periods of rainfall as signs of change. Due to the short rainfall seasons, there is a threat to the potential for absorption of water in the Mafinga Hills, and hence potentially reduced flow or supply into the many rivers originating in the hills. A climate change vulnerability study conducted under the TRALARD Project demonstrated the vulnerability of Mafinga District, stating that Mafinga exhibits high levels of exposure, moderately high levels of sensitivity, moderate levels of adaptive capacity and, ultimately, high vulnerability. This high vulnerability is primarily driven by significant rainfall variability, prevalent drought conditions, high flood risks, low soil moisture, steep slopes, low levels of access to safe water, large distances to the electricity grid and cities, low household wealth, poor infrastructure development and low surface water

availability⁶⁶. The main operational risks to the project are the potential for delay and disruption of project activities as a result of periodic flooding events; potential impacts on farmers yields due to flooding or drought periods; and the increased risk of fires associated with drought periods affecting forest conservation and restoration efforts in the project landscape. These risks and mitigation measures are shown as Risk 7 in the risk **table** above.

Social and Environmental Safeguards

The Project will comply with WWF's Environmental and Social Safeguards Framework, as detailed in the Safeguards Integrated Policies and Procedures (SIPP). The Project has been screened as Category "B" given that it is essentially a conservation initiative, expected to generate significant positive and durable social, economic, and environmental benefits. Any adverse environmental and social impacts are expected to be minor and site specific and can be mitigated.

An Environmental and Social Management Framework (ESMF), including a Process Framework (PF), has been prepared to define procedures for managing the project activities' potential environmental and social risks and impacts (*this document will be uploaded to the GEF Portal upon completion*).

The Project is required to comply with WWF's Standard on Environment and Social Risk Management, the Standard on Grievance Mechanisms, and the Standard on Stakeholder Engagement.

In addition to the aforementioned standards which are applicable to all WWF GEF Agency projects, this Project has triggered the following standards:

Standard on the Protection of Natural Habitats – Overall, activities of the project will produce significant conservation benefits and any potential adverse environmental impacts on human populations or environmentally important areas are expected to be very limited. While there shall be no conversion or degradation of natural habitats, this Standard has been triggered as a precaution since there will be site-specific activities relating to productive landscapes under Component 2.

Standard on Restriction of Access and Resettlement – There will be no land acquisition or involuntary resettlement of individuals and/or families under the proposed project. While the proposed project will not cause displacement of people from their homes, the Standard is triggered because regeneration activities, the creation of the Water Resource Protection Area, and management plans for MHNFR and community lands may restrict or prohibit the extraction of resources in certain areas, thereby restricting access to resources required for the subsistence and cultural maintenance of the affected populations. A Process Framework has been prepared as part of the ESMF to conform to WWF's Environment and Social Safeguards Framework.

Standard on Indigenous People – As a precautionary approach, this Standard is triggered by various tribal groups located in the target project areas. These include the chiefdoms of Mwenechifungwe, Muyombe, and Mwenewisi, in addition to other tribes who have settled in Mafinga including the Tumbuka, Lambiya, Fungwe, and Nyika. An initial assessment points out that their social and cultural identity, although distinct, does not make them vulnerable or disadvantaged, as all Zambians belong to a tribe. Therefore, although this safeguards standard is triggered, a separate Indigenous Peoples Planning Framework will not be prepared.

Standard on Community Health and Safety – This Standard is not triggered as the project is highly unlikely to have an impact on community health, safety, and security.

Standard on Pest Management – The activities are not expected to trigger the Standard on Pest Management. While the project might support community woodlots (under Component 2), it will not support the procurement or use of pesticides or other agricultural chemicals, or lead to the increased use of such chemicals. The ESMF will include guidance to this effect.

⁶⁶ Petrie, B., Rawlins, J., Tsilik, P., Chapman, A., Kalaba, J. (2018). Transforming Landscapes for resilience and Development in Northern and Southern Zambia (TRALARD-Zam) Project: Landscape Vulnerability Decision Support Framework. One World Sustainable Investment, Cape Town, South Africa

Standard on Cultural Resources – This Standard is not triggered as the project is highly unlikely to have an impact on cultural resources.

A Safeguards and Monitoring, Evaluation and Learning (MEL) Officer will be hired in the PMU to implement the ESMF and PF and conduct compliance monitoring, supervision, and reporting. The EAs will implement the ESMF and associated monitoring, and where there might be gaps in capacity, the Safeguards and MEL Officer will build capacity through trainings and collaboration.

A project-level grievance mechanism will be developed in the first six months of implementation, in line with the guidance and principles established in the ESMF/PF. The WWF GEF Agency's grievance mechanism will be available throughout the project lifecycle, and accessible to stakeholders and project-affected peoples.

The final ESMF (including PF) and the Stakeholder Engagement Plan (SEP) will be disclosed on the websites of the EAs for a 30-day public disclosure period and final documentation will be disclosed in country in a locally accessible manner for at least 30 days in order to issue the Safeguards Compliance Memo prior to Agency Approval.

6. Institutional Arrangement and Coordination. Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

Overview of Implementation Arrangements

The proposed executing structure (**Figure 7**) includes WWF as the GEF Agency, [Environmental Management Department under the Ministry of Green Economy and Environment \(MoGEE\)](#) as Lead Executing Agency and WWF Zambia Country Office (WWF ZCO, a program office of WWF International) to provide technical support for delivery of outputs as well as financial and administrative management. On behalf of government with approval from the project National Steering Committee, WWF-ZCO will sub-grant to potential project delivery partners. [MoGEE](#) and WWF ZCCO will carry out due diligence of sub-grant partners to review past performance and profiles, develop detailed work plans and budgets to be reviewed and approved first by [MoGEE](#) and WWF ZCO, and then by the GEF National Steering Committee. Contracts will then be developed with each sub-grant partners, countersigned by the partner, WWF ZCO and [MoGEE](#).

[Due to the recent presidential elections in Zambia in August of 2021 and the ensuing restructuring in government in accordance with government gazette notice No. 1123 of 2021 on the statutory functions, portfolios and composition of government, at the time of re-submission, EMD, formerly under the Ministry of Water Development, Sanitation and Environmental Protection, has now moved under the Ministry of Green Economy and Environment. EMD will continue to be Lead Executing Agency under the new Ministry, with the same EMD team that was involved during project identification and development and who will also be involved in project execution. This section and the executing arrangements diagram have been updated to reflect this change accordingly.](#)

Project Management Unit

A Project Management Unit (PMU) will be established to conduct the day-to-day operations and coordination of the project. The PMU based in Mafinga shall comprise of 3 full-time permanent staff to be recruited competitively or seconded by government: (1) the Catchment Management Expert/Project Manager, (2) Community Engagement and Gender Officer, and (3) Safeguards & Monitoring, Evaluation and Learning Officer.

Three additional support staff will provide assistance to the PMU. These include a Grants Accountant (responsible for financial administration) with 50% time on project and 50% GEF Project budget funded (based out of WWF Zambia

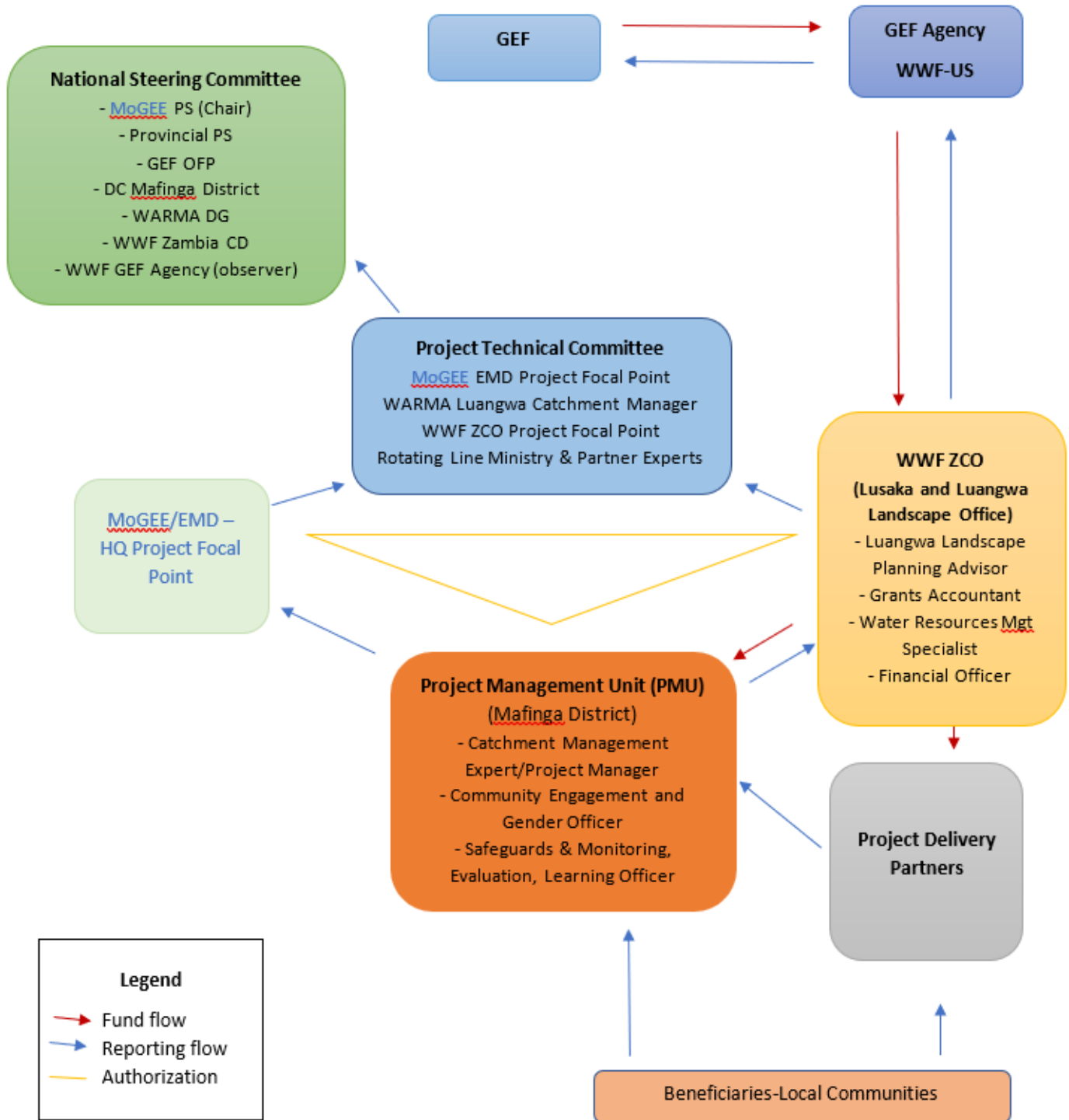
Lusaka office), the Luangwa Landscape Planning Advisor with 30% time on project and 30% GEF Project budget funded (based in the WWF Field Office in Luangwa Landscape) and the Water Resources Management Specialist with 20% time on the project and 20% GEF Project budget funded (based in the WWF Zambia Lusaka Office). TORs for PMU positions can be found in **Appendix 6**.

The PMU will be housed by the existing government structures in Mafinga District. It will administratively and technically report to and be accountable to the [MoGEE/EMD-HQ](#) and will coordinate with the focal point in WWF Zambia. [MoGEE](#) and WWF shall counter-sign all necessary authorisations including financial transactions. The funds will flow from WWF Zambia office to the PMU and to the partner institutions implementing project activities, according to government and WWF procedures and guidelines.

The PMU will be responsible for: (i) preparing the overall project work plan; (ii) preparing annual budgets and work plans; (iii) managing project expenditure in line with these annual budgets and work-plans; (iv) recruiting additional partner institutions and specialist support services to implement outputs and activities; (v) ensuring technical quality of products, outputs and deliverables; (vi) producing quarterly expenditure and cash advance requests from project partners; (vii) reporting to the Project Technical Committee (PTC), National Steering Committee (NSC) and the WWF GEF Agency on project delivery and impact via six-month and yearly Project Progress Reports; and (viii) liaising and working closely with all government District line ministries and partner institutions to link the project with complementary national, regional and local programs and initiatives.

Figure 7. Project Executing Structure

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Abbreviations: PS-Permanent Secretary, CD – Country Director, DC – District Commissioner, DG – Director General, WWF ZCO – WWF Zambia Country Office

Project Technical Committee

A Project Technical Committee (PTC) will be constituted to provide technical expertise and inter-sectoral coordination at national level. The composition of the PTC shall include a focal point from the Environmental Management Department of **MoGEE**, Luangwa Catchment Manager from WARMA and a focal point from WWF ZCO as permanent members, with technical experts from other line ministries and partners brought in as project needs arise. This committee will review the Annual Workplan and Budgets, Procurement Plan and Annual Progress Reports for submission to the National Steering Committee for review and approval.

National Steering Committee

A National Steering Committee (NSC) will be constituted to serve as the project oversight, advisory and high-level decision-making body for the project. The core members of the NSC will include **MoGEE** Permanent Secretary (Chair), Provincial Permanent Secretary (co-chair), GEF Operational Focal Point, District Commissioner of Mafinga District, Director General of WARMA, WWF Zambia Country Office Director, and WWF GEF Agency as an observer. Other members shall be co-opted from the government line ministries, cooperating partners, NGOs, CBOs and other institutions as project needs arise. The NSC will ensure that the project remains on course to deliver the desired outcomes of the required quality. The NSC provides overall guidance and policy direction to the implementation of the project and provides advice on appropriate strategies for project sustainability. The NSC will play a critical role in project monitoring and evaluation by assuring quality of project processes and products. It also advises on any conflicts within the project or to any problems with external bodies.

Implementing Agency

WWF-US, through its WWF GEF Agency will: (i) provide consistent and regular project oversight to ensure the achievement of project objectives; (ii) liaise between the project and the GEF Secretariat; (iii) ensure that both GEF and WWF policy requirements and standards are applied and met (i.e. reporting obligations, technical, fiduciary, M&E); (iv) approve budget revisions, certify fund availability and transfer funds; (v) organize the final evaluation and review project audits; and (vi) certify project operational and financial completion.

WWF Zambia Country Office (ZCO)

The WWF Zambia Country Office (ZCO) will handle the financial administration and management on behalf of the Ministry of **Green Economy and Environment**, and will provide technical support to the delivery of outputs under Components 1, 2 and 3. This modality is proposed for the following reasons:

The Project Development Team explored various options for selecting the most appropriate institutional arrangement for the project. There are other organizations present and active in implementation of conservation projects in Zambia, and several of these were consulted (including COMACO, WECSZ, FAO, UNDP) regarding their interest and capacity to carry out both financial and administrative management of the project as well as technical delivery of outputs, but these did not materialize.

Financial and administrative project management: based on the consultations and assessments done for identifying the most appropriate institutions to undertake financial and administrative project management on behalf of **MoGEE**, WWF Zambia is the only agency willing, with the capacity and stake in the project, and with robust financial structures, procurement systems, policies and procedures that meet the GEF's minimum fiduciary standards, to fulfil this role.

Technical delivery of outputs: COMACO and WECSZ are identified as potential sub-grant partners in outputs related to climate-smart conservation agriculture and awareness raising activities. However, consultations with WECSZ and COMACO identified that they do not have expertise on WRPAs, and WCS and ZSL do not work in the Mafinga Catchment nor have experience in WRPAs. WWF Zambia is one of the few NGOs working in the Luangwa Catchment

on community-based natural resource management and protected area management, but the *only organization* that also has the technical expertise and experience working on Forestry policy and governance at national and local levels and leading Water Resource Protected Area work with government.

It is against the background above, that WWF Zambia will provide the following technical support to the PMU:

The Grants Accountant will do financial management support for activities implemented by the PMU including budget development and monitoring, producing timely and quality reports for the WWF GEF Agency and reconciliation of activities and their close out. The staff will ensure activities are implemented in compliance with both WWF and GEF policies and requirements. The Accountant will work closely with Sub-grantees under Output 1.1.4, 1.2.1 and 2.1.2 to manage and monitor the sub-grants and ensure that efficient accounting and finance systems exist that will accord maximum support as well as act as a platform for providing sound financial information to the Project executors, implementors and donor.

The Luangwa Landscape Planning Advisor will provide support to the PMU to develop technical scopes of work, terms of reference, plans and partnerships to implement project outputs, with technical inputs to develop the planning for Mafinga Hills NFR (Output 1.1.2); the WRPA development process, land cover land use (LCLU) surveys, and ecological and socio-economic assessments, citizen science networks for monitoring river health, drafting of Nature Based Solutions concept notes, and to develop desired landscape scenarios (visions) and engage with the local government, traditional leaders and communities to negotiate a designed outcome to support the delivery of Output 1.2.1; support the PMU to design a roadmap to create the participatory landscape management plans (PLMPs) and support the drafting of the PLMPs to deliver Output 2.1.1; facilitate and engage in strategic advocacy activities, representing the project on high governmental and traditional authority levels within the wider Luangwa Landscape; and provide comprehensive CBNRM (Community-Based Natural Resource Management) and social development guidance to the project on strengthening relationships, market-based incentives and community influence over the equitable and sustainable management of natural resources.

The Water Resources Specialist will provide GIS expertise to deliver Output 1.1.1 and Output 1.2.1 activities will include mapping of boundary demarcations for Mafinga Hills NFR and the WRPAs. In addition, the Specialist will be part of the WRPA technical team and will provide support for the data and information collection for the water resource/hydro-geomorphology surveys, and surface water infrastructure assessments to deliver Output 1.2.1.

The total project budget accessed by WWF Zambia for support to technical delivery of outputs above and financial administration and management of the project is \$215,901. WWF Zambia's comparative advantage for undertaking these project inputs is based on its long track record of providing technical support to the government of Zambia in relevant technical areas, as follows (see Baseline Scenario section for further information):

WWF has been at the forefront of supporting the government of Zambia on identifying and mapping potential WRPAs. As a partner to WARMA and MWDSEP, WWF has led the efforts for this ground-breaking pilot initiative in Zambia and brought in international expertise from the network to advise on how to operationalize/roll out WRPA implementation. As this work is being done for the first time in Zambia, WWF Zambia produced the first hydrological atlas (HydroATLAS-Zambia), the data for which have been used to inform the Water Resource Protection Area (WRPA) assessment conducted by WARMA and WWF-Zambia in 2019. For more information and all HydroATLAS-Zambia data related to this project please visit <https://wrpa-zambia.weebly.com/>.

WWF Zambia has played a leading role in strengthening the Forestry policy and governance at both the national and local levels. Furthermore, Government in partnership with WWF Zambia launched the 1.2 million Euros Forests Landscape Project. WWF Zambia is implementing the program in close collaboration with the Forestry Department,

Ministry of Lands and Natural Resources. Additionally, WWF has worked for more than two decades, collaborating with local stakeholders to foster participatory processes around community-based mapping, land use planning, monitoring of natural resources, wildlife protection, community wellbeing and the Forest Landscape Restoration (FLR) Project funded by BMZ/EG Germany.

Coordination with other relevant GEF & non-GEF Initiatives

The National Steering Committee including national government agency representatives identified by the EA (MWDSEP) will provide overall oversight and alignment with other Government agencies and ongoing GEF projects (see section 2.3 on institutional arrangements). There are several GEF and non-GEF projects currently being implemented in Zambia that focus on protected area management, sustainable land and forest management, catchment management, and climate change adaptation. The project will coordinate with and build on these ongoing projects and initiatives in order to benefit from lessons learned on relevant practices, and to avoid potential overlaps. Relevant lessons have been extracted from related completed and ongoing projects and these are summarized in **Prodoc Appendix 13**.

GEF-funded projects

See **Prodoc Appendix 14** for a Table summarizing all related GEF projects, the most relevant of which are described below.

There are two related national GEF-7 projects. The first of these, which was recently approved, is the **FAO/GEF Climate Change Adaptation in Forest and Agricultural Mosaic Landscapes (GEF-7 #10186 LDCF)**, which WWF Zambia will support during execution. The project has four components: 1) Strengthening the management capacity within productive landscapes for climate resilience; 2) Promoting innovations and technologies in forestry value chains; 3) Enhancing diversified farm-based livelihood strategies for climate resilience; and 4) Project monitoring, evaluation, and dissemination of results. The project objective is to increase the resilience of productive landscapes and rural communities through organizational innovations and technology transfer for climate change adaptation, and its expected impact is “climate change vulnerability reduced and resilience in forest /farm landscape mosaics and amongst rural communities in 4 districts in Zambia's Eastern (in Petauke and Nyimba districts) and Western provinces”.

The second GEF-7 project (in preparation) is the **UNEP/GEF Ecosystem conservation and community livelihood enhancement in North Western Zambia (GEF-7 #10192)**. Both projects are led by the Ministry of Lands and Natural Resources (Forestry Department), and in both cases, there are strong thematic convergences concerning the sustainable management of forest resources, sustainable agriculture, improved livelihoods and climate resilience, therefore regular coordination and sharing of experiences will be beneficial.

There are at least six national and four regional GEF projects that are currently in progress that have varying degrees of relevance. The most significant of these are as follows:

The **Zambia Integrated Forest Landscape Project (ZIFLP) (GEF-6 #9213)** 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 as a child project of the GEF-6 Global Wildlife Program, while the remainder is being sourced as co-financing, largely through the BioCarbon Fund – Initiative for Sustainable Forest Landscapes (ISFL), a pioneering pilot programme designed to incentivise and enable countries to develop and implement land-use plans and policies which reduce deforestation and carbon emissions across large jurisdictions. These areas may include forests, agricultural regions, and other types of mixed land-uses. ISFL is a pilot mechanism delivered by the World Bank, currently operating in five countries including Zambia.

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. Coordination will be held with the executing agency of ZIFLP

(MNDP) 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 (GEF-6 #8021)** has received US\$7,334,246 from GEF and US\$26,562,630 in co-financing and is being implemented in 2017–2022, coordinated by MWDSEP's EMD. The baseline contribution for EMD is estimated at USD 175,000. 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, including: the construction of sedimentation, siltation and erosion control structures, planting of woodlots, adoption of conservation farming methods primarily focused on water harvesting and weed control through mulching, finalisation of a community-based Charcoal and Timber Licensing System (CBCTLS) for community forests, and development and implementation of Game Management Plans (GMP) for three PAs. Coordination between these projects will be achieved through their shared executing entity (EMD).

In addition, a regional UNEP / GEF project involving four countries, IUCN and TNC: **Biodiversity conservation, sustainable land management and enhanced water security in Lake Tanganyika basin (GEF-7 #10388)** was approved in June 2020. The project will enhance transboundary cooperation and SAP implementation through sustainable fisheries co-management, biodiversity conservation and restoration of degraded landscapes in selected key biodiversity areas of Lake Tanganyika. In Zambia, the project will be led by MWDSEP, therefore coordination will occur through this Ministry. This five year project will receive US\$ 14,599,083 from the GEF.

Building the Resilience of Local Communities in Zambia through the Introduction of Ecosystem-based Adaptation (EbA) into Priority Ecosystems, including Wetlands and Forests (GEF-6 #8034 LDCF) led by MLNR. This project will increase the resilience of local communities to the effects of climate change through: i) increasing the institutional capacity of national and local government; ii) revising policies and strategies to mainstream climate risk considerations; iii) demonstrating Ecosystem-based Adaptation (EbA) interventions; and iv) integrating EbA and integrated environmental management into development planning. These EbA interventions will be focused on wetland and forest ecosystems in the Bangweulu Wetlands (located in Northern Province) and surrounding areas. EbA is highly relevant to the current project, as climate change resilience of the headwaters area will be important both for local communities and the watershed services provided to the overall river basin.

Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II in Zambia (SCRALA) is a US\$32 million 7-year GCF-UNDP/FAO/WFP project executed by Ministry of Agriculture through MNDP/NDA 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. Coordination will be achieved through the NSC at national level and also the PMU at a technical level.

Other relevant projects and initiatives

WWF's projects in the Luangwa catchment are coordinated by their Luangwa Landscape Planning Advisor, to whom the GEF Project Catchment Management Expert will be reporting together with the managers of the other projects. These projects can be summarized as follows (see baseline section above for further information). First, WWF-Zambia with funding from WWF Netherland office (69,150 Euros) intends to build on its recent work in supporting water resource management by expanding lobbying and advocacy efforts for protecting the middle and upper Luangwa headwaters with the aim of protecting at least 30% of the Luangwa River through MWDSEP and scaling up WRPAs to cover additional key river stretches in Zambia by 2022. The second element of WWF Zambia's programme for the Luangwa is *Inclusive Conservation for*

Environmental Compliance supported by WWF Netherlands (151,800 Euros). Through this work, WWF Zambia has increased CSO participation and voice in water resources management through the training of 56 CSOs and Community Radio Stations in the Luangwa and Upper Zambezi River Catchments. 38 of these CSOs were [sub-granted in partnership with the Zambian Governance Foundation](#) to implement action plans and empower communities in the Luangwa and Upper Zambezi Catchments. This included WECSZ and the radios in the surrounding areas such as ISO FM and Mpika Radio that have coverage in Mafinga. The watchdog roles of CSOs were also strengthened due the interventions and creation through an informal functional CSO coalition to review and feed into 5 ESIA processes, 3 of which were for infrastructure developments in the Luangwa Catchment. Advocacy wins included the [Luangwa remains a free flowing river](#).

The third element of WWF's Luangwa programme is *Improving Community Management of Natural Resources in the Luangwa Catchment* (Jan 2021 to Dec 2022; GIZ 700,000 Euros) for selected tributaries of the Luangwa River and sustainable fisheries management with a focus on ten small dams (downstream of the GEF project area).

Transforming Landscapes for Resilience and Development in Zambia (TRALARD) (\$100 million over 2019-2025) aims to reduce livelihood vulnerability and enable climate-resilient growth in key economic sectors. The Project Development Objective is to improve natural resource management in the northern region of Zambia to support sustainable livelihoods, and in the event of an eligible crisis or emergency, to provide immediate and effective response to the eligible crisis or emergency. The project is part of the Resilient Landscapes for Development Program in African Drylands and contributes to the landscape pillar of the Africa Climate Business Plan, with a focus on reducing climate risks and vulnerabilities through a mix of interventions. The Project will be implemented in a phased approach. Targeted provinces and districts will be rolled into the programme based on resource mobilization. The Phase I focus is on Luapula, Muchinga and Northern Provinces, and will deepen current investment in Western province with subsequent scaling up to other parts of the country. Coordination will be achieved through the NSC at national level and also the PMU at a technical level.

The Additional Financing (AF) loan and grant totalling US\$14.6 million from the **World Bank's Strategic Climate Fund (SCF)** for the extension (until 2022), and scaling up, of the Government of Zambia's **Pilot Program on Climate Resilience (PPCR, Phase II)**. The PPCR is supporting climate-resilient development planning and targeted investments in climate-proofing roads and canal systems, expanding climate information services, and building the climate resilience of rural populations along the Kafue and Barotse sub-basins of the Zambezi River.

USAID provides a wide range of support to Zambia, of which the most relevant is the **Integrated Land And Resource Governance Program (ILRG, 2018-2021)**. ILRG aims to bolster the ability of local organizations and communities, district and national government, and traditional leaders to document land and resource rights, and to use this data to inform land-use planning and development decisions. USAID ILRG helps integrate best practices into land and resource policy and legislation through consultative processes. It also works with local partners to pilot progressive legislation and regulations that promote community-based management of natural resources. Results of these actions will help lead to an improved national policy that ensures adequate tenure rights and economic benefits to communities. Led by Tetra Tech ARD, in Eastern, Lusaka, and Muchinga Provinces. In addition, the **United States Forest Service Participating Agency Program Agreement (2010-2020)** has provided valuable capacity building support for wildland fire management, forest monitoring and management, climate change, and protected area management, mainly for Eastern Province. Coordination will be achieved through the NSC at national level.

USAID is funding the **Community Forest Program (CFP)** in Muchinga and Eastern Provinces. This is a 5-year, US\$14 million program with three objectives: (i) reduce emissions from deforestation through Community Based Natural Resource Management (CBNRM); (ii) reduce poverty through the development and scaling up of sustainable community-based livelihoods and forest-based enterprises; and (iii) build local and national capacity of key stakeholders and institutions to implement (CBNRM) and REDD+ interventions. Coordination will be achieved through the NSC at national level.

The Government of Finland is funding the **Decentralised Forest and other Natural Resources Management Program (DFNRMP)** in Muchinga and North-Western Provinces of Zambia. The €4,384,732 program is a three year collaboration between the Government of Finland and Government of Zambia that seeks to develop the enabling framework and to

strengthen and operationalize devolved integrated sustainable forest and other natural resources management systems - including improved livelihoods - in six districts and communities.

GIZ/Federal Ministry for Economic Cooperation and Development (BMZ) are working in the Lower Kafue Sub-catchment under the programme **Sustainable Water Resources Management and Agricultural Water Use in Zambia**. **The Accelerate Water and Agricultural Resources Efficiency (AWARE) Programme** was launched in February 2019. Its objective is to enhance climate-smart water resources management and efficient agricultural water use for smallholders in the Lower Kafue Sub-Catchment, ensuring a gender sensitive approach. To achieve the objective, AWARE works on the national as well as decentralised level on water resources management through WARMA, and supports more than 11,000 smallholders in the sub-catchment to improve their agricultural water management practices. Coordination will be achieved through the shared executing entity (MWDSEP) and WARMA's engagement especially in Output 1.2.1 of the current project on piloting WRPA development and management.

In addition, **GIZ SEWOH Initiative** is a close collaborator and supporter of COMACO, a key partner for Component 2 of the current project⁶⁷.

The UK Department for International Development (DfID) is supporting the **Climate Smart Agriculture Zambia Programme 2016- June 2021** (led by the Conservation Farming Unit), and **the IWT Challenge Fund** – two ongoing projects under the Challenge Fund include Zambia: **IWT063: Combatting cross-border illegal wildlife trade in the Lower Zambezi, Zambia** (Conservation Lower Zambezi lead, 2019-2021); and **IWT060: LeAP: Learning and Action Platform for Community Engagement Against IWT** (IIED lead; 2019-2021). The CFU started operations in April 2021, coordination will be achieved through the NSC and PMU.

The North Luangwa Conservation Programme (NLCP) is a partnership between the **Frankfurt Zoological Society** and the Zambia Department of National Parks and Wildlife to conserve 22,000 km² of the North Luangwa ecosystem. Founded in 1986, this ongoing partnership focuses on protected area management and law enforcement. Coordination will take place through the PMU, to inform PA management in Component 1.

The Forest and Farm Facility (FFF) is a multi-donor partnerships' programme, hosted by FAO and working in numerous countries worldwide, including Zambia. The goal of the FFF is "to support forest and farm producers and their organizations to enable 'Climate Resilient Landscapes and Improved Livelihoods'. These producers are key players in reducing poverty and significant contributors for achieving the Sustainable Development Goals (SDGs) and Nationally Determined Contributions (NDCs) as part of the Paris Agreement. In Zambia the FFF work focuses on greening the wood fuel value chains in which a number of innovative approaches and technologies have been developed and successfully piloted – one key innovation being a Participatory Guarantee System for certifying sustainable charcoal. Building on the success of phase I, FFF phase II (2018 – 2022) will support greater inclusion of producers in policy initiatives; and will increase business and technical capacity of FFPOs (enterprise development and business incubation) so these can become profitable while scaling up their support to a greater number of members especially poor and vulnerable marginalized groups. This ongoing initiative in southern and northwestern Zambia can provide lessons in forest product value chains.

The Sustainable Intensification of Smallholder Farming Systems in Zambia (SIFAZ) US\$12 million, is implemented by the Ministry of Agriculture and technically supported by FAO as part of the 11 European Development Fund National Indicative Programme (NIP) 2014-2020 for cooperation between the Republic of Zambia and the European Union. It contributes to the NIP's objectives of (1) improved and sustainable rural livelihoods, (2) improved nutrition and food security, and (3) improved environmental sustainability. The 4.5 year (April 2019 – September 2023) project will contribute towards reducing rural poverty and improving rural livelihoods in Zambia. The project will have an impact on increasing smallholder farmers' productivity, income and employment opportunities while pursuing a gender sensitive approach. Its objective is to improve sustainable and climate smart crop production and land management practices.

⁶⁷ http://www.bmz.de/en/issues/Food/gruene_innovationszentren/sambia/index.html

The Nsumbu National Park area shores of Lake Tanganyika has been identified as a prospective site for fisheries co-management building on the activities initiated by TNC and the Frankfurt Zoological Society⁶⁸. Conducted in partnership with the Zambian Department of National Parks and Wildlife, the **Nsumbu Tanganyika Conservation Project** will build on work conducted by the organisation '*Conservation Lake Tanganyika*', focusing on PA management with an emphasis on conserving the elephant population, as well as community engagement and capacity building around conservation. It is financed by the Lion Recovery Fund, U.S. Fish and Wildlife Service, and the GIZ-Partnership against Poaching and Illegal Wildlife Trade in Africa and Asia. Coordination with this ongoing initiative will take place through the NSC and PMU, and may provide useful lessons on community engagement and livelihoods such as ecotourism.

7. Consistency with National Priorities. Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- National Implementation Plan (NIP) under POPs
- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- Others

The project is fully aligned with, and contributes to, national priorities for biodiversity and sustainable land management, and contributes directly towards the Republic of Zambia's implementation of international multi-lateral environmental agreements (MEAs), especially the Convention on Biological Diversity (CBD), the UN Convention to Combat Desertification (UNCCD), the Convention on Wetlands of International Importance (Ramsar Convention), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the UN Framework Convention on Climate Change (UNFCCC) and its Paris Agreement in 2015. The Government's development goals support the national implementation of these MEAs and also complement efforts from international development partners for socio-economic and environmental benefits.

The project will contribute directly towards the *UN 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's upper sub-catchment in Zambia. The project will also contribute directly to SDG 6 on water and sanitation (Target 6.6 states "by 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes"). In addition, the proposed project will contribute towards ending poverty in all its forms (SDG 1), to achieving gender equality and empowering all women and girls (SDG 5), and to take urgent action to combat climate change and its impacts (SDG 13) through adopting climate-resilient approaches to community livelihood diversification and natural resource management.

The project is aligned with the strategies and plans described in the Table below. See **Section 1.4** for national policy analysis details, and **Appendix 18** for a table of legislation and policies relevant to the project.

⁶⁸ <https://fzs.org/en/projects/nsumbu/>

Alignment of the project with national strategies and plans

National Strategies/Plans	Alignment
The 7 th National Development Plan 2017–2021 (NDP 7)	<p>The NDP 7 emphasizes an integrated development approach to create a diversified and resilient economy for sustained growth and socio-economic transformation driven, among others, by agriculture, natural resource management, climate and low carbon development pathway. This is in support of Smart Zambia Transformation Agenda 2064 in line with the UN 2030 Agenda for Sustainable Development and the African Union Agenda 2063. Under <i>Development Outcome 7: Improved Water Resources Development and Management, Strategy 1: Enhance Rainwater Harvesting and Catchment Protection</i>, the Government will promote protection and improvement of catchment areas, to protect recharge zones and river sources. 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. The proposed project contributes directly to the achievement of these highlighted priorities.</p>
National Environmental Action Plan (1994)	<p>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.</p>
National Conservation Strategy (1985)	<p>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.</p>
National Biodiversity Strategy and Action Plan 2 (NBSAP2) (2015) under UNCBD	<p>The NBSAP 2 includes the following goals of direct relevance to the current project (note – some other goals are also relevant):</p> <p>B5: By 2020, the deforestation rate in Zambia is reduced by at least 25%;</p> <p>B7: By 2025, areas under agriculture, aquaculture and forestry (forest reserves, parks, Game Management Areas, forest concessions, open areas) are managed sustainably, ensuring conservation of biodiversity;</p> <p>C10: By 2020, Zambia's Protected Area (PA) network is rationalized to achieve representativeness and ecological connectivity at landscape level;</p> <p>D15: By 2025, Zambia takes deliberate actions to protect critical ecosystems of the Zambezi, Kafue, Chambeshi, Bangweulu and Luangwa watersheds.</p> <p>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</p>

	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.
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.
Zambia's Land Degradation Neutrality National Report (2019)	The proposed project is well aligned with and will contribute to several targets under this report, including: (i) by 2030, the deforestation rate in Zambia is reduced by at least 50%, (ii) by 2030, 50% of agricultural land is under sustainable agricultural practices compared to 2015, (iii) by 2030, increase forest cover by 5% compared to 2015, (iv) by 2030 Catchment Management Plans for the six (6) catchments of Zambia incorporate measures to mitigate or prevent land degradation developed.
Third National Communication to the UNFCCC	The Third 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.

8. Knowledge Management. Elaborate the “Knowledge Management Approach” for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

The project will make use of best practices and lessons learned to inform project design and implementation processes in order to build on past experience and maximize sustainable conservation outcomes. Similarly, best practices and lessons learned from this project will be documented and shared by the Project Management Unit in order to inform replication and upscaling of the project approach in other river headwater areas. Knowledge management and communications activities are presented and budgeted in Component 3 of the project, and tracked in the Results Framework.

During the project development phase, lessons and best practices from project stakeholders and related initiatives were reviewed and used to inform the project design. These lessons and best practices have been summarized in Prodoc **section 3.7**, with additional material presented in **Appendix 13**.

During project implementation and before the end of each project year, knowledge produced by or available to the Project will be consolidated from project stakeholders and exchanged with communities and other local and national stakeholders. This collected knowledge will be analyzed alongside project monitoring and evaluation data at the annual adaptive management meetings, where the project's theory of change will be reviewed, and modifications to the annual work plan and budget will be drafted. This adaptive approach to project management will ensure that it takes account of implementation

experiences, stakeholder inputs, risk management and changes in situational context that reduce risks and improve the attainment of planned project outcomes.

Lessons learned and best practices from the Project will be captured from field staff and reports, peer-reviewed and other publications, stories, videos, case studies, stakeholder meetings and the annual adaptive management meetings. External evaluations will also provide lessons and recommendations. These available lessons and best practices will then be documented in the semi-annual project progress reports (PPR) (with best practices annexed to the report).

The PMU Project Manager will ensure that Project Steering Committee members, project partners (technical service providers, partner NGOs, and others), donors, and other stakeholders as relevant are informed of, and where applicable invited to, the annual adaptive management meetings, formal evaluations, and any documentation on lessons and best practices. These partners will receive all related documents, such as Evaluation Reports and relevant knowledge products resulting from the project to ensure the sharing of important knowledge products.

A strategic communications plan has been budgeted for this Project and will include the following knowledge and communication products:

Component 3: Knowledge management and M&E

Under Output 3.1.1, the Project will develop a communication strategy that defines the purpose of communications, the key messages and modes of communication to ensure that project implementation is efficient and well supported, and to guide knowledge management. The communication strategy will enable the project experiences and lessons learned to be applied in other headwater areas of the Luangwa, across Zambia, and in other Zambezi river basin countries. The project will identify suitable communications platforms for dissemination of information at different levels; implement the communication strategy; organize exchange visits for key stakeholders from other priority headwater areas in the Luangwa catchment to share lessons learned and promote uptake and replication of the project approach; and share lessons internationally at Zambezi river basin level; and globally through platforms such as IW Learn⁶⁹ and WWF networks.

Under Output 3.1.2, the Project knowledge products will take diverse forms including technical reports, case studies, website articles and videos. These will cover technical issues and best practices experienced during project implementation, such as: a guiding manual for the WRPA development process, community-based management of miombo woodland, sustainable agriculture practices to replace chitemene practices, gender benefits from community-based management of water sources, and ecosystem service benefits from headwater protection. The Project Management Unit will document and disseminate best practices and lessons from project activities and stakeholder consultations; share traditional knowledge associated with natural resource management, and commission 3 short videos on project success stories. Documents will be made available through project-related websites and in other appropriate forms for targeted stakeholder groups.

Under Output 3.2.1, the Project will meet the reporting requirements of the WWF GEF Agency, producing the following reports: biannual Project Progress Reports (PPR) including the Project Closeout Report, annual work plan tracking, annual Financial Progress Reports, Mid-term Review and a Terminal Evaluation. Knowledge capture, sharing and learning will be tracked during the above reporting and evaluations, including *Results Framework Indicator 3.1.1: No. of knowledge products to disseminate best practices*. The annual adaptive management / reflection meetings will provide the opportunity to review the knowledge sharing progress in the previous year and to ensure that this is fine-tuned and incorporated into the coming year's annual workplan.

Knowledge Management Activities		Budget (US\$)
Develop and implement communications strategy under Output 3.1.1 – time input from M&E, Safeguards & Learning Officer	Years 1-5	16,275

⁶⁹ <https://iwlearn.net/>

3 community meetings per ward to conduct awareness raising of Communications Plan (Output 3.1.1)	Year 2	1,600
Information exchange visits for key stakeholders from other priority headwater areas in the Luangwa catchment to share lessons learned and promote uptake and replication of the project approach under Output 3.1.1	Years 3-5	10,000
Coordination and logistics support for meetings and workshops with communities and other stakeholders in the landscape under outputs 3.1.1 and 3.1.2 – time input from Community Engagement and Gender Expert	Years 1-5	27,759
Share lessons locally, regionally and internationally through platforms and networks under Output 3.1.1	Years 3-5	25,000
Knowledge product production and dissemination under Output 3.1.2 – time input from M&E, Safeguards & Learning Officer	Years 2,3,4,5	16,275
Case studies and sharing of traditional knowledge on selected technical themes (5) under Output 3.1.2	Year 2, 3, 4, 5	6,000
Sub-granted production of 3 short videos on success stories under Output 3.1.2	Years 3, 4, 5	15,000
Total		117,909

9. Monitoring and Evaluation. Describe the budgeted M & E plan.

The project monitoring and evaluation plan has been developed in coordination with the Ministry of Water Development, Sanitation and Environmental Protection and shared with other project stakeholders. US\$145,117 has been budgeted for M&E.

The Project will be monitored through the Results Framework (see **Prodoc Appendix 5**). The Results Framework includes 1-3 indicators per Outcome. The baseline has been completed for each indicator along with feasible targets, set annually where relevant. A methodology for measuring indicator targets is provided. Indicator targets are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART), and disaggregated by sex where applicable. Component 3 of the Results Framework is dedicated to Knowledge Management and M&E.

Relevant Core indicators have been included to provide a portfolio level understanding of progress towards the GEF Global Environmental Benefits (GEBs).

The M&E, Safeguards and Learning Officer (see TOR in **Prodoc Appendix 6**) will be responsible for gathering M&E data for the annual results framework tracking, and providing suggestions to the Project Manager to improve the results, efficiency and management of the project.

The following is a summary of project reports.

M&E/ Reporting Document	How the document will be used	Timeframe	Responsible

WWF/GEF Project 10412 - Sustainable Luangwa: Securing Luangwa's water resources for shared socioeconomic and environmental benefits through integrated catchment management

Inception Report	Summarize decisions made during inception workshop, including changes to project design, budget, Results Framework, etc.	Within three months of inception workshop	PMU Project Manager and M&E Officer
Quarterly Field Report [optional]	Inform PMU PM on progress, challenges and needs of activities in field.	Every three months	Field team
Quarterly Financial Reports	Assess financial progress and management.	Every three months	PMU F&A officer
WWF Project Progress Report (PPR) with RF and workplan tracking ⁷⁰ .	Inform management decisions and drafting of annual workplan and budget; Share lessons internally and externally; Report to the NSC and GEF Agency on the project progress.	Every six months	PMU Project Manager and M&E Officer
GEF PIR	Inform GEF SEC on progress towards outcomes and implementation performance	Annually	WWF-US GEF Project Manager
GEF METT Tracking Tool	Inform GEF SEC on progress towards outcomes/impact relating to protected areas; Assessment of the project contribution to GEBs.	CEO endorsement, Mid-term and Final	PMU Project Manager and M&E Officer
Mid-term Project Evaluation Report	External formative evaluation of the project; Recommendations for adaptive management for the second half of the project period; Inform NSC, GEF and other stakeholders of project performance to date.	Midterm	External expert or organization recruited and managed by WWF US
Terminal Project Evaluation Report	External summative evaluation of the overall project; Recommendations for GEF and those designing related projects.	Before project completion	External expert or organization recruited and managed by WWF US

Independent formal evaluations have been budgeted by the project and will adhere to WWF and GEF guidelines and policies. The Midterm Evaluation will be conducted within six months of the midpoint of the project and the Terminal Evaluation will be completed before the official close of the project. The evaluations provide an opportunity for adaptive management as well as sharing of lessons and best practices for this and future projects. The GEF Operational Focal Point will be briefed and debriefed before and after the evaluations and will have an opportunity to comment on the draft and final report.

An annual reflection workshop has been budgeted for the PMU, MWDSEP, WWF Zambia and other project partners that play key technical roles to review project progress and challenges to date, taking into account results framework tracking, work plan tracking, stakeholder feedback and quarterly field reports to review project strategies, risks and the

⁷⁰ Note – WWF GEF Agency will prepare the annual GEF Project Implementation Reports based on the PPRs

theory of change (ToC). The results of this workshop will inform project decision making (i.e., refining the ToC, informing PPRs and AWP&Bs).

10. Benefits. Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund)?

Beneficiaries of the project will consist of communities resident in the project target area in the Luangwa Upper-Sub-catchment area in Mafinga District, and downstream populations in the Luangwa Catchment.

The communities in the Upper Sub-catchment will benefit directly through the project's support for more sustainable and productive land uses including climate resilient conservation agriculture practices, community forestry management and other forms of sustainable livelihood together with improved marketing links. The establishment of community forest agreements under the Forestry Act (2015) confers benefits in the form of the rights to form Community Forest Management Groups, the right to issue community permits and collect revenue for forest products and uses; secure tenure through forest user rights; and economic rights for forest uses and products including rights to harvest and trade in forest products; and rights to control access through development and enforcement of local rules to facilitate effective management of the forest.

Approximately 2,500 local people are estimated to be the direct beneficiaries of these activities, including at least 50% women. The improved sustainability of catchment management will also help to secure river headwater flows for local as well as downstream use, and the retention and restoration of forest cover will provide ecosystem-based adaptation benefits to local communities, enhancing their climate-resilience. A further 100 government staff at district, provincial and national levels will benefit from capacity development support.

The Luangwa river is an essential source of water for adjacent populations, with c.1.8 million people residing in the Luangwa Catchment⁷¹, providing water for irrigated agriculture^{72,73}, household use and hydropower^{74,75,76} in the downstream area of the catchment. Consequently, improved protection of the headwaters and sustainable land management in the Luangwa Upper Sub-Catchment will contribute towards water and food security for these downstream human populations. The river's seasonal changes support vibrant communities that are spread across 25 chiefdoms, as well as a growing \$27 million tourism industry that is based on some of Africa's most valued wildlife populations including some of the highest concentrations of elephants and hippos in Africa, and globally important biodiversity assets that include the Luangwa Floodplains Ramsar site^{77, 78}, six National Parks, eight Game Management Areas, and National Forest Reserves covering some 68,812 km² - around 50% of the total catchment area.

A recent study of the benefits of forest ecosystems in Zambia⁷⁹ included consideration of soil erosion and transport modelling (using InVEST) through which it was estimated that current rates of sediment output nationally are in the order of 250 million tonnes (average 2.23 tonnes per ha), while forests retain a further 274 million tonnes, generating a cost saving in the order of

⁷¹ World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. *State of the Basin*, 3.

⁷² Extraction for irrigation is currently low, ~120 km³ annually, but the potential for extraction is high.

⁷³ World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. *State of the Basin*, 3.

⁷⁴ Three small hydropower stations are located on tributaries of the Luangwa river, Lusiwasi (12 MW) operated by ZESCO; Mita Hills (24 MW) and Mulungushi (32 MW) operated by Lunsemfwa Hydropower Company. Source: <http://www.warma.org.zm/catchments-zambia/luangwa-catchment-2/>

⁷⁵ 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.globalccsinstitute.com/publications/risky-climate-southern-african-hydro-assessing-hydrological-risks-and-consequences-zambezi-river-basin-dams/>

⁷⁶ World Bank. 2010. The Zambezi River Basin: A multi-sector investment opportunities analysis. *State of the Basin*, 3.

⁷⁷ The Luangwa Floodplains is Ramsar site no. 1660, WDPA ID 903030.

⁷⁸ 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

⁷⁹ Turpie J, Warr B, Ingram JC 2015. Benefits of forest ecosystems in Zambia and the role of REDD+ in a Green Economy transition. UNEP, Nairobi.

US\$247 million per annum. It also noted that the loss of forest cover over large areas could result in reduced precipitation in the region, impacting on flows, water yields and hydropower generation, and driving up the costs of electricity. The project approach will contribute towards such benefits, although related economic valuation details are not available specifically for the Luangwa catchment.

PART IV: ANNEXES

Annex A: Project Results Framework (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Please refer to **Project Document Appendix 5** for the Project Results Framework (Excel Worksheet)

Annex B: Response to Project Reviews (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion, and responses to comments from the Convention Secretariat and STAP at PIF).

Comment	WWF response(s)
<p><i>Are the components in Table B and as described in the PIF sound, appropriate, and sufficiently clear to achieve the project/program objectives and the core indicators?</i></p>	
<p>COMPONENT 1 1. All outputs and activities to improve the enabling environment for planning and coordination of stakeholders are welcome. However, plans and platforms make sense only if there is a strong ownership from national and local stakeholders, the capacity to implement and sustain the activities beyond the life and budget of this project (i.e. sustainability). Who is going to co-finance this component?</p>	<p>The Catchment Management Plan and related action plans and platforms are critical elements to ensure the long-term sustainability and upscaling of what the project will set in motion; without this, the impact of the project would be limited to localized action. CMP and platform also respond to a clear demand from the existing policy framework for water and catchment management in Zambia, building on the example set with the Kafue Catchment Management Plan. This component will be co-financed by WWF Zambia and by the Ministry of Water Development, Sanitation and Environmental Protection, specifically the arm of the Ministry responsible for planning and regulations – WARMA. This has been clarified in the co-finance table (section C) and in table 1 on stakeholder roles in implementation.</p>
<p>2. Is it necessary to have all the following bodies and plans for this project to work? i) Multi-stakeholder Upper Sub-Catchment Council (SCC); ii) Upper catchment Water User Associations (WUAs); iii) Integrated Catchment Management Plan (ICMP); iv) Development of District Environmental Management Action plans. What is it going to be required for these plans to get used, implemented and updated as needed? These plans tend to get outdated pretty fast because of the lack of funds and capacity for implementation.</p>	<p>This point is taken and agreed that there is a risk of plans being outdated fairly quickly. Establishment of the SCC, WUAs and development of the CMP follows the structure outlined in the Water Resources Management Act no. 21 of 2011. SCC and WUAs are given authority under the Water Act to work as the local level of WARMA to develop the Catchment Management Plan. This will be the second ICMP developed in Zambia. In the case of Kafue, it was found that the process of establishing the SCC and WUAs and developing the ICMP was a key step for creating a consensus driven, collective vision for the catchment. The project goes beyond developing an Integrated Catchment Management Plan by ensuring that the management structures for the implementation of these plans (WUAs and catchment council) are put in place. Noting this point on numerous plans and plans going out of date, the development of District Environmental Management Plans has been removed from output 1.1.2. in the PIF.</p>
<p>3. What is going to be the legal status of the Water Resource Protection Area (WRPA)? Is this area going to have the same legal stability as other conservation and sustainable development areas in Zambia? Please elaborate.</p>	<p>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. In this Act “Water</p>

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Comment	WWF response(s)
	resource protection area” means a “catchment, sub catchment or geographic area that is declared, by the Minister, as a water resource protection area under section twenty-nine”. The WRPA is going to receive protection status similar to current PAs although the actual IUCN category under which the WRPA will fall under is not yet defined, but likely Category VI. This has been updated in the PIF narrative under Outcome 1.2 and in the core indicator worksheet.
<p>COMPONENT 2</p> <p>4. Although the proposed interventions appear reasonable (i.e. Boundary demarcation; Management Plans; Training and operational support -vehicles, motorcycles, maintenance, equipment, and field supplies, for patrolling and monitoring; assisted regeneration, etc) the budget is not. Suggest relocating funds from Component 1 to 2, and/or reduce the number of NFR.</p>	<p>Noted. The project will focus on only one NFR – Mafinga Hills NFR. It is understood that Mafinga Hills NFR is the most critical NFR to protection of the source of the Luangwa, and this will be confirmed in project preparation stage.</p> <p>The change to focus on only one NFR has been updated throughout the PIF.</p>
<p>5. What is the expected cost of the assisted regeneration and what is that area?</p>	<p>The expected cost can be projected at about 300USD per hectare, and the expected area for assisted regeneration is about 2% of the Mafinga Hills National Forest Reserve, approximately 300 hectares. This has been reflected in the PIF.</p>
<p>COMPONENT 3</p> <p>6. What are the "Community Conservation Agreements" and what is the experience in Zambia with this or similar agreements?</p>	<p>These are agreements enshrined in legislative pieces, the Forest Act No. 4 of 2015 aimed devolving forest management's role to local communities, community forest regulations, 2018.</p> <p>Zambia has had experience with community conservation agreements. They have proved to be successful in the Muchinga Province and Northern Provinces under Lake Tanganyika Development Project and under the work of the project partner, COMACO.</p>
<p>7. What are the private sector companies mentioned in this component?</p>	<p>COMACO is the private sector referred to. The PIF has been updated for Output 3.1.3 to note linkage to markets, rather than to private sector, as that is what the private sector partner will do – provide sustainable agriculture support for farmers and link them directly to markets (through their “Its Wild” brand).</p>
<p>8. Are outputs 3.1.5 and 3.1.6 viable and doable with the resources and time available for this project?</p>	<p>Given reduced budget, 3.1.5 will reduce scope to focus on participatory designation and management of community forest areas outside and near Mafinga Hills NFR only. Output 3.1.6 on community rehabilitation of degraded forest land in Luangwa headwaters has been removed.</p>
<p><i>Are the indicative expected amounts, sources and types of co-financing adequately documented and consistent with the requirements of the Co-Financing</i></p>	

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Comment	WWF response(s)
<i>Policy and Guidelines, with a description on how the breakdown of co-financing was identified and meets the definition of investment mobilized?</i>	
<p>9. The GEF funding may not sufficient to carry out all the proposed activities. See suggestions to address this above.</p>	<p>Noted. Given the reduction in budget, the scope of work has been reduced accordingly by:</p> <ul style="list-style-type: none"> - Reducing the number of NFRs under outcome 2.1 to one area, Mafinga Hills NFR - Reducing the scope of output 3.1.3 to include conservation agriculture actions by farmers around the Mafinga Hills NFR only - Removing output 3.1.6 on Community rehabilitation of degraded forest land in the Luangwa headwaters <p>These changes have been reflected in table B and narrative of PIF.</p>
<p>10. Of the \$21.5 million of co-financing, \$18.09 are expected to be Investment Mobilized. Assume they will assist covering the corresponding activities of Component 2 & 3. Please confirm that these funds will become available for implementation after CEO Endorsement. Without these funds, this project is unlikely to get off the ground.</p>	<p>COMACO has confirmed making co-financing funds available (estimated as \$5.75 Million) to assist in covering corresponding activities of components 3 in particular, providing sustainable agriculture support for farmers and assist in linking them directly to markets.</p> <p>The other portion of the investment mobilized is grant funds (GCF) mobilized by the government to the same landscape this proposed project will work in. This is the GCF SCRALA project in Zambia, which identifies Mafinga District as one of its target areas. The SCRALA project activities related to water access for smallholder farmers and linkages with rural agricultural markets complements this project strategy, particularly conservation agriculture actions with smallholder farmers in and around the Mafinga Forest Reserve and community rehabilitation of degraded forest land in the Luangwa headwaters.</p> <p>All cofinance has been estimated for the project period, i.e. after and not before CEO Endorsement estimated date.</p>
<i>Is the proposed GEF financing in Table D (including the Agency fee) in line with GEF policies and guidelines? Are they within the resources available from (mark all that apply)</i>	
<p>11. All the \$ figures are in line with the GEF Policies on Agency Fees and PPG amount. But see issues of \$ figures in LoE and Portal below.</p>	<p>Updated LoE (23 Oct) uploaded in Portal.</p>
<i>Is PPG requested in Table E within the allowable cap? Has an exception (e.g. for regional projects) been sufficiently substantiated? (not applicable to PFD)</i>	

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Comment	WWF response(s)
12. Yes. But see issues of \$ figures in LoE and Portal below.	Updated LoE (23 Oct) uploaded in Portal.
13. The project mentions land restoration as an important element of the project. However, there is no indicator related to this aspect. Please, make clear the distinction between areas under SLM (indicator 4.3) and restoration (indicator 3). Please consider the different restoration options, without making any duplication with the indicator 4.3: 3.1) Area of degraded agricultural lands restored, 3.2, Area of forest and forest land restored, 3.3) Area of natural grass and shrublands restored, and 3.3) Area of wetlands (including estuaries and mangroves) restored.	The core indicators have been updated to include Indicator 3. The assisted regeneration under 2.1.4 corresponds to core indicator 3.2, Area of forest and forest land restored. Approximately 300 hectares. Please note this is within the Mafinga Hills National Forest Reserve, so there is potential double-counting with 1.2. on effective PA Management. The restored forest land is distinct from the figure in indicator 4.3 which is all land outside of protected areas that will be under improved farming practices.
14. Please, explain the definition of beneficiaries and how the number was estimated/calculated. The # of beneficiaries (700) seems pretty low in correlation with the 40,000 ha under SLM (4.3). Based on the number of people in the agriculture camps (20,000), if 35% practice shifting agriculture, the number of beneficiaries should be closer to 7,000 than 700. Please, confirm.	Agreed that the number of beneficiaries from the SLM was estimated too low. The team reviewed the calculations and have revised the number of beneficiary farmers to 2,000 based off the 40,000 ha area for SLM. Additionally, about 140 beneficiaries will be supported with the ICMP process, both from communities, sub-catchment councils and water user associations and consultation groups, as well as government staff from district, provincial and national levels. This takes the total number of beneficiaries to 2,145, which also reflects changes made to project scope (Mafinga Hills NFR). This has been reflected in the core indicator worksheet.
<i>Are the project's/program's indicative targeted contributions to global environmental benefits (measured through core indicators) reasonable and achievable? Or for adaptation benefits?</i>	
15. Please elaborate on the Biodiversity benefits associated with the proposed areas. Is it possible to know the biodiversity value of those hectares and what is their conservation status?	Mafinga Hills is an area rich in biodiversity and of international and global conservation importance, providing ecosystem services beyond Zambia. Mafinga Hills NFR is home to the source of the Luangwa River, one of the major tributaries of the Zambezi, and one of the four major rivers of the country. Together they form part of the Eastern Afromontane biodiversity hotspot. Due to its rich variety of endemic flora and fauna species, Mafinga Mountains is listed as a Key Biodiversity Area of Zambia (http://www.keybiodiversityareas.org/site/factsheet/24247). Mafinga Hills NFR is located within Mafinga Mountains KBA. The whole Luangwa Catchment hosts the Luangwa Floodplains, designated a RAMSAR Wetland of International Importance. The catchment also includes large areas of Miombo Woodland, designated as one of five High Biodiversity Wilderness Areas by CI, and one of the Global 200 Ecoregions by WWF. These ecosystems support important terrestrial and aquatic species,

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Comment	WWF response(s)
	including the endangered marsh mongoose (<i>Herpestes palustris</i>), African clawless otter (<i>Aonyx capensis</i>), spotted necked otter (<i>Lutra maculicollis</i>), hippopotamus (<i>Hippopotamus amphibious</i>), African wild dog (<i>Lycaon pictus</i>) and the critically endangered hook-lipped (black) rhino (<i>Diceros bicornis</i>) ⁸⁰ . This has been included in the project description in the PIF and in the section on global environmental benefits, with more specifics on the biodiversity value of the Mafinga Hills.
<i>Does the PIF/PFD include indicative information on Stakeholders engagement to date? If not, is the justification provided appropriate? Does the PIF/PFD include information about the proposed means of future engagement?</i>	
16. Please indicate what stakeholders were engaged during the development of this PIF or will be engaged during the development of the CEO Endorsement.	PIF narrative and stakeholder table has been updated to include further details on stakeholders engaged during PIF development process (field trips and validation workshops).
<i>Is the articulation of gender context and indicative information on the importance and need to promote gender equality and the empowerment of women, adequate?</i>	
17. The GEF does not see how gender issues will be included in the different components and activities, as the different plans, the multi-stakeholder platforms, and the implementation of activities on the ground. Either this information is available and can reflect it in the PIF, or this information is not yet available. If the latter, please confirm that the gender action plan will address these issues during the PPG.	The gender action plan developed in project preparation will address the gender entry points for the different components and activities, multi-stakeholder platforms and plans, and implementations of activities on the ground. This has been noted in the PIF.
<i>Is the proposed "knowledge management (KM) approach" in line with GEF requirements to foster learning and sharing from relevant projects/programs, initiatives and evaluations; and contribute to the project's/program's overall impact and sustainability?</i>	
18. Yes. Suggest reduce the scope (and budget) of Component 4 and reallocate the funds to components 2 & 3.	Noted. However, the team would like to keep the scope and budget of Component 4 as is to ensure impact and sustainability. The scope and budget of components 2 and 3 have been reduced and reflected in PIF (see above).
<i>Has the project/program been endorsed by the country's GEF Operational Focal Point and has the name and position been checked against the GEF data base?</i>	
19. The amounts for the Project and PPG are not the same in the LoE (10 October) and the values in the Portal. Please review all \$ figures in Portal	Updated LoE (23 Oct) uploaded to Portal.

⁸⁰ Dallas, H. 2015. 558: Middle Zambezi – Luangwa. Freshwater Ecoregions of the World. Available online at: http://www.feow.org/ecoregions/details/middle_zambezi_luangwa

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Comment	WWF response(s)
and make them consistent with the LoE	
GEF Secretariat Review (5 November 2019)	
<i>Are the components in Table B and as described in the PIF sound, appropriate, and sufficiently clear to achieve the project/program objectives and the core indicators?</i>	
<p>20. Why is there such a bureaucratic and complicated structure in Component 1? There is a Multi-stakeholder Upper Sub-Catchment Council (SCC), upper catchment Water User Associations (WUAs), the Water Resources Management Authority (WARMA), Integrated Catchment Management Plan (ICMP) and Integrated Catchment Management (ICM). This is over complicated and set up for failure in the short term, not to mention the sustainability beyond the time and budget of this project. This must be simplified.</p> <p>21. The budget allocation to the different component should be revised. Not clear that the Budget for Component 1,2 and 4 should be in the same order of magnitude. Is it really necessary to spent nearly \$300K in KM, M&E? What about more than \$600K in Technical Assistance in Component 1? In contrast, components 2 & 3, which are at the core of the project are supposed to receive \$800K+ and \$1.0 million + respectively. Please re-balance the budget.</p>	<p>Noted. Given that developing an ICMP is a highly consultative and stakeholder-driven process, we have removed outcome 1.1 from the PIF, ie the ICMP and the stakeholder structures, as there might not be adequate resources for the process and setting up of these structures. This will reduce the scope of the project in line with the reduced budget. The outcome on the WRPA was moved to C2 on protected area management. This has been reflected in table B and PIF narrative.</p> <p>Noted. The M&E component budget has now been reduced to \$190,000 (now 7% of subtotal for activities) and split the balance to C2/3. After removing ICMP, C1 budget was also split between C2/3. New component budget breakdown: 1) \$ 1,296,936, C2 \$1,264,640 and C3 \$190,000. This is reflected in table B.</p>
<i>Are the indicative expected amounts, sources and types of co-financing adequately documented and consistent with the requirements of the Co-Financing Policy and Guidelines, with a description on how the breakdown of co-financing was identified and meets the definition of investment mobilized?</i>	
22. Please add the Type of co-finance of the WECSZ - Wildlife and Environmental Protection Society of Zambia (Table C)	Type of co-finance for WCSZ has been added to Table C. Recurrent.
The PIF does not indicate how the project will improve PIF management effectiveness of Mafinga Hills. How will these PAs be maintained and funded over time?	Project Outcome 1.1 directly addresses the measures required to improve management effectiveness of Mafinga Hills NFR (Outputs 1.1.1-4), including boundary demarcation, participatory management plan and fire management plan development, assessment of forest, biodiversity and socio-economic aspects, rehabilitation of degraded forest and grassland, and training and operational support for PA management. While this NFR will continue to be maintained by the Forest Department with government budget financing, the project aims to build capacity for community co-management that will reduce operational management costs and build local ownership for sustainable forest management and protection (eg through reduction of

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	encroachment and more effective fire management). The WRPA proposed by the project will be developed under Output 1.2.1 of the project, which involves a participatory process for identification, delineation and management of the area. While its management will be financed through MWDSEP under provisions of the Water Act 2011, it will also be strongly supported by a community co-management approach that will build local ownership, aim to harmonize the WRPA management with local community needs, and provide a cost-effective basis for sustainable catchment management to protect the headwaters.
Worth noting that the Government announced it would halt plans for a new hydropower plant on the Luangwa river in the middle of this year following pressure from WWF and others	This has been included in the threat analysis for the project. The project target landscape is located in the headwaters of the Luangwa in Mafinga District, where no dams or dam proposals are known to exist.
UK provides funding to a World Bank project on sustainable land management that operates in same and neighbouring parts of this proposed WWF project. We would ask GEF to encourage WWF to work alongside this and other projects	Understood that this relates to the TRALARD project – discussions on coordination have been held with TRALARD project staff during the PPG, and this project has been included in the section on coordination with related projects (see CEO ER section above). Other related projects (both GEF and non-GEF) are also included in this section. The Mafinga District TRALARD staff were included in PPG meetings and have had the opportunity to provide input to the full project proposal.
Germany suggests that the section on stakeholder involvement should be revised to take into account – the Ministry of Lands should be more involved, particularly the Department of Forestry; communities and traditional leaders should be involved in the selection of target areas; clarify stakeholder roles in the project.	WWF agrees that these are important stakeholders and they have been involved during PPG consultations on the project target area, activities and stakeholder engagement. The Stakeholder Engagement Plan (Prodoc Appendix 15) specifically mentions these stakeholders and provides for their roles during implementation. The needs of local stakeholders have also been taken account of the gender action plan (Appendix 12B) and the WWF safeguards planning (Environmental and Social Management Framework / Process Framework). The Department of Forestry is a cofinancing partner of the project.
Germany suggests revising the Core Indicators: Number of targeted beneficiaries (2045) is disproportionately low for the budget and hectares in the proposal	The project area is remote and mountainous with relatively low population density over much of the area. Consequently, the estimated number of direct project beneficiaries is actually quite appropriate for the intended interventions in terms of the number of villages within the target area. In order to accommodate this request, the number of targeted beneficiaries has been increased to 2,600 following more detailed assessment of the project target landscape and local communities resident within this area.
Duration of 48 months is ambitious, especially if all aspects of implementation are	The project duration has been lengthened to 60 months, despite the

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<p>carried out in a truly participatory manner</p>	<p>fact that this places considerable strain on the limited GEF budget to finance project management costs over an extended period – this is a notable constraint of the 5% PMC cap.</p>
<p>Germany strongly encourages acknowledging and building synergies with existing similar projects that are not identified in the PIF. For the success of the project, it will be critical for WWF to improve its collaboration with other entities in the water and water resources sub-sector:</p> <p>GIZ on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ) are working in the Lower Kafue Sub-catchment under the programme “Sustainable Water Resources Management and Agricultural Water Use in Zambia (AWARE) – contact Peter Kammerer Peter.kammerer@giz.de</p> <p>GIZ SEWOH Initiative is a close collaborator and supporter of COMACO, who is mentioned as a key (private sector) partner in Eastern Zambia</p> <p>World Bank TRALARD – this more holistic way of managing natural resources takes into account all the various aspects around natural resources – both their degradation and the mitigation of it, therefore striving for a higher probability of sustainability.</p>	<p>See the prodoc section on coordination with related projects – including non-GEF projects. Representatives of the mentioned projects were invited to the PPG consultation meetings.</p>
<p>STAP Overall Assessment: Minor issues to be considered during project design: While the project components and proposed interventions are common (i.e., create and manage protected area, improve land management, etc.), the focus of this project in an upper catchment area with the intention of improving the larger watershed is innovative and, if successful, could serve as an important model for other GEF projects as a way to enhance important ecosystem services.</p> <p>Component 2 is less well developed and rests on the extent to which the project will succeed in creating "alternative livelihoods," which theoretically should reduce unsustainable and destructive farming practices. However, even if successful, very little is known about what impacts (if any) alternative livelihood projects have had on biodiversity conservation, as well as what determines the relative success or failure of these interventions [See Roe et al. (2015) "Are alternative livelihood projects effective at reducing local threats to specified elements of biodiversity and/or improving or maintaining the conservation status of those elements?" Environmental Evidence 4:22. DOI 10.1186/s13750-015-0048-1]. See: https://environmentalevidencejournal.biomedcentral.com/track/pdf/10.1186/s13750-015-0048-1</p>	<p>WWF appreciates this feedback from STAP. While no request for action is made in this first point, WWF notes the significance of sharing project experiences and lessons learned within Zambia, regionally in the Zambezi River Basin, and globally. The scope of knowledge management in Component 3 has been extended in response to this comment.</p> <p>The project is not so much offering alternative livelihoods per se, rather improving the sustainability of farming practices and natural resource use through a combination of building capacity and providing technical support and market linkages for conservation agriculture; coupled with building local capacity for community forest management that will assist in meeting demands for forest resources in a more regulated manner. In addition to these main themes, supplementary livelihood activities (eg beekeeping) will also assist in supporting more sustainable catchment management and providing alternatives to shifting cultivation. The project recognizes that the solutions need to be institutionally supported, locally owned and locally relevant. The Greening Africa project has provided some good examples of what is possible (in other</p>

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Comment	WWF response(s)
<p>Finally, while the project has a clear logic based on a hypothesis provided in the PIF, STAP recommends that this be more fully developed into a Theory of Change that includes various pathways, underlying assumptions, as well as strategies for adaptive management in the event that one or more of the assumptions prove untrue or due to other unforeseen issues that may arise.</p>	<p>African nations) using such an integrated approach.</p> <p>The project document includes an elaborated theory of change following current STAP guidelines, as well as results chains for each Component. The project's adaptive management approach includes annual reflection meetings for project staff and key stakeholders to take into account experiences and lessons learned during implementation and to incorporate these into the development of subsequent annual workplans. The planned Mid-term Review will also provide an important opportunity for review of the project strategy and assumptions, and its subsequent realignment if necessary.</p>
<p>Project Description: Yes the problem statement and analysis identifies the main proximate threats; however, it does not delve into underlying drivers (i.e. poverty, lack of land tenure, etc.) although these are implied. While the project brings together biodiversity and land degradation and each of these will be addressed, the overarching approach is to restore or improve ecosystem services in the entire watershed which will be beneficial for land, biodiversity and people.</p>	<p>The situation analysis in the project document and Prodoc Appendix 10 (Landscape Profile) includes consideration of underlying drivers including land tenure systems, traditional leadership, poverty and climate change and their linkage to direct threats that lead to deforestation, forest degradation and catchment degradation. The land tenure situation is referred to in barrier 3.</p>
<p>Baseline scenario: Other projects are described; however, an effort is not made to distil lessons learned and systematically apply them to the development of this project.</p>	<p>Lessons learned from relevant projects in Zambia and elsewhere in southern Africa, including non-GEF projects have been taken into account in the current design, reflected in prodoc section 3.7 and Appendix 17.</p>
<p>Global environmental benefits: Yes, though biodiversity benefits are also local. Also not clear how improvements in ecosystem services will be measured but they should at least be articulated.</p>	<p>Global environmental benefits are described in prodoc Section 3.1, including globally significant ecosystems and species present in the project landscape. Targeted ecosystem services relating to improved catchment management – in the form of a citizen science approach to water quality monitoring (Output 1.2.1) - has been included as impact indicators for the project in the Results Framework (App 5). This needed to be technically feasible, relevant and cost-effective within the context of this project. It will also contribute towards the raising of local awareness and engagement regarding the impacts of land degradation on the river system.</p>
<p>Stakeholders: Yes, though there may be room for more local stakeholders (Community resource boards?)</p>	<p>The Stakeholder Engagement Plan has sought to systematically identify and engage with relevant local stakeholders including local traditional leaders, community resource management groups, cooperatives, etc.</p>

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Comment	WWF response(s)
<p>Climate Risk: How will the project’s objectives or outputs be affected by climate risks over the period 2020 to 2050, and have the impact of these risks been addressed adequately? Not specified</p> <p>What technical and institutional capacity, and information, will be needed to address climate risks and resilience enhancement measures? Technical experts should be consulted to assess climate resilience of proposed interventions.</p>	<p>While this project is not supported by the GEF-7 climate change focal area, and has very limited resources to support climate change analyses, the WWF Climate Risk Screening was applied during the PPG process (see Appendix 16), and its findings have been incorporated into the project design through climate change risk mitigation and integrating climate resilience into the project Outputs (especially through ecosystem-based adaptation – improved catchment management will reduce risks of floods, landslides and water shortages). The project will follow a participatory approach that allows local ownership and development of local solutions, which facilitates adaptation to climate challenges. Its emphasis on conservation agriculture, community forestry, forest restoration, sustainable catchment management, improved market links and access to weather and market information will all contribute towards climate resilience.</p> <p>A national climate change vulnerability assessment has been carried out under the TRALARD Project that included the project area⁸¹, and this has been referred to during project design in the threat analysis section of the project document. The PPG consultants and WWF have applied the required technical experience in assessing the climate resilience of the proposed interventions. Collaboration will continue with the GCF SCRALA and WB TRALARD Project during implementation, providing access to further climate change information resources. Project interventions will be supported by contracted experts on conservation agriculture, sustainable forest management and biodiversity conservation including recognition of climate resilience requirements.</p>

⁸¹ Petrie, B., Rawlins, J., Tsilik, P., Chapman, A., Kalaba, J. (2018). Transforming Landscapes for resilience and Development in Northern and Southern Zambia (TRALARD-Zam) Project: Landscape Vulnerability Decision Support Framework. One World Sustainable Investment, Cape Town, South Africa

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Comment	WWF response(s)
<p>Coordination: Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects? Yes - though mainly GEF. It is likely that other non-GEF projects are underway or have been completed in Zambia (i.e. USAID) which could related and provide important lessons learned.</p> <p>Is there an adequate mechanism to feed the lessons learned from earlier projects into this project, and to share lessons learned from it into future projects? Not clear.</p>	<p>The section on coordination with related initiatives in the CER and project document lists both GEF and non-GEF projects that are thematically similar, while only two projects – TRALARD and SCRALA occupy the same geographical area. Lessons learned from relevant projects in Zambia and elsewhere in southern Africa, including non-GEF projects have been taken into account in the current design, reflected in prodoc section 3.7 and Appendix 17.</p> <p>The sharing of lessons learned through knowledge management in Component 3 includes support for replication at local and national levels, as well as Zambezi river basin and global levels through platforms including IWLEARN, WWF networks, ZAWAFE and Waternet.</p>

Annex C: Status of Utilization of Project Preparation Grant (PPG) (Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: USD \$100,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent Todate</i>	<i>Amount Committed</i>
Salaries			
Project design and coordination	5,300	5,409	
Consultants			
ProDoc Development	64,000	53,339	10,661
Gender	6,500	6,500	
Safeguards	6,000	6,000	
Meetings and Workshops			
Prodoc Kickoff, Stakeholder Consultations, Validation Workshop, PDT Meetings	7,840	841	7,342
Travel	8,800	8,282	
Other Direct Costs	1,560	1,626	
Total	100,000	81,997	18,003

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

Annex D: Calendar of Expected Reflows (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

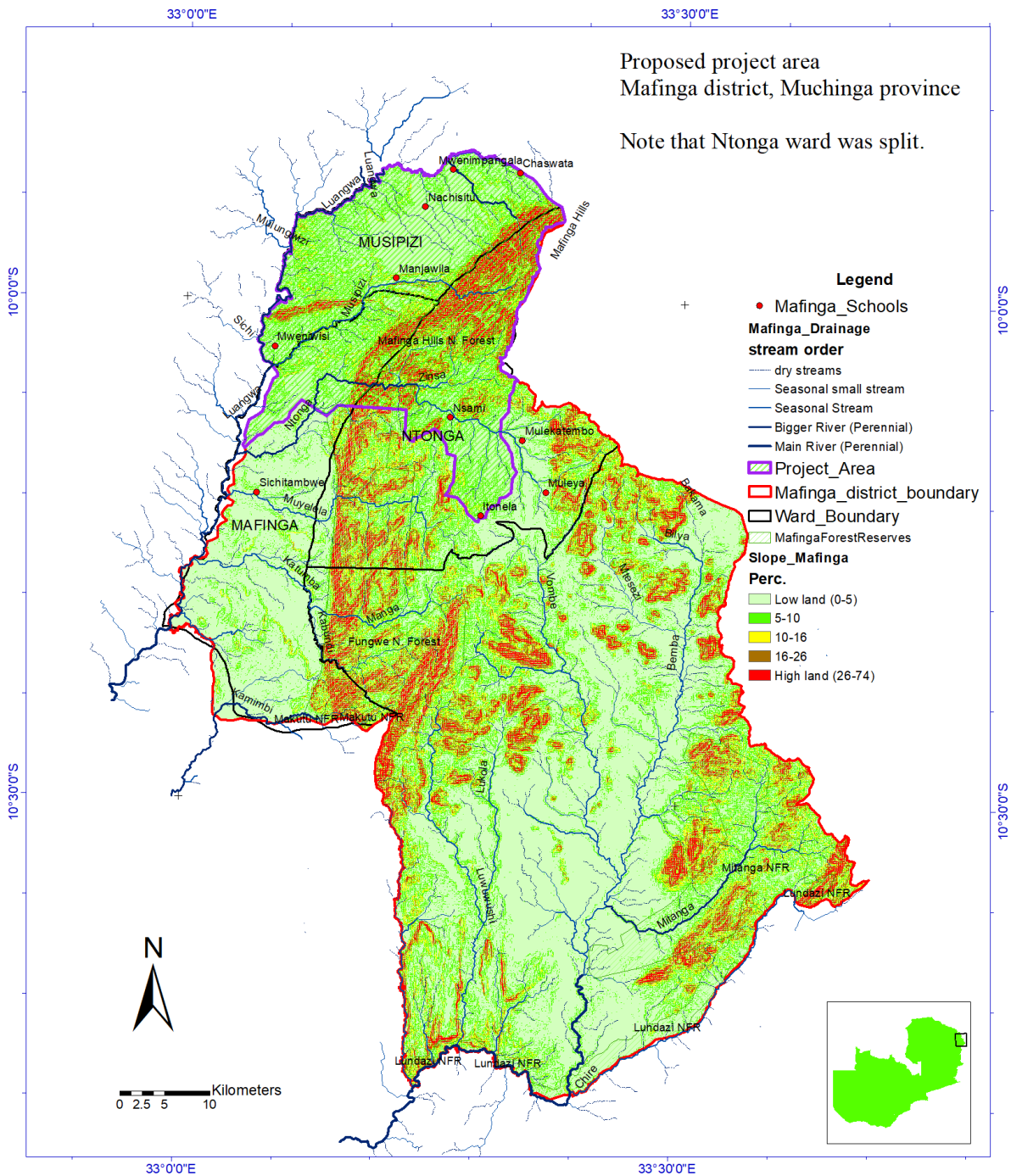
N/A

Annex E: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

Project area coordinates: E 33°4' – 33°22'; S9°52' – S10°13'

See below for a map of the project area.



Map Disclaimer: Throughout this document, the designations of the geographical entities and the presentation of the material do not imply the expression of any opinion whatsoever concerning the legal status of any country, territory, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Annex F: GEF 7 Core Indicator Worksheet

Use this Worksheet to compute those indicator values as required in Part I, Table F to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at anytime during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Core Indicator 1	Terrestrial protected areas created or under improved management for conservation and sustainable use				(Hectares)			
					<i>Hectares (1.1+1.2)</i>			
					<i>Expected</i>		<i>Achieved</i>	
					PIF stage	Endorsement	MTR	TE
					40,500	40,500		
Indicator 1.1	Terrestrial protected areas newly created							
Name of Protected Area	WDPA ID	IUCN category	Hectares	Hectares				
				Expected		Achieved		
				PIF stage	Endorsement	MTR	TE	
<i>Luangwa WRPA</i>	<i>N/A</i>	<i>Category VI is likely</i>		25,000	25,000			
		Sum		25,000	25,000			
Indicator 1.2	Terrestrial protected areas under improved management effectiveness							
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score				
				Baseline		Achieved		
				PIF stage	Endorsement	MTR	TE	
<i>Mafinga Hills National Forest Reserve</i>	<i>27023</i>	<i>Category VI PA with sustainable use of natural resources</i>	<i>15,500</i>	<i>15,500</i>	<i>15,500</i>			
		Sum	<i>15,500</i>	<i>15,500</i>	<i>15,500</i>			
Core Indicator 2	Marine protected areas created or under improved management for conservation and sustainable use				(Hectares)			
					<i>Hectares (2.1+2.2)</i>			
					<i>Expected</i>		<i>Achieved</i>	
					PIF stage	Endorsement	MTR	TE
Indicator 2.1	Marine protected areas newly created							
Name of Protected Area	WDPA ID	IUCN category	Hectares	Hectares				
				Expected		Achieved		
				PIF stage	Endorsement	MTR	TE	
		(select)						
		(select)						
		Sum						
Indicator 2.2	Marine protected areas under improved management effectiveness							
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score (Scale 1-3)				
				Baseline		Achieved		
				PIF stage	Endorsement	MTR	TE	
		(select)						
		(select)						
		Sum						
Core Indicator 3	Area of land restored				(Hectares)			
					<i>Hectares (3.1+3.2+3.3+3.4)</i>			
					<i>Expected</i>		<i>Achieved</i>	

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		PIF stage	Endorsement	MTR	TE		
		300	900				
Indicator 3.1	Area of degraded agricultural land restored						
		Hectares					
		Expected		Achieved			
		PIF stage	Endorsement	MTR	TE		
Indicator 3.2	Area of forest and forest land restored						
		Hectares					
		Expected		Achieved			
		PIF stage	Endorsement	MTR	TE		
		300	900				
		<i>Natural regeneration (assisted regeneration) in natural forest at the source of the Luangwa River in the Mafinga Hills NFR and surrounding areas</i>					
		300	900				
Indicator 3.3	Area of natural grass and shrublands restored						
		Hectares					
		Expected		Achieved			
		PIF stage	Endorsement	MTR	TE		
Indicator 3.4	Area of wetlands (including estuaries, mangroves) restored						
		Hectares					
		Expected		Achieved			
		PIF stage	Endorsement	MTR	TE		
Core Indicator 4	Area of landscapes under improved practices (hectares; excluding protected areas)						
		(Hectares)					
		Hectares (4.1+4.2+4.3+4.4)					
		Expected		Expected			
		PIF stage	Endorsement	MTR	TE		
		40,000	40,000				
Indicator 4.1	Area of landscapes under improved management to benefit biodiversity						
Degraded natural lands in project area brought under improved management, through collaborative agreements with local communities to support sustainable natural resource-based alternative livelihoods and improved climate-resilient agricultural		Hectares					
	Name	Hectares (total)	Hectares (degraded)	Expected		Achieved	
				PIF stage	Endorsement	MTR	TE

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practices.							
Indicator 4.2	Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations						
Third party certification(s):				Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Indicator 4.3	Area of landscapes under sustainable land management in production systems						
Agricultural lands in project area brought under improved management, through collaborative agreements with local communities to support sustainable natural resource-based alternative livelihoods and improved climate-resilient agricultural practices.	Name	Hectares (total)	Hectares (cultivated)	Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
	Mafinga District (buffer zone and other areas outside of Mafinga Hills NRF)	413,400		40,000	40,000		
Indicator 4.4	Area of High Conservation Value Forest (HCVF) loss avoided						
				Hectares			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Core Indicator 5	Area of marine habitat under improved practices to benefit biodiversity						(Hectares)
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations						
Third party certification(s):				Number			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial						
				Number			
				Expected		Achieved	
				PIF stage	Endorsement	MTR	TE
Core Indicator 6	Greenhouse gas emission mitigated						(Tons)
				Tons (6.1+6.2)			
				Entered		Entered	
				PIF stage	Endorsement	MTR	TE

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		Expected CO2e (direct)					
		Expected CO2e (indirect)					
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector						
			Tons				
			Entered		Entered		
			PIF stage	Endorsement	MTR	TE	
		Expected CO2e (direct)					
		Expected CO2e (indirect)					
		Anticipated Year					
Indicator 6.2	Emissions avoided						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
		Expected CO2e (direct)					
		Expected CO2e (indirect)					
		Anticipated Year					
Indicator 6.3	Energy saved						
			MJ				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
Indicator 6.4	Increase in installed renewable energy capacity per technology						
			Capacity (MW)				
		Technology	Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
		(select)					
		(select)					
Core Indicator 7	Number of shared water ecosystems (fresh or marine) under new or improved cooperative management					(Number)	
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation						
		Shared water ecosystem	Rating (scale 1-4)				
			PIF stage	Endorsement	MTR	TE	
Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation						
		Shared water ecosystem	Rating (scale 1-4)				
			PIF stage	Endorsement	MTR	TE	
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees						
		Shared water ecosystem	Rating (scale 1-4)				
			PIF stage	Endorsement	MTR	TE	
Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products						
			Rating (scale 1-4)				
		Shared water ecosystem	Rating		Rating		
			PIF stage	Endorsement	MTR	TE	

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Core Indicator 8	Globally over-exploited fisheries Moved to more sustainable levels						(Tons)	
			Metric Tons					
			PIF stage	Endorsement	MTR	TE		
Core Indicator 9	Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products						(Tons)	
			Metric Tons (9.1+9.2+9.3)					
			Expected		Achieved			
			PIF stage	PIF stage	MTR	TE		
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) and POPs containing materials and products removed or disposed							
			Metric Tons					
			Expected		Achieved			
			PIF stage	Endorsement	MTR	TE		
	(select)	(select)	(select)					
	(select)	(select)	(select)					
	(select)	(select)	(select)					
Indicator 9.2	Quantity of mercury reduced							
			Metric Tons					
			Expected		Achieved			
			PIF stage	Endorsement	MTR	TE		
Indicator 9.3	Number of countries with legislation and policy implemented to control chemicals and waste							
			Number of Countries					
			Expected		Achieved			
			PIF stage	Endorsement	MTR	TE		
Indicator 9.4	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities							
			Number					
			Expected		Achieved			
			PIF stage	Endorsement	MTR	TE		
Core Indicator 10	Reduction, avoidance of emissions of POPs to air from point and non-point sources						(Grams)	
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air							
			Number of Countries					
			Expected		Achieved			
			PIF stage	Endorsement	MTR	TE		
Indicator 10.2	Number of emission control technologies/practices implemented							
			Number					
			Expected		Achieved			
			PIF stage	Endorsement	MTR	TE		
Indicator 10.3	Number of countries with legislation and policy implemented to control chemicals and waste							
			Number of Countries					

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			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment					(Number)	
				Expected		Number Achieved	
				PIF stage	Endorsement	MTR	TE
		Farmers	Female	1040	1250		
			Male	960	1250		
		District, provincial, national government staff	Female	20	40		
			Male	25	60		
			total	2,045	2,600		

Annex G: GEF Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part I, item G by ticking the most relevant keywords/ topics/themes that best describe this project.

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

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		<input type="checkbox"/> Capacity Development	
		<input type="checkbox"/> Learning	
	<input checked="" type="checkbox"/> Stakeholder Engagement Plan		
<input checked="" type="checkbox"/> Gender Equality	<input checked="" type="checkbox"/> Gender Mainstreaming		
		<input checked="" type="checkbox"/> Beneficiaries	
		<input checked="" type="checkbox"/> Women groups	
		<input checked="" type="checkbox"/> Sex-disaggregated indicators	
		<input checked="" type="checkbox"/> Gender-sensitive indicators	
	<input checked="" type="checkbox"/> Gender results areas		
		<input checked="" type="checkbox"/> Access and control over natural resources	
		<input checked="" type="checkbox"/> Participation and leadership	
		<input type="checkbox"/> Access to benefits and services	
		<input checked="" type="checkbox"/> Capacity development	
		<input checked="" type="checkbox"/> Awareness raising	
		<input checked="" type="checkbox"/> Knowledge generation	
<input checked="" type="checkbox"/> Focal Areas/Theme			
	<input type="checkbox"/> Integrated Programs		
		<input type="checkbox"/> Commodity Supply Chains (⁸² Good Growth Partnership)	
			<input type="checkbox"/> Sustainable Commodities Production
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Financial Screening Tools
			<input type="checkbox"/> High Conservation Value Forests
			<input type="checkbox"/> High Carbon Stocks Forests
			<input type="checkbox"/> Soybean Supply Chain
			<input type="checkbox"/> Oil Palm Supply Chain
			<input type="checkbox"/> Beef Supply Chain
			<input type="checkbox"/> Smallholder Farmers
			<input type="checkbox"/> Adaptive Management
		<input type="checkbox"/> Food Security in Sub-Saharan Africa	
			<input type="checkbox"/> Resilience (climate and shocks)
			<input type="checkbox"/> Sustainable Production Systems
			<input type="checkbox"/> Agroecosystems
			<input type="checkbox"/> Land and Soil Health
			<input type="checkbox"/> Diversified Farming
			<input type="checkbox"/> Integrated Land and Water Management
			<input type="checkbox"/> Smallholder Farming
			<input type="checkbox"/> Small and Medium Enterprises
			<input type="checkbox"/> Crop Genetic Diversity
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Gender Dimensions
			<input type="checkbox"/> Multi-stakeholder Platforms
		<input type="checkbox"/> Food Systems, Land Use and Restoration	
			<input type="checkbox"/> Sustainable Food Systems
			<input type="checkbox"/> Landscape Restoration
			<input type="checkbox"/> Sustainable Commodity Production
			<input type="checkbox"/> Comprehensive Land Use Planning
			<input type="checkbox"/> Integrated Landscapes
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Smallholder Farmers
		<input type="checkbox"/> Sustainable Cities	
			<input type="checkbox"/> Integrated urban planning
			<input type="checkbox"/> Urban sustainability framework

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			<input type="checkbox"/> Transport and Mobility
			<input type="checkbox"/> Buildings
			<input type="checkbox"/> Municipal waste management
			<input type="checkbox"/> Green space
			<input type="checkbox"/> Urban Biodiversity
			<input type="checkbox"/> Urban Food Systems
			<input type="checkbox"/> Energy efficiency
			<input type="checkbox"/> Municipal Financing
			<input type="checkbox"/> Global Platform for Sustainable Cities
			<input type="checkbox"/> Urban Resilience
	<input checked="" type="checkbox"/> Biodiversity		
		<input checked="" type="checkbox"/> Protected Areas and Landscapes	
			<input checked="" type="checkbox"/> Terrestrial Protected Areas
			<input type="checkbox"/> Coastal and Marine Protected Areas
			<input checked="" type="checkbox"/> Productive Landscapes
			<input type="checkbox"/> Productive Seascapes
			<input checked="" type="checkbox"/> Community Based Natural Resource Management
		<input type="checkbox"/> Mainstreaming	
			<input type="checkbox"/> Extractive Industries (oil, gas, mining)
			<input type="checkbox"/> Forestry (Including HCVF and REDD+)
			<input type="checkbox"/> Tourism
			<input type="checkbox"/> Agriculture & agrobiodiversity
			<input type="checkbox"/> Fisheries
			<input type="checkbox"/> Infrastructure
			<input type="checkbox"/> Certification (National Standards)
			<input type="checkbox"/> Certification (International Standards)
		<input type="checkbox"/> Species	
			<input type="checkbox"/> Illegal Wildlife Trade
			<input type="checkbox"/> Threatened Species
			<input type="checkbox"/> Wildlife for Sustainable Development
			<input type="checkbox"/> Crop Wild Relatives
			<input type="checkbox"/> Plant Genetic Resources
			<input type="checkbox"/> Animal Genetic Resources
			<input type="checkbox"/> Livestock Wild Relatives
			<input type="checkbox"/> Invasive Alien Species (IAS)
		<input checked="" type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangroves
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Sea Grasses
			<input type="checkbox"/> Wetlands
			<input checked="" type="checkbox"/> Rivers
			<input type="checkbox"/> Lakes
			<input type="checkbox"/> Tropical Rain Forests
			<input checked="" type="checkbox"/> Tropical Dry Forests
			<input type="checkbox"/> Temperate Forests
			<input checked="" type="checkbox"/> Grasslands
			<input type="checkbox"/> Paramo
			<input type="checkbox"/> Desert
		<input type="checkbox"/> Financial and Accounting	
			<input type="checkbox"/> Payment for Ecosystem Services
			<input type="checkbox"/> Natural Capital Assessment and Accounting
			<input type="checkbox"/> Conservation Trust Funds
			<input type="checkbox"/> Conservation Finance
		<input type="checkbox"/> Supplementary Protocol to the CBD	
			<input type="checkbox"/> Biosafety
			<input type="checkbox"/> Access to Genetic Resources Benefit Sharing
	<input type="checkbox"/> Forests		
		<input type="checkbox"/> Forest and Landscape Restoration	
			<input type="checkbox"/> REDD/REDD+

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

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	<input type="checkbox"/> Coal Fired Power Plants	
	<input type="checkbox"/> Coal Fired Industrial Boilers	
	<input type="checkbox"/> Cement	
	<input type="checkbox"/> Non-Ferrous Metals Production	
	<input type="checkbox"/> Ozone	
	<input type="checkbox"/> Persistent Organic Pollutants	
	<input type="checkbox"/> Unintentional Persistent Organic Pollutants	
	<input type="checkbox"/> Sound Management of chemicals and Waste	
	<input type="checkbox"/> Waste Management	
		<input type="checkbox"/> Hazardous Waste Management
		<input type="checkbox"/> Industrial Waste
		<input type="checkbox"/> e-Waste
	<input type="checkbox"/> Emissions	
	<input type="checkbox"/> Disposal	
	<input type="checkbox"/> New Persistent Organic Pollutants	
	<input type="checkbox"/> Polychlorinated Biphenyls	
	<input type="checkbox"/> Plastics	
	<input type="checkbox"/> Eco-Efficiency	
	<input type="checkbox"/> Pesticides	
	<input type="checkbox"/> DDT - Vector Management	
	<input type="checkbox"/> DDT - Other	
	<input type="checkbox"/> Industrial Emissions	
	<input type="checkbox"/> Open Burning	
	<input type="checkbox"/> Best Available Technology / Best Environmental Practices	
	<input type="checkbox"/> Green Chemistry	
<input type="checkbox"/> Climate Change		
	<input type="checkbox"/> Climate Change Adaptation	
		<input type="checkbox"/> Climate Finance
		<input type="checkbox"/> Least Developed Countries
		<input type="checkbox"/> Small Island Developing States
		<input type="checkbox"/> Disaster Risk Management
		<input type="checkbox"/> Sea-level rise
		<input type="checkbox"/> Climate Resilience
		<input type="checkbox"/> Climate information
		<input type="checkbox"/> Ecosystem-based Adaptation
		<input type="checkbox"/> Adaptation Tech Transfer
		<input type="checkbox"/> National Adaptation Programme of Action
		<input type="checkbox"/> National Adaptation Plan
		<input type="checkbox"/> Mainstreaming Adaptation
		<input type="checkbox"/> Private Sector
		<input type="checkbox"/> Innovation
		<input type="checkbox"/> Complementarity
		<input type="checkbox"/> Community-based Adaptation
		<input type="checkbox"/> Livelihoods
	<input type="checkbox"/> Climate Change Mitigation	
		<input type="checkbox"/> Agriculture, Forestry, and other Land Use
		<input type="checkbox"/> Energy Efficiency
		<input type="checkbox"/> Sustainable Urban Systems and Transport
		<input type="checkbox"/> Technology Transfer
		<input type="checkbox"/> Renewable Energy
		<input type="checkbox"/> Financing
		<input type="checkbox"/> Enabling Activities
	<input type="checkbox"/> Technology Transfer	
		<input type="checkbox"/> Poznan Strategic Programme on Technology Transfer
		<input type="checkbox"/> Climate Technology Centre & Network (CTCN)

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			<input type="checkbox"/> Endogenous technology
			<input type="checkbox"/> Technology Needs Assessment
			<input type="checkbox"/> Adaptation Tech Transfer
		<input type="checkbox"/> United Nations Framework on Climate Change	
			<input type="checkbox"/> Nationally Determined Contribution
		Rio Marker	0