



Integrated Water Resource Management and Ecosystem-based Adaptation (EbA) in the Xe Bang Hieng River Basin and Luang Prabang City

Part I: Project Information

GEF ID

10514

Project Type

FSP

Type of Trust Fund

LDCF

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Integrated Water Resource Management and Ecosystem-based Adaptation (EbA) in the Xe Bang Hieng River Basin and Luang Prabang City

Countries

Lao PDR

Agency(ies)

UNDP

Other Executing Partner(s)

Department of Water Resources (DWR), Ministry of Natural Resources and Environment (MONRE)

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Focal Areas, Land Degradation, Sustainable Land Management, Community-Based Natural Resource Management, Drought Mitigation, Sustainable Livelihoods, Restoration and Rehabilitation of Degraded Lands, Sustainable Agriculture, Improved Soil and Water Management Techniques, Ecosystem Approach, Sustainable Forest, Income Generating Activities, Integrated and Cross-sectoral approach, Climate Change, Climate Change Adaptation, Least Developed Countries, Ecosystem-based Adaptation, Livelihoods, Innovation, Climate resilience, Complementarity, Community-based adaptation, Mainstreaming adaptation, Climate information, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Stakeholders, Beneficiaries, Local Communities, Communications, Behavior change, Awareness Raising, Civil Society, Community Based Organization, Non-Governmental Organization, Type of Engagement, Information Dissemination, Partnership, Consultation, Gender Equality, Gender Mainstreaming, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Participation and leadership, Capacity Development, Knowledge Generation and Exchange, Access and control over natural resources, Access to benefits and services, Integrated Programs, Landscape Restoration, Food Systems, Land Use and Restoration, Comprehensive Land Use Planning, Sustainable Cities, Integrated urban planning, Urban Resilience, Capacity, Knowledge and Research, Learning, Indicators to measure change

Sector

Mixed & Others

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 2

Submission Date

11/30/2021

Expected Implementation Start

6/1/2022

Expected Completion Date

5/31/2026

Duration

48In Months

Agency Fee(\$)

506,298.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCA-1	Outcome 1.1: Technologies and innovative solutions piloted or deployed to reduce climate-related risks and/or enhance resilience	LDC F	2,909,975.00	15,002,776.00
CCA-2	Outcome 2.3. Institutional and human capacities strengthened to identify and implement adaptation measures	LDC F	1,145,506.00	6,072,238.00
CCA-3	Outcome 3.1: Climate-resilient planning enabled by stronger climate information decision-support services, and other relevant analysis, as a support to NAP process and/or for enabling activities in response to COP guidance Outcome 3.3: Institutional and human capacities strengthened to identify and implement adaptation measures, as a support to NAP process and/or for enabling activities in response to COP guidance	LDC F	1,273,971.00	6,387,571.00
Total Project Cost(\$)			5,329,452.00	27,462,585.00

B. Project description summary

Project Objective

Promote integrated management of sites in the Mekong River Basin for increased climate resilience of Savannakhet Province and Luang Prabang communities vulnerable to floods and droughts, which are expected to worsen under future scenarios.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1: Developing national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction.	Technical Assistance	Outcome 1: Enhanced national and provincial capacities for integrated catchment management and integrated water resource management in target rural and urban communities.	Output 1.1: Flood- and drought-risk maps of and an economic evaluation of urban ecosystem services and protective options produced for the Xe Bang Hieng River Basin and Luang Prabang city, respectively Output 1.2: Integrated Climate-Resilient Flood Management Strategies developed for Luang Prabang and the Xe Bang Hieng River Basin, supported by an updated hydrometeorological monitoring network, EWS and revised emergency procedures for the Xe Bang Hieng River Basin	LDC F	905,598.00	13,867,519.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure and livelihood enhancement.	Investment	Outcome 2: Reduced flood risk through headwater conservation, restoration and protective infrastructure, supported by climate-resilient and alternative livelihoods	<p>Output 2.1: Ecosystems conserved and restored through conservation zone management, Ecosystem-based Adaptation, and protective infrastructure, supported by innovative communication and knowledge management tools/technology</p> <p>Output 2.2: Climate-resilient and alternative livelihoods promoted in headwater and lowland communities through Community Conservation Agreements (CCAs) and diversified livelihood opportunities</p>	LDC F	3,078,948.00	6,672,533.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3: Knowledge management and Monitoring and Evaluation (M&E)	Technical Assistance	Outcome 3: Effective knowledge management and M&E through awareness/advocacy and monitoring of climate change impacts and adaptation opportunities in target rural and urban communities	<p>Output 3.1: Training and awareness/advocacy campaigns conducted to enhance knowledge management, M&E and information exchange on climate change impacts on agricultural production and socioeconomic conditions and lessons disseminated on community-based adaptive solutions</p> <p>Output 3.2: Community-based water resources and ecological monitoring systems established and community members trained in their operations and maintenance</p>	LDCF	1,091,124.00	5,561,904.00
Sub Total (\$)					5,075,670.00	26,101,956.00
Project Management Cost (PMC)						
LDCF			253,782.00	1,360,629.00		

Project Management Cost (PMC)

Sub Total(\$)	253,782.00	1,360,629.00
Total Project Cost(\$)	5,329,452.00	27,462,585.00

Please provide justification

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Civil Society Organization	Wildlife Conservation Society	In-kind	Recurrent expenditures	1,213,862.00
Donor Agency	United Nations Environment Programme	In-kind	Recurrent expenditures	864,000.00
Recipient Country Government	Department of Planning and Finance, MoNRE	Public Investment	Investment mobilized	13,030,740.00
Recipient Country Government	Department of Irrigation, MAF	Public Investment	Investment mobilized	5,258,716.00
Recipient Country Government	Provincial Department of Agriculture and Forestry, Savannakhet Province, MAF	Public Investment	Investment mobilized	5,773,000.00
GEF Agency	United Nations Development Programme (UNDP)	In-kind	Recurrent expenditures	1,072,267.00
GEF Agency	United Nations Development Programme (UNDP)	Grant	Investment mobilized	250,000.00
Total Co-Financing(\$)				27,462,585.00

Describe how any "Investment Mobilized" was identified

The investment mobilized for the indicated sources of co-finance will be as follows: ? The Department of Planning and Finance project will contribute to the proposed project through the implementation of activities which will address water quality and eco-system health, provision of water resource modelling and assessments, activities focused on upgrading hydrological and meteorological networks, the implementation of activities improving river basin management and the introduction of sustainable irrigation and drainage systems. ? The Department of Irrigation project will partially contribute to the proposed project through the implementation of activities focused on livelihood enhancement, value chain development and awareness raising. ? The Provincial Department of Agriculture and Forestry will contribute to the proposed project through the implementation of activities focused on livelihood enhancement. ? United Nations Development Programme will contribute to the proposed project by

supporting Project Management Unit costs as well as the procurement of equipment (specifically a vehicle) for use by the PMU.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	LDC F	Lao PDR	Climate Change	NA	5,329,452	506,298	5,835,750.00
Total Grant Resources(\$)					5,329,452.00	506,298.00	5,835,750.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)
PPG Required **true**

PPG Amount (\$)
150,000

PPG Agency Fee (\$)
14,250

Agency	Trust Fund	Country	Focal Area	Programmin g of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	LDC F	Lao PDR	Climat e Change	NA	150,000	14,250	164,250.00
Total Project Costs(\$)					150,000.00	14,250.00	164,250.00

Meta Information - LDCF

LDCF true
SCCF-B (Window B) on technology transfer false
SCCF-A (Window-A) on climate Change adaptation false

Is this project LDCF SCCF challenge program?
false

This Project involves at least one small island developing State(SIDS). false

This Project involves at least one fragile and conflict affected state. false

This Project will provide direct adaptation benefits to the private sector. false

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). true

This Project has an urban focus. true

This Project covers the following sector(s)[the total should be 100%]:*

Agriculture	15.00%
Natural resources management	35.00%
Climate information Services	25.00%
Costal zone management	0.00%
Water resources Management	0.00%
Disaster risk Management	25.00%
Other infrastructure	0.00%
Health	0.00%
Other (Please specify:)	0.00%
Total	100%

This Project targets the following Climate change Exacerbated/introduced challenges:*

Sea level rise false

Change in mean temperature false

Increased Climatic Variability true

Natural hazards true

Land degradation true

Costal and/or Coral reef degradation false

GroundWater quality/quantity false

[To calculate the core indicators, please refer to Results Guidance](#)

Core Indicators - LDCF

CORE INDICATOR 1	Total	Male	Female	% for Women
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Total number of direct beneficiaries	492,462	246,231	246,231	50.00%
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CORE INDICATOR 2

Area of land managed for climate resilience (ha)	200,000.00
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CORE INDICATOR 3

Total no. of policies/plans that will mainstream climate resilience	6
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CORE INDICATOR 4		Male	Female	% for Women
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Total number of people trained	1,544	772	772	50.00%
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OUTPUT 1.1.1

Physical and natural assets made more resilient to climate variability and change

Male

Female

Total number of direct beneficiaries from more resilient physical assets	492,462	246,231	246,231
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Ha of agriculture land	Ha of urban landscape	Ha of rural landscape	No. of residential houses
9,800.00		190,200.00	0

No. of public buildings	No. of irrigation or water structures	No. of fishery or aquaculture ponds	No. of ports or landing sites
0	0	0	0

Km of road	Km of riverban	Km of coast	Km of storm water drainage
	1,800.00		

Other	Other(unit)	Comments
0		

OUTPUT 1.1.2

Livelihoods and sources of income of vulnerable populations diversified and strengthened

Male

Female

Total number of direct beneficiaries with diversified and strengthened livelihoods and sources of income

0

0

0

Livelihoods and sources of incomes strengthened / introduced

Agriculture	Agro-Processing	Pastoralism/diary	Enhanced access to markets
true	false	true	true
Fisheries /aquaculture	Tourism /ecotourism	Cottage industry	Reduced supply chain
true	false	false	false
Beekeeping	Enhanced opportunity to employment	Other	Comments
false	false	false	

OUTPUT 1.1.3

New/improved climate information systems deployed to reduce vulnerability to climatic hazards/variability

		Male	Female
Total number of direct beneficiaries from the new/improved climatic information systems	0	0	0
Climate hazards addressed			
Flood false	Storm false	Heatwave false	Drought false
Other false	Comments		
Climate information system developed/strengthened			
Downscaled Climate model false	Weather/Hydromet station false	Early warning system false	Other false
Comments			
Climate related information collected			
Temperature false	Rainfall false	Crop pest or disease false	Human disease vectors false
Other false	Comments		
Mode of climate information dissemination			
Mobile phone apps false	Community radio false	Extension services false	Televisions false
Leaflets	Other	Comments	

falsefalse

OUTPUT 1.1.4

Vulnerable natural ecosystems strengthened in response to climate change impacts

Types of natural ecosystem

Desert false	Coastal false	Mountainous false	Grassland false
Forest false	Inland water false	Other false	Comments

OUTPUT 1.2.1

Incubators and accelerators introduced

Total no. of entrepreneurs supported	0	Male 0	Female 0
No. of incubators and accelerators supported	0	Comments	
No. of adaptation technologies supported	0	Comments	

OUTPUT 1.2.2

Financial instruments or models to enhance climate resilience developed

Financial instruments or models

PPP models
false

Cooperatives
false

Microfinance
false

Risk insurance
false

Equity
false

Loan
false

Other
false

Comments

OUTPUT 2.1.1

Cross-sectoral policies and plans incorporate adaptation considerations

Will mainstream climate resilience

0

Of which no. of regional policies/plans

Of which no. of national policies/plan

Sectors

Agriculture

Fishery

Industry

Urban

false

false

false

false

Rural

Health

Water

Other

false

false

false

false

Comments

OUTPUT 2.1.2

Cross sectoral institutional partnerships established or expanded

No. of institutional partnerships established or strengthened

Comments

OUTPUT 2.1.3

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

No. of systems and frameworks

Comments

OUTPUT 2.1.4

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

No. of systems and
frameworks

Comments

OUTPUT 2.2.1

No. of institutions with increased ability to access and/or manage climate finance

No. of institution(s)

Comments

OUTPUT 2.2.2

Institutional coordination mechanism created or strengthened to access and/or manage climate finance

No. of mechanism(s)

Comments

OUTPUT 2.2.3

Global/regional/national initiatives demonstrated and tested early concepts with high adaptation potential

No. of initiatives or
technologies

Comments

OUTPUT 2.2.4

Public investment mobilized

Amount of investment
(US\$)

Comments

OUTPUT 2.2.5

Private investment mobilized

Amount of investment
(US\$)

Comments

OUTPUT 2.3.1

No. of people trained regarding climate change impacts and appropriate adaptation responses

Total no. of people trained	1,500	Male 750	Female 750
Of which total no. of people at line ministries	0	Male 0	Female 0
Of which total no. of community/association	1,500	Male 750	Female 750
Of which total no. of extension service officers	0	Male 0	Female 0
Of which total no. of hydromet and disaster risk management agency staff	0	Male 0	Female 0
Of which total no. of small private business owners	0	Male 0	Female 0
Of which total no. school children, university students or teachers	0	Male 0	Female 0
Other	Comments		

OUTPUT 2.3.2

No. of people made aware of climate change impacts and appropriate adaptation responses

		Male	Female
No. of people with raised awareness	0	0	0

Please describe how their awareness was raised

OUTPUT 3.1.1

National climate policies and plans enabled including NAP processes by stronger climate information decision-support services

No. of national climate policies and plans 6

Comments

OUTPUT 3.1.2

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

No. of systems and
frameworks 0

Comments

OUTPUT 3.1.3

Vulnerability assessments conducted

No. of assessments
conducted 0

Comments

OUTPUT 3.2.1

No. of institutions with increased ability to access and/or manage climate finance

No. of institution(s) 0

Comments

OUTPUT 3.2.2

**Institutional coordination
mechanism(s) created or strengthened
to access and/or manage climate
finance**

No. of mechanism(s) **0**

Comments

OUTPUT 3.2.3

**Global/regional/national initiative(s)
demonstrated and tested early
concepts with high adaptation potential**

No. of initiative(s) or
technology(ies) **0**

Comments

OUTPUT 3.3.1

No. of people trained regarding climate change impacts and appropriate adaptation responses

Total no. of people trained	44	Male 22	Female 22
Of which total no. of people at line ministries	44	Male 22	Female 22
Of which total no. of community/association	0	Male 0	Female 0
Of which total no. of extension service officers	0	Male 0	Female 0
Of which total no. of hydromet and disaster risk management agency staff	0	Male 0	Female 0
Of which total no. of small private business owners	0	Male 0	Female 0
		Male	Female

Of which total no. school children, university students or teachers	0	0	0
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Other

Comments

OUTPUT 3.3.2

No. of people made aware of climate change impacts and appropriate adaptation responses

		Male	Female
No. of people with raised awareness	0	0	0

Please describe how their awareness was raised

Part II. Project Justification

1a. Project Description

describe any changes in alignment with the project design with the original pif

Changes in Project Framework:

The project components have remained as detailed in the PIF, however the project Outcomes and Outputs have been restructured from seven Outcomes and 17 Outputs to three Outcomes, six Outputs and 18 Activities. The intent of this restructuring is to streamline the project logframe and to improve the ease of project implementation, monitoring and reporting. During the process of restructuring, several of the Outcomes identified at PIF stage were reassigned as Outputs while the majority of Outputs identified at PIF stage were reassigned as project Activities. This aspect of the restructuring has streamlined the logframe and simplified the progression from Component level down to Activity level, while maintaining the goal and intent of each Component. As a result of this restructuring process, the wording of project Outcomes and Outputs was revised, however the overall content and meaning of Outcomes and Outputs remain the same as in the PIF. The restructuring of the project logframe also enabled the scope and intent of project Components to be re-evaluated, refined and expanded upon from those presented at PIF stage. Moreover, the reassigning of PIF stage Outcomes and Outputs has enabled these aspects of the project to be further refined, without losing content or meaning, so that they can provide a more robust description of the project Components from what was detailed at PIF stage.

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.

The Lao People's Democratic Republic (hereafter referred to as Lao PDR) is a landlocked Least Developed Country (LDC) in Southeast Asia ? bordered by Vietnam to the east, Thailand to the west, Cambodia to the south and Myanmar and China to the north. It has a total land area of ~236,800 km², of which ~20% comprises floodplains along the Mekong River that flows from north to south through the country^{[1]¹, [2]².}

Lao PDR has a tropical climate, characterised by high interannual rainfall variability, with 70% of rainfall occurring during the rainy season of April?October, and a mean annual temperature of 18°C^{[3]³}

. The climate is influenced by typhoons from the southwest and monsoons from the northeast, which both result in flooding along the Mekong and its tributaries. The increasing amount of rainfall from extreme rainfall days ? ~10 mm per decade since the 1960s ? and the accumulation of monsoon rains in the upper Mekong River Basin during this period, leads to seasonal nationwide flooding

events[4]⁴,[5]⁵. Typhoons lead to intense, but relatively brief, flash flooding events. The majority of the country's population of ~7 million people is concentrated on the eastern bank of the Mekong and its tributaries, making them highly vulnerable to the impacts of floods ? including landslides, erosion of riverbanks, damage to infrastructure and reduced food security resulting from agricultural damages and losses. While lowland and floodplain communities are more vulnerable to floods, communities situated in the mountainous headwater regions are more vulnerable to droughts[6]⁶,[7]⁷.

In addition to changes in rainfall patterns, Lao PDR's national average temperature increased by 0.1?0.3°C per decade between 1951 and 2000. This increase, coupled with decreasing rainfall during the dry season, has led to longer and more severe droughts throughout the country[8]⁸. Despite this national trend in increasing temperature, the average temperature is not uniform across the country, with temperatures in the south trending slightly higher than the national average and temperatures in the north trending slightly below the national average[9]⁹.

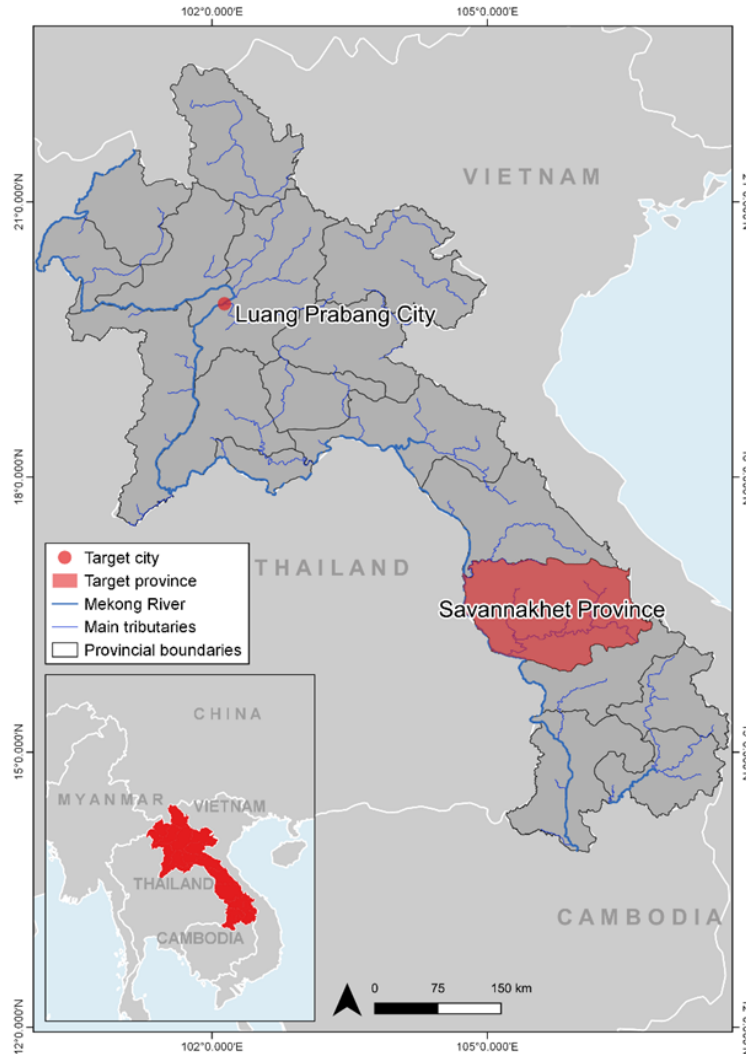


Figure 1. Locality map highlighting Savannakhet Province and the city of Luang Prabang.

Although historically a significant proportion of Lao PDR's land area has been classified as forest cover, this cover has decreased considerably in recent decades, from ~70% in 1940 (~18.6 million ha) to ~40% in 2010 (~9.5 million ha)^{[10]¹⁰, [11]¹¹}. While in recent years the percentage of forest cover has increased to a current rate of 62%, this substantial degradation has had an adverse impact on the services provided by forest ecosystems? including benefits to communities, ecosystems and the economy. These services include regulating services such as the regulation of surface water runoff and preserving hydrological systems ? which protect against the impacts of extreme climate events, including droughts and floods. Moreover, forests provide communities with non-timber forest products (NTFPs), which contribute considerably to the livelihoods of local communities, primarily through their contribution to food security and the generation of additional income^{[12]¹²}. NTFPs are

particularly important to rural and ethnic group communities, which account for ~70% of the population of Lao PDR in 2008[13]¹³. In addition to the critical provisioning and regulating services provided to local communities, forest resources provide substantial contributions to the national economy through plantations for *inter alia* timber and rubber[14]¹⁴, [15]¹⁵. However, while forest resources contribute to the national economy, forested areas are also where other natural resource production occurs ? such as mining and agricultural practices ? resulting in deforestation and degradation.

Despite its LDC status, Lao PDR's abundance of natural resources has enabled the country to develop one of the fastest-growing economies in Southeast Asia, with a pre Covid-19 Gross Domestic Product (GDP) of ~US\$18 billion growing at a rate of ~6% per annum over the last two decades[16]¹⁶, [17]¹⁷. This economic growth has resulted from investment in agriculture, forestry, hydropower and mining, with consequent increases in the demand for land and natural resources. This demand has resulted in increasing pressure on, and often the unsustainable use of, ecosystems, thereby exacerbating degradation[18]¹⁸. The expansion of agriculture has, in particular, threatened the health of vulnerable local ecosystems. Although only ~4% of the land in Lao PDR is arable, agriculture supports 70?80% of livelihoods in the country and accounts for ~30% of the country's GDP[19]¹⁹, [20]²⁰. Furthermore, there has been significant foreign investment in agriculture, with more than 20 foreign agricultural businesses operating on ~145,000 ha of land in Savannakhet Province alone[21]²¹, [22]²². The limited availability of land ? coupled with high demand for both subsistence and commercial purposes ? means that agricultural concessions for foreign investment have resulted in numerous conflicts with local communities. These conflicts arise as a result of the clearing of land already in use by the communities, with more than 20 cases of land conflict reported in the Xayburi district of Savannakhet Province in 2011 alone[23]²³, [24]²⁴.

While Lao PDR's economy has grown significantly and poverty rates have fallen from 46% (2007?2008) to 18.3% (2018?2019)[25]²⁵, ~75% of the population are still reliant on the informal sector for their livelihoods[26]²⁶, with ~1.5 million people engaged in informal employment. Moreover,

NTFPs are estimated to provide 90% of the income that the poorest households in Lao PDR receive[27]²⁷. Even those members of the population engaged in formal employment are unlikely to be covered by social protection schemes, with only 16.6% of the formally employed covered by these schemes in 2017[28]²⁸.

Despite its increasing economic development, Lao PDR's LDC status means that extreme climate events have a substantial impact on the national economy and population. This limits the country's capacity to fund full recovery responses and results in locked-in cycles of recovery where reconstruction and relief responses are still ongoing when subsequent extreme events occur, preventing sustainable adaptation solutions from being implemented. For example, Typhoon Ketsana in 2009 resulted in US\$94.2 million in damages in the south of Lao PDR. This included damage to roads, irrigation networks and other public infrastructure and affected more than 180,000 people and nearly 30,000 households[29]²⁹. In 2011, Typhoon Haima affected 90,000 people across four provinces and resulted in US\$66million in combined damages and losses, primarily impacting the transport and agricultural sectors. Between July and September 2018, floods resulting from Tropical Storm Son-Tinh led to ~US\$147 million in damages and ~USD\$224 million in losses across 13 provinces. The impacts of these flooding events were exacerbated when the heavy rains caused a breach in the still-under-construction Xe Pien-Xe Nam Noy hydropower dam in Attapeu Province, which resulted in ~10% of all the damages caused by the floods. Over 600,000 people were affected by these floods, while the agricultural sector experienced the greatest losses (57% of total losses) and the transport sector suffered the greatest damages (~66% of overall damages along with 40% of all losses). Moreover, the impacts of these floods decreased Lao PDR's GDP by 2%[30]³⁰,[31]³¹. The 2018 floods exacerbated pre-existing inequalities experienced by the poorer and rural populations of Lao PDR, with ~14% estimated to suffer from food insecurity due to the floods while 70% of indebted households were forced to increase existing loans to secure production following the floods[32]³²,[33]³³.

Besides the economic impact of extreme climate events such as floods and droughts, severe social impacts also directly affect local communities. For example, extreme climate events can lead to the damage or destruction of farms and microenterprises. This damage, in turn, exacerbates existing challenges for rural and impoverished communities by reducing available income as well as reducing the availability of fresh and nutritious food[34]³⁴. The aftermath of extreme events can also impact vulnerable communities by increasing the likelihood of vector- and water-borne diseases such as dengue or typhoid fever, particularly in communities where transport and health infrastructure have been adversely affected. Marginalised groups, including Ethnic Groups (EGs) and women, are

particularly impacted by extreme climate events, which exacerbate pre-existing vulnerabilities. For example, following the 2018 floods, the breakdown of community protection systems and flood victims' residence in unsecured temporary shelters resulted in increased workloads for women and subsequent heightened risks of gender-based violence[35]³⁵, [36]³⁶, [37]³⁷.

Savannakhet Province

Savannakhet Province is located in the south of Lao PDR and is the country's largest province with a total land area of ~22,000 km². The province is bordered by Saravan Province in the south, Khammouane Province in the north, Vietnam to the east and Thailand to the west. Although Savannakhet has a hotter and drier climate than other provinces, it is still rich in natural resources such as agricultural land, forests, rivers, mineral deposits and biodiversity[38]³⁸. A considerable amount of the total area of Savannakhet Province, ~607,000 ha, comprises dry dipterocarp forests, of which the environmental and economic value is not well understood[39]³⁹. The limited awareness of the value of forests and other ecosystems can lead to unsustainable land-use changes that exacerbate degradation and increase the vulnerability of communities to extreme climate events[40]⁴⁰.

Most of Savannakhet Province lies within the ~19,500 km² Xe Bang Hieng River Basin, with the river's headwaters located in the Annamite mountains along the Lao PDR-Vietnam border, in the north-eastern region of the province[41]⁴¹. From there, the river flows into the Mekong River which flows along the western border of the province and drains south into Cambodia. The hydrology of the Xe Bang Hieng River Basin is driven by annual monsoon rainfall, characteristic of the lower Mekong River Basin, and backwater effects from the Mekong River during the wet season, May-October. The resulting hydrological regime is highly seasonal and has high interannual variability, with 90% of river discharge occurring during the wet season[42]⁴². Of the 28 tributary sub-catchments that comprise the Xe Bang Hieng River Basin, the sub-catchments in the west have the highest rates of rice paddy cultivation, while the more central and eastern sub-catchments are more highly forested[43]⁴³.

Agriculture is also particularly important for Savannakhet Province, with 75% of the population (of ~1 million people) living in rural areas and relying on subsistence agriculture for their livelihoods. This has subsequently resulted in an area of ~1.5 million ha being used for agricultural practices within the province[44]⁴⁴. The western lowland regions of the Xe Bang Hieng River Basin are especially important for agricultural activities, with farms in this area responsible for supplying ~25% of the rice

consumed in Lao PDR. Forestry is also a significant contributor to the provincial economy, with ~607,000 ha of the land area in Savannakhet comprising forest ecosystems. Combined, agriculture and forestry account for 66% of the investment into Savannakhet Province, with timber and wood products being the third most significant export from the province, following copper and gold[45]⁴⁵.

Savannakhet Province experienced an increase in the demand for land concessions after the completion of the second Lao-Thai Friendship Bridge[46]⁴⁶ expanded access to international markets in 2006. This direct connection between the province and international markets further supported the granting of concessions to foreign companies, with more than 20 foreign companies operating industrial agriculture and plantation forestry by 2009[47]⁴⁷. The four largest concession holders alone accounted for, respectively: i) 41,000 ha for a eucalyptus plantation; ii) 10,000 ha for a sugarcane plantation; iii) 12,000 ha for another sugarcane plantation; and iv) 10,000 ha for a rubber plantation[48]⁴⁸. Although the Forestry Law of Lao PDR mandates that plantations must be developed on degraded land, the definition of degradation is unclear, which leads to the unsustainable development of forestland into plantations. These plantations – either for monocrop cultivation or the extraction of timber from natural forests – exacerbate the loss of natural forests and can result in land being degraded and abandoned, once the natural forests have been completely harvested[49]⁴⁹.

Savannakhet Province is sub-divided into 15 districts, of which five will be targeted for project interventions. These five target districts include the lowland districts of Champhone, Songkhone and Xonbuly and the headwater districts of Nong and Sepone. Both the headwater and lowland communities of the Xe Bang Hieng River Basin are increasingly vulnerable to climate hazards, particularly floods and droughts. Major flood events in recent years have destroyed and damaged homes, displaced people, damaged farmlands and damaged infrastructure related to transport, communication, agriculture, education, water and sanitation, and electricity[50]⁵⁰, [51]⁵¹, [52]⁵². Droughts in Savannakhet Province have resulted in the loss of pasture, damage to fisheries and degradation of forests, all of which led to decreasing food security across both the province and the entire country[53]⁵³.

Luang Prabang city

The city of Luang Prabang is located in the north of Lao PDR, in Luang Prabang Province, at the confluence of the Mekong River and one of its tributaries, the Nam Khan[54]⁵⁴. Home to one of the

three UNESCO World Heritage Sites in Lao PDR, Luang Prabang city is of cultural and historical importance. The city is also a popular tourist destination for local and international travellers. It is the fourth largest city in the country, with a population of ~90,000. Luang Prabang city is surrounded by mountainous terrain, with steep river valleys and a limited floodplain area, which exposes the population to extreme climate events such as typhoons. These extreme climate events ? combined with a lack of effective early warning systems (EWS) ? can lead to flash flooding and landslides, resulting in damages and losses to local communities as well as the UNESCO heritage site[55]⁵⁵.

Problem Statement

The increasing frequency and intensity of floods and droughts resulting from climate change are putting livelihoods and water resources in the rural headwater and lowland communities of the Xe Bang Hieng River Basin at risk, in addition to threatening assets and infrastructure of urban communities in Luang Prabang city. Anthropogenic drivers such as increasiealization, ecosystem degradation and deforestation exacerbate the vulnerability of these communities to climate hazards ? specifically floods and droughts. As ecosystems aealizationised by unsustainable use, impacts from extreme climate events disrupt the delivery of ecosystem services and further reduce natural hazard protections provided by these ecosystems.

The vulnerable communities of the Xe Bang Hieng River Basin do not have the capacity, or the mandate, to reduce the risks and vulnerabilities to climate change-induced flood and droughts they are exposed to. Communities in the Xe Bang Hieng River Basin also lack the capacity to respond to and recover from climate induced disasters, such as flood and drought. Local-, district- and provincial-level interventions are required to address the numerous vulnerabilities, and drivers of vulnerabilities, of these communities. In addition, officials in Luang Prabang city do not have sufficient institutional and technical capacity to effectively plan for and respond to flood events, while communities in the city do not have sufficient awareness of the risks from floods or the drivers of increased flooding in urban areas to take adaptive action.

Root Causes

Observed temperature changes for Lao PDR indicate an increase in the average annual temperature of ~0.05°C per annum between 1970 and 2010. In addition, the frequency of months with average rainfall greater than 600 mm increased over this period, while monthly rainfall within the range of 300-500 mm was decreasing[56]⁵⁶. This indicates a general increase in rainfall intensity. These trends are expected to continue, with long-term climate projections predicting: i) a mean annual temperature increase of 1.4-4.3°C by 2100[57]⁵⁷; ii) an increase in the number of days classified as ?hot?[58]⁵⁸; iii) a 10-30% increase in mean annual rainfall ? particularly in the southern and eastern parts of the country, and concentrated in the wet season (June-September); iv) an increase in the number of days with more than 50 mm of rain; v) a 30-60% increase in the amount of rain falling on very wet

days[59]⁵⁹; and vi) changing rainfall seasonality resulting in a longer dry season[60]⁶⁰. As a result of the increasing variabilities and extremes of temperature and rainfall caused by climate change, the frequency of related extreme climate events, such as floods and droughts, has increased in the country in recent decades[61]⁶¹. Because of these increases, floods and droughts are likely to: i) occur during periods not previously associated with them; ii) result in greater damages and losses, particularly for vulnerable communities; and iii) impact greater or different areas to those previously affected. These changes will intensify the vulnerability of communities to the impacts of floods and droughts as they become increasingly difficult to predict and prepare subsequently.

Communities throughout the target areas are vulnerable to the impacts of climate change-induced floods and droughts. Lowland communities in the Xe Bang Hieng River Basin and urban communities in Luang Prabang city are particularly at risk to floods, while headwater communities in the Xe Bang Hieng River Basin are at particular risk to droughts. The high flood exposure in the lowland communities (including those of Luang Prabang city) results from their location on floodplains where the natural geography exposes them to flood events. Conversely, headwater communities are located in the province's mountainous regions, where water resources are scarcer and more difficult to manage sustainably ? resulting in a higher incidence of drought. The impacts of these events are exacerbated by the degradation and loss of riverine and forest ecosystems ? through deforestation and unsustainable agricultural practices ? which would normally provide protective ecosystem services.

Severe flooding of lowland areas in recent years has resulted in the damage and destruction of homes, farmlands and infrastructure, as well as the displacement of communities located in the basin. For example, 20-40% of the 50,000 ha of fertile farmland available in the area between the Xe Champhone and Xe Xanxay tributaries are damaged annually by floods. In 2019, floods affected ~85,000 people in Savannakhet Province and resulted in an estimated US\$164 million in damages and losses[62]⁶². In particular, the Champhone district of Savannakhet Province experienced extreme rainfall over a 15-day period between August and September 2019, which resulted in substantial damage to crops and livestock loss from flash flooding, adversely affecting food security in the district.

In Luang Prabang, recent floods have resulted in damage to transport and communication infrastructure, houses and agricultural lands surrounding the city. For example, floods in 2018 had considerable impacts, including damaging or destroying: i) the embankment of the Nam Khan River in the Luang Prabang UNESCO World Heritage Site, which required ~US\$13 million to repair; ii) urban water supply and sanitation infrastructure; iii) schools; and iv) ~250 houses[63]⁶³. Flooding events also threaten water security in the city by polluting water sources[64]⁶⁴, while losses to the tourism industry

have a notable impact on the local economy. The impact of floods that occurred in 2018 across the country caused US\$100 million in losses and damages to the tourism industry[65]⁶⁵.

The increasing frequency and intensity of droughts in Lao PDR have also had severe adverse impacts on the country. These events exacerbate forest degradation, damage fisheries and decrease the productivity of pastures, severely compromising food security in the country. For example, droughts in 2019 affected water resources for both rainfed and irrigated agricultural areas. This led to a 40% decrease in the available land area throughout Lao PDR for rice planting compared with previous years[66]⁶⁶. Savannakhet Province has been classified as the most vulnerable province to drought in Lao PDR, with the Xe Bang Hieng River's headwaters particularly at risk[67]⁶⁷. In addition to the pressures placed on ecosystems by the limited availability of water, droughts also decrease agricultural productivity. To compensate for loss of agriculture-base livelihoods and the resulting impacts of food security, communities often resort to the unsustainable use of local ecosystems' goods and services. As many communities are already reliant on wild forest foods to supplement rice in their daily diets, increasing reliance on ecosystem goods and services will increase pressure on these natural resources[68]⁶⁸,[69]⁶⁹.

The impacts of the increasing frequency and severity of climate change-induced floods and droughts are further compounded by rapid urbanization with the national ratio of the urban-rural population increasing from 27:73 to 33:67 between 2005 and 2015[70]⁷⁰,[71]⁷¹. Urbanisation leads to the degradation and overuse of ecosystems for both land and natural resources which would naturally provide buffers against the impacts of floods and droughts. More rapid urbanization increases the relative proportion of artificial and impermeable surfaces compared with natural surfaces, which leads to decreased infiltration and increased surface runoff. These factors exacerbate the impacts of increasing rainfall trends and lead to more frequent and severe flooding in urban areas.

Underlying Causes

The vulnerability of communities in Lao PDR to extreme climate events is underpinned by challenges related to land management in the country. Specifically, mismanagement of land has impacted communities by, *inter alia*: i) reducing the availability of suitable land to support livelihoods; ii) reducing the availability of natural resources through ecosystems degradation and overexploitation; and iii) disrupting water sources through the installation of infrastructure for water retention, irrigation and storage. Deforestation and degradation of ecosystems as a result of unsustainable use of natural resources in the Xe Bang Hieng River Basin also compound the existing vulnerabilities of the area's

communities to extreme climate events. In particular floods and droughts decrease or remove the natural protective buffers that forest and river ecosystems can provide.

The challenge of land management is further exacerbated by recent investments into agriculture, forestry, land concession, hydropower development and mining. These investments have resulted in numerous negative impacts, including: i) cases of land leases and concessions being granted within official Conservation and Protection Forest areas; ii) the granting of leases and concessions leading to conflict between communities and investors; and iii) the relocation of large numbers of people ? which is often coupled with reduced access to natural resources such as grazing land, non-timber forest products (NTFPs), wildlife, construction materials and traditional medicines[72]⁷².

The granting of concessions for commercial agriculture and forestry play an important role in the provincial economy by providing jobs for local community members, but also lead to forest clearing and reduced access to forest and land resources by local communities. Consequently land-use change reduces the adaptive capacity and increases the economic sensitivity of local communities to climate change by inhibiting their access to land for cultivation and forests for grazing, as well as for the sale and consumption of NTFPs[73]⁷³. In addition to legally granted concessions, illegal logging operations in protected and conservation areas is one of the primary drivers of deforestation and degradation in Lao PDR[74]⁷⁴.

Expansion of hydropower schemes and illegal logging operations ? driven by demand for power and timber ? has further led to deforestation in Lao PDR. The forced return of more than 100,000 migrant workers to Lao PDR as a result of restrictions for combatting Covid-19 ? given that Savannakhet Province had the second-highest number of returning migrant workers[75]⁷⁵ ? is a potential new driver of population pressures causing increased ecosystem degradation and deforestation.

Immediate Causes

Savannakhet Province

Low agricultural productivity, food insecurity and limited alternative livelihood opportunities have led to small-scale farmers practicing unsustainable farming techniques, such as swidden agriculture, in the rural areas of the province[76]⁷⁶[77]⁷⁷,[78]⁷⁸,[79]⁷⁹. These techniques have contributed to the deforestation and degradation of the upper Xe Bang Hieng River Basin by reducing the capacity of local forest ecosystems to: i) facilitate rainwater infiltration and retain water; ii) support livestock grazing areas; iii) supply NTFPs for food, livelihoods, as well as economic and household purposes;

and iv) supply other ecosystem goods and services, such as recreational and cultural benefits. Other degradational activities, such as commercial plantations and hydropower development, also have a negative impact on ecosystems in Savannakhet Province. Ecosystem degradation is exacerbated by lacking or outdated land-use plans in the province. The impacts of the increasing frequency and intensity of floods and droughts are likely to be further exacerbated as these capacities of local forest ecosystems are reduced, in turn further pressuring vulnerable communities resource needs and forcing them to continue practices which use natural resources unsustainably.

As mentioned above, the proposed project will be implemented in five districts within Savannakhet Province ? Champhone, Xonbuly, Songkhone, Sepone and Nong districts ? all of which are located within the Xe Bang Hieng River Basin (Figure 2). These districts are all impacted by floods and droughts to differing degrees, depending on where they are located within the reaches of the Xe Bang Hieng River Basin. The specific contexts of the five target districts were established during stakeholder consultations with district officials in March 2021 and are discussed below. The project will be implemented in three villages from each of the five districts, for a total of 15 target villages (indicated in Table 1 and Figure 3 below).

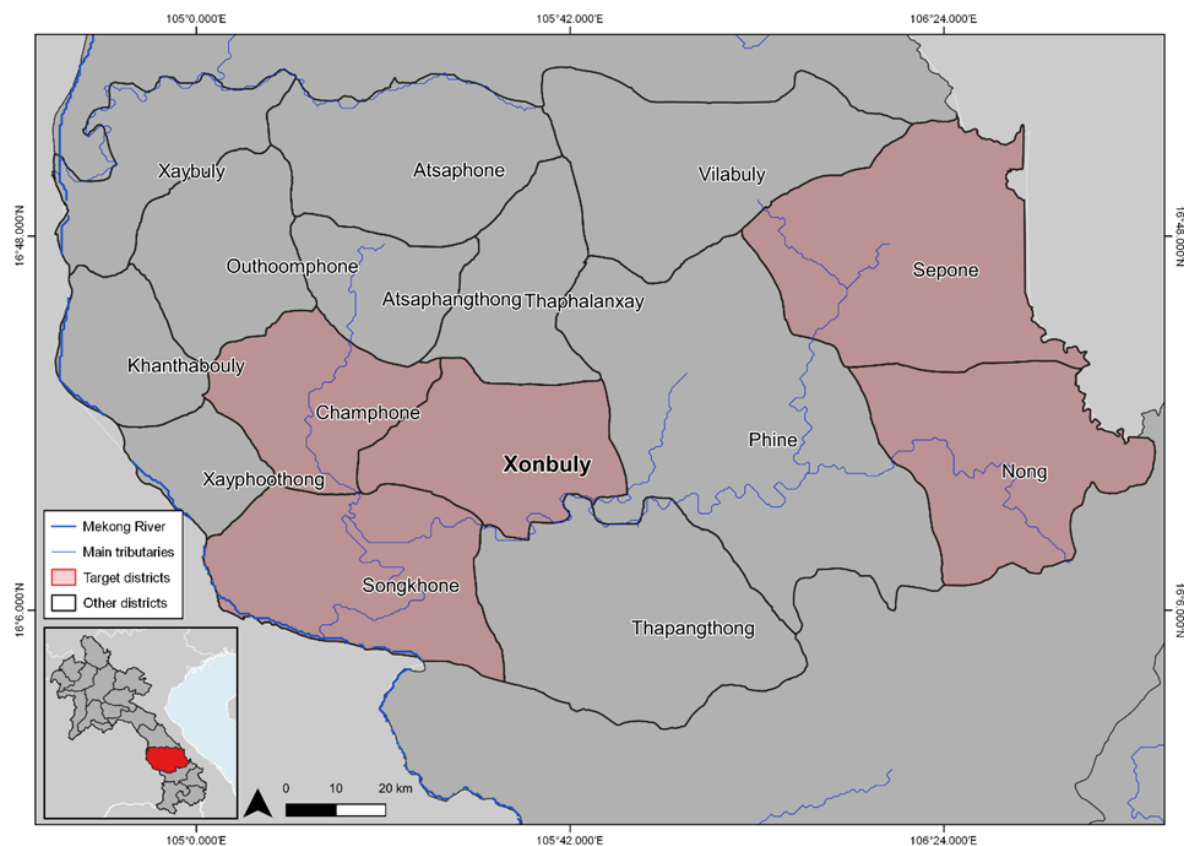


Figure 2. Map of the five selected districts that will be targeted for the proposed project's interventions.

Table 1. Target villages per district in Savannakhet Province.

Nong District	Sepone District	Songkhone District	Champhone District	Xonbuly District
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1. Nongvilai village 2. Tungalai Neua village 3. Saveu village	1. Sopsalou village 2. Kenghuapa village 3. Thamae village	1. Kengdon village 2. Songkhone village 3. Houykor village	1. Paika village 2. Dongmueang village 3. Silivay village	1. Nachanyai village 2. Meuanghong village 3. Nonsavang village
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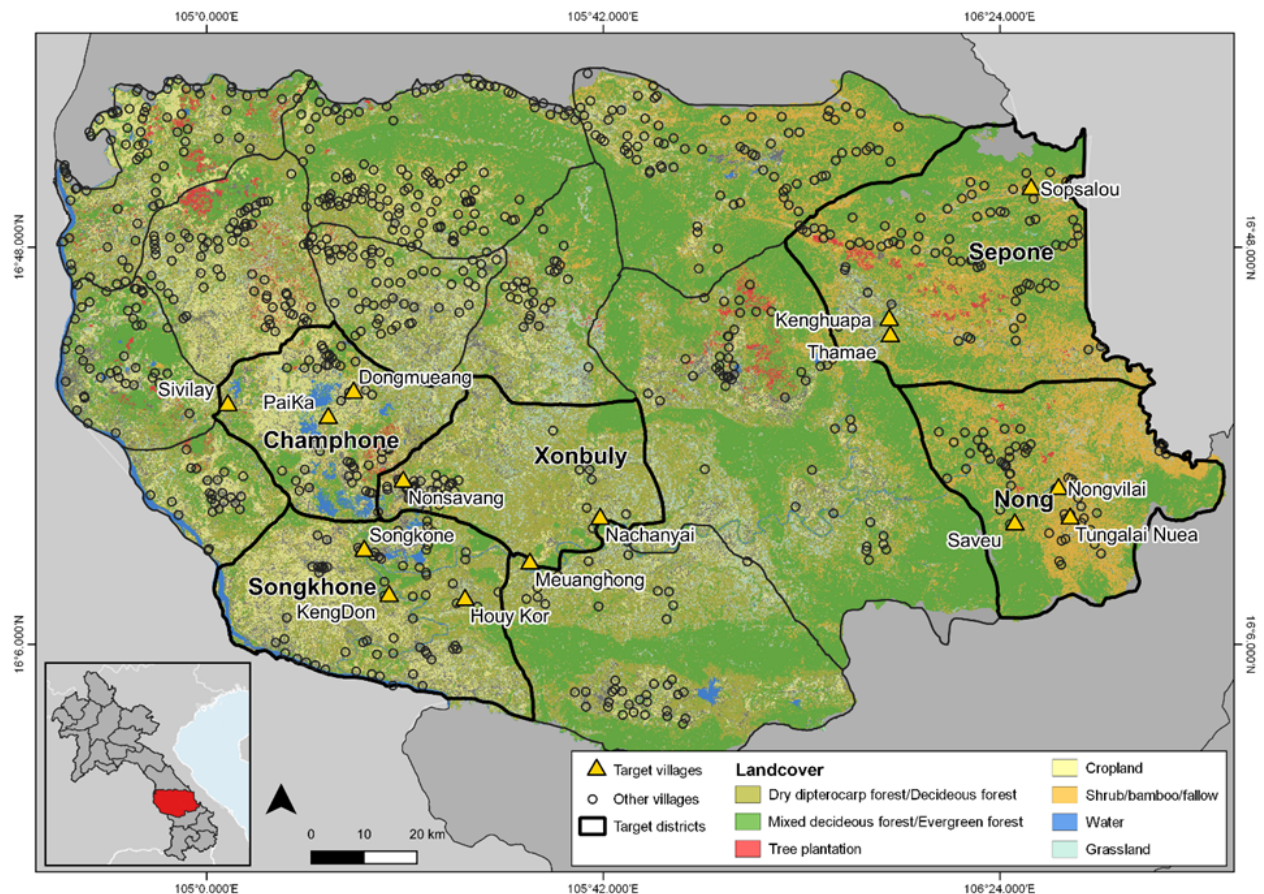


Figure 3. A map of the target villages in their respective districts of Savannakhet Province. Landcover information provided to give context of site areas.

Champhone District

Champhone district has a population of ~120,000 people, of which ~61,000 are women. The district consists of ~54,000 ha of wetland, with ~12,000 of those hectares designated as a Ramsar site^{[80]⁸⁰}, and ~21,000 ha of rice paddies. Communities in Champhone district are strongly reliant on the wetland as a source of food, income and water for large-scale irrigation. The resultant encroachment of communities onto the wetland ? for agricultural use or the issuing of titles for individual property ? has been identified as a major concern for the Office of Natural Resources and Environment (DONRE).

Degradation of the forests surrounding the wetland caused by community encroachment results in heavy rains transporting sand into the wetland and decreasing the water level.

Several villages in Champhone district are also severely impacted by floods. In 2020, for example, 10,049 people ? from 18 villages in 2,042 households ? experienced some level of property loss or livelihood impacts as a result of floods in Champhone district. Of these, 1,212 households in nine villages were forced to leave their villages and seek shelter in unaffected villages with relatives or temporary shelters. Additionally, the 2020 flooding had a considerable impact on agricultural activities, adversely affecting: i) ~7,000 ha of rice paddies; ii) 123 ha of other crops; iii) the irrigation systems of 23 agricultural projects; iv) 218 fishponds; and v) ten roads. Droughts, while not as frequent in Champhone district as floods, also have an impact on villages in the district and result in damage to rice paddies.

Activities in Champhone district will focus on supportive hard infrastructure to mitigate the effects of flooding. This will include structures such as drainage channels, cascading weirs and retention ponds. These interventions will reinforce the EbA activities implemented upstream to improve water management in the district. This will be further reinforced by the improvement of early warning systems (EWS) and by diversifying livelihoods through Community Conservation Agreements (CCAs) for better climate resilience.

Xonbuly District

Xonbuly district has a population of ~67,000 people, of which ~33,000 are women. The primary livelihood activities practiced by this population are rice and crop cultivation and the raising of livestock. This is despite ~51% of the district's ~160,000 ha area being covered with forests. Floods have had a significant impact on the ~16,000 ha of rice paddies in the district, with large areas of these paddies becoming covered in sand and mud deposited by floodwaters. This has led villagers to increasingly rely on forests for their livelihoods, exacerbating pressures on forests.

Flooding in October 2020 affected 45 out of 63 villages in the district and ~30,000 people from ~4,400 households. This flooding covered an area of ~7,300 ha and affected 176 ha of vegetable gardens, 369 fishponds, nine irrigation points, three sluice gates and 12 roads connecting villages in the district.

In Xonbuly, the proposed activities will focus on similar protective hard infrastructure as in Champhone district. This will include drainage channels, cascading weirs and retention ponds. Further to this, project activities in Xonbuly will also mitigate drought impacts experienced by communities in the district through the implementation of reservoir networks and rainwater harvesting infrastructure. Improved EWS and climate-resilient livelihood interventions will further support adaptation in this district.

Songkhone District

Songkhone district represents the lowest point of the Xe Bang Hieng River Basin and, as a result, is highly susceptible to flooding, having reached a flood level of ~20 m in both 2019 and 2020. The vulnerability of these communities is further exacerbated by their reliance on agriculture ? specifically,

rice cultivation ? which accounts for ~67% of the district's GDP and accounts for considerable land use, with rice paddies covering ~32,000 ha.

Recent floods in Songkhone district impacted ~16,000 people from 24 villages and resulted in ~6,000 ha of rice paddies, 366 fishponds and 145 ha of vegetable gardens being affected. Floods have also impacted infrastructure by damaging irrigation systems, such as agricultural water channels and reservoirs, and affecting roads through localised flooding, erosion of road surfaces and subsequently leading to landslides which damage or block access to roads.

Activities in Songkhone district will focus on supportive hard infrastructure to mitigate the effects of flooding. This will include structures such as drainage channels, cascading weirs and retention ponds. These interventions will reinforce the EbA activities implemented upstream to improve water management in the district. This will be further reinforced by the improvement of EWS and by diversifying livelihoods for better climate resilience.

Sepone District

Sepone district contains three major rivers ? the Xe Bang Hieng, Xe Kok and Xe Poun ? and several commercial plantations. The interactions between these plantations and rivers compound the vulnerability of the 88 villages located in the district. Specifically, the use of chemicals by plantations and their high water requirements have led to the degradation of riparian ecosystems and increased threat of water insecurity in downstream communities, despite plantations only accounting for ~11,000 ha of the ~2,500,000 ha in the district. Increasing ecosystem degradation leads to a decrease in the areas available to villages for the harvesting of NTFPs, while also leading to increased soil erosion along riverbanks.

The degradation of ecosystems, combined with increasingly unpredictable rainfall, increases the vulnerability of communities in Sepone. Flooding in 2018, 2019 and 2020 impacted 51 of the 88 villages in the district. For example, recent floods resulted in 30 ha of rice paddies at the target village of Keng Hua Pa becoming buried under mud that was transported from upstream by flood waters. The increasing risk to rice cultivation from floods and droughts leads to communities turning to slash and burn agriculture as an alternative.

The proposed project activities in Sepone district will include the conservation of protected areas and the restoration of degraded ecosystems. This will be done by planting ecologically appropriate species to restore ecosystem function, as well as other methods including assisted natural regeneration and forest boundary management. In addition, project interventions in Sepone district will include water management ? such as retention ponds and rainwater harvesting infrastructure ? to mitigate the water shortages experienced by these communities.

Nong District

Nong district is located in the headwaters of the Xe Bang Hieng River Basin and comprises mostly mountainous areas or plateaus, with little available land for livelihood activities such as agriculture. Accordingly, the need for land has led to substantial deforestation through illegal logging and unsustainable swidden agricultural practices, which decrease the protective services offered by

ecosystems in the district. As a result of these practices, land degradation reduces the productivity of available agricultural land, subsequently leading to further reliance on these same unsustainable practices, creating a negative cycle of degradation with increasing the pressure on protected areas as the amount of available land decreases.

Droughts in 2020 affected ~30,000 people, from 69 villages, in Nong district and impacted approximately: i) 1,400 ha of rice paddies; ii) 6,000 ha of upland rice areas; iii) 15 ha of maize fields; iv) 29 ha of cassava fields; and v) 133 ha of other crops.

Similar to Sepone, the proposed project activities in Nong will focus on the conservation of protected areas and the restoration of degraded ecosystems. This will be done by planting ecologically appropriate species to restore ecosystem function, as well as other methods including assisted natural regeneration and forest boundary management. To reduce the impacts of unsustainable agricultural practices, the proposed project will implement livelihood diversification interventions via CCAs.

Luang Prabang city

Luang Prabang city is located on low-lying land with little floodplain area which, combined with its proximity to the convergence of the Mekong River with the Nam Khan River, makes it susceptible to impacts from flooding events. The city is designated as a UNESCO World Heritage site, and, therefore, its protection from the impacts of climate change is of significant national cultural importance.

In 2018, floods in Luang Prabang resulted in damage to transport and communications infrastructure, housing and agricultural lands surrounding the city, as well as threats to water security through the pollution of water sources^[81]. These impacts and risks are likely to increase in severity as a result of projected increases in frequency and intensity of extreme rainfall events. Continued urban development and expansion, without consideration of appropriate flood management practices, will likely lead to an increase in the impacts of climate change-induced floods in Luang Prabang, as well as other urban centres.

Luang Prabang, unlike the target districts in Savannakhet Province, will not receive hard, on-the-ground interventions. The proposed project activities in Luang Prabang will instead focus on the valuation of urban ecosystem services and protective options and the development of Integrated Climate-Resilient Flood Management Strategies, in alignment with the Urban Plan that considers the development of the World Heritage site.

Throughout Lao PDR, the resilience of vulnerable communities to the impacts of climate change will have been further weakened as a result of the first national lockdown that was instituted on 23 March 2020 to combat the spread of the Covid-19 pandemic and a second longer national lockdown from April 2021 and still ongoing as of August 2021. National lockdowns are having a significant impact on financial security, especially for people employed by micro- or small-enterprises and those involved in the informal sector, while the forced return of migrant workers will further strain ecosystem goods and services, further details of which can be found in Annex 13c: Covid-19 Analysis and Action

Framework. For Luang Prabang, international tourism has stopped since March 2020 and the impact on this tourism dependent city has been substantial.

Barriers to the preferred solutions

The identified barriers to achieving the preferred solutions are presented below.

Barrier 1: Limited availability of comprehensive ecosystem evaluations and hydrological data to inform ICM and urban flood management decisions.

Although other initiatives are improving the capacity for generating climate information from hydrometeorological monitoring and trends in Lao PDR, this information is not always adequate to support the development and implementation of climate change adaptation activities. Similarly, the scarcity of ecosystem evaluations compounds the systematic underappreciation and limited consideration of these ecosystems in land-use and risk planning. Comprehensive ecosystem evaluations, as well as hydrological assessments based on high-quality spatial data and model calibration, are required to support the planning of water resource, catchment and flood management solutions. In the Savannakhet Province, the need to map flood-prone areas was identified as a priority for the Government of Lao (GoL) following the devastating 2019 floods^[82]⁸². The GoL has limited capacity to collect and analyse hydro-meteorological data at the river basin level to plan for climate change-induced disasters such as floods and droughts. Although other initiatives, such as the GCF urban resilience project, are partially addressing this barrier, their scope is limited at present and does not include the target areas of this project.

Barrier 2: Limited capacity within national and provincial governments to implement sustainable forest management and EbA.

Lao PDR's forestry sector has a long-term strategy on forestry, but notable capacity limitations hamper its enforcement in the Ministry of Agriculture and Forestry, which are compounded by limited or ineffective coordination between relevant stakeholders from the sector and Ministry. Specifically, decision-makers, planners and contractors require technical training on effectively implementing EbA solutions to improve flood management. Although the recently approved GCF urban resilience project^[83]⁸³ is partially addressing this barrier, the project is limited to urban EbA and does not include Luang Prabang city or the Xe Bang Hieng River Basin ? which are particularly vulnerable to flooding, as described in Section II^[84]⁸⁴. In addition to limited knowledge on the implementation of EbA, GoL decision-makers have insufficient access to resources and technical expertise to account for and value ecosystem services.

Barrier 3: Knowledge, technology and other limitations in climate-resilient integrated flood management.

To date, flood management and response in Lao PDR has largely been: i) reactive or post-hoc, as opposed to proactive; ii) of limited geographical or sectoral scope; iii) inadequately coordinated

between relevant ministries, such as the Ministry of Agriculture and Forestry; iv) constrained by technical and institutional capacity limitations amongst government agencies; v) occasionally not implemented because of limited financing, uncoordinated investments and competing development pressures; and vi) limited in its consideration of the impacts of climate change on future land-use needs. This has led to considerable loss and damage, maladaptation and negative externalities, particularly where competing interests or needs are not considered in risk planning. In Savannakhet Province, raising awareness for communities to prepare for flooding resulting from climate change was identified as a priority following the 2019 floods which severely affected the province^[85].

Barrier 4: Lack of incentives for communities to change farming and land management practices.

At present, the understanding and acknowledgement of the impacts of climate change on the ecosystems on which their livelihoods depend is limited in rural communities of Savannakhet province. Headwater communities often prioritise the short-term false economies^[86] of selling land to concessions or engaging in forest degrading activities over longer-term economic activities that engage sustainably with local ecosystems. By underestimating or overly discounting the long-term impact of the loss of and damage to forest ecosystems on their agricultural production, these degradational practices lead to a depletion of resources. In addition, the loss of these ecosystems' goods and services, as well as the associated impacts on water resources and communities' primarily agricultural livelihoods, compound communities' vulnerability to climate change and reduce their capacity to adapt. Moreover, in lowland communities, specific conventionally practiced agricultural techniques such as swidden agriculture can compound the impacts of flooding by exacerbating soil erosion and reducing infiltration^[87]. Improved quantification and valuation of the ecosystem services and the means and incentives to change farming and land management practices are necessary to effect transformative change to protect these ecosystems, build climate resilience, and reverse degradation that increases these rural communities' vulnerability to floods and droughts.

Project Approach

The main barriers to the integrated management of water resources in the target areas identified above and in the Theory of Change (Figure 4) will be addressed in a manner that contributes to and expands on the preferred solution, by: i) improving hydrological and climate risk modelling and information systems to inform flood management, as well as adaptation planning; ii) implementing on-the-ground interventions such as improving cascading weirs, conserving protected areas, restoring degraded ecosystems and strengthening reservoir networks; and iii) implementing Community Conservation Agreements (CCAs) to introduce alternative and enhanced livelihood opportunities, as well as to engage communities in conservation and restoration activities. The involvement of UNDP as the development partner for the project will ensure that the GoL is supported in addressing these barriers^[88]. The improved climate and hydrological information will be made accessible to national and provincial decision-makers as well as local stakeholders who will be capacitated to use it in the

management of floods and droughts. Using the ICM and integrated urban flood management approaches and based on integrated adaptation planning, on-the-ground interventions to improve water resource management and reduce vulnerability to floods and droughts will be undertaken, including EbA. Communities will benefit from the deployment of technologies and innovative solutions to reduce climate-related risks and enhance resilience, including the development of early warnings and climate information. The resilience of physical assets to climate variability and change will also be increased through the implementation of CCAs, which will be informed by a comprehensive market analysis. These interventions will be complemented by capacity development and awareness raising as well as support for rural communities to adopt climate-resilient livelihood strategies and climate-resilient agricultural practices.

Theory of Change

The proposed project will promote the integrated management of land and water resources at target sites in the Xe Bang Hieng River Basin and Luang Prabang city. This will increase the climate resilience of target communities to the impacts of floods and droughts – both of which are projected to become more intense and frequent under future climate scenarios, including the AR5[89]⁸⁹ greenhouse gas emissions scenarios[90]⁹⁰.

The preferred solution to overcoming climate change-induced floods and droughts in the target areas is to implement integrated catchment management (ICM) in the Xe Bang Hieng River Basin and strengthen government officials and decision-makers' capacity to implement integrated urban flood management in Luang Prabang city (further detailed below). In the Xe Bang Hieng River Basin, climate vulnerability is driven by land conversion – for, *inter alia*, agriculture, growing urbanization and logging – and environmental degradation, which destabilises the integrity of ecosystems and reduces their ability to provide buffer against climate-induced hazards – such as extreme flooding and droughts. To address this climate vulnerability, the proposed project will realise EbA interventions complemented by protective infrastructure and alternative livelihood opportunity development that will further facilitate the EbA solutions.

An integrated approach to catchment management is required to reduce the impacts of floods and droughts on vulnerable communities in the Xe Bang Hieng River Basin because these impacts are widespread and can vary in scale – impacting the population at the community and village, city, district and provincial level. This integrated approach will therefore ensure that project interventions are developed in support of one another and that the project is able to overcome the aforementioned barriers at all levels. In addition to Ecosystem-based Adaptation (EbA), protective infrastructure interventions and introducing alternative livelihood opportunities, the proposed project will strengthen the capacity of government officials and decision-makers – on each level – and will develop Integrated Climate-Resilient Flood Management Strategies at both catchment and city scales.

Implementing this suite of adaptation interventions will positively impact local communities by reducing their vulnerability and increasing their resilience to floods and droughts. For example, the

construction of hard infrastructure and the development of integrated climate-resilient flood management strategies will ensure that water resources and flood risks in the areas are managed in an integrated manner, considering the spatial interlinkages and dependencies between land use and ecosystem health, as well as the underlying causes of vulnerability to climate change. Linked to ecosystem health, the integrated approach to catchment management will enable the protection and restoration of important ecosystems – such as rivers, forests and the riparian buffer zone – to improve the provision of ecosystem goods and services in the Xe Bang Hieng River Basin. This includes improving non-economic benefits such as reduced surface runoff and increased infiltration of rainwater.

To address the threats presented to headwater and lowland communities – particularly protecting the livelihoods and assets that are frequently damaged by floods – climate change considerations and accurate hydrological information need to be incorporated into the planning and management of the Xe Bang Hieng River Basin. This can be promoted by introducing alternative livelihood options such as: i) conservation-related employment in communities near or in protected areas; ii) the harvesting of non-timber forest products; or iii) the implementation of sustainable village forestry activities in the Xe Bang Hieng River Basin. These options will provide economic opportunities that are both economically and ecologically sustainable to vulnerable communities.

In Luang Prabang, urban flood management interventions that are being implemented in other Laotian cities – such as the development of urban wetland management plans and urban EbA guidelines developed under the GCF urban resilience project [91]⁹¹ – will be upscaled to reduce the vulnerability of urban communities in the city to the intensifying impacts of climate change-induced flooding. In addition, training programmes will be implemented to develop the capacity of Luang Prabang officials for climate-risk informed urban water management practices to strengthen urban-level responses to floods. Complementary awareness-raising campaigns on climate change impacts will be implemented to reduce the vulnerability of urban communities to floods.

Assumptions underlying the identified solutions

The preferred solution for the proposed project is dependent on certain, primary, assumptions:

1. National political commitment and support for the development of a coordinated approach, ICM and EbA approaches within the sites of the Mekong River Basin will remain very high.
2. Local communities will change their behaviour when provided with appropriate alternatives and presented with awareness raising campaigns to move away from inefficient and unsustainable practices of resource use.
3. An ICM approach and EbA model developed in the Xe Bang Hieng River Basin and Luang Prabang urban area will result in global benefits in terms of enhanced biodiversity, reduced and reversed land degradation, and improved provision of ecosystem goods and services – such as clean water, soil stabilisation and non-timber forest products (NTFPs).

4. Project activities will be able to be implemented safely, effectively and in consideration of national Covid-19 restrictions and guidelines.

5. Communities will accept and implement Community Conservation Agreements beyond project completion.

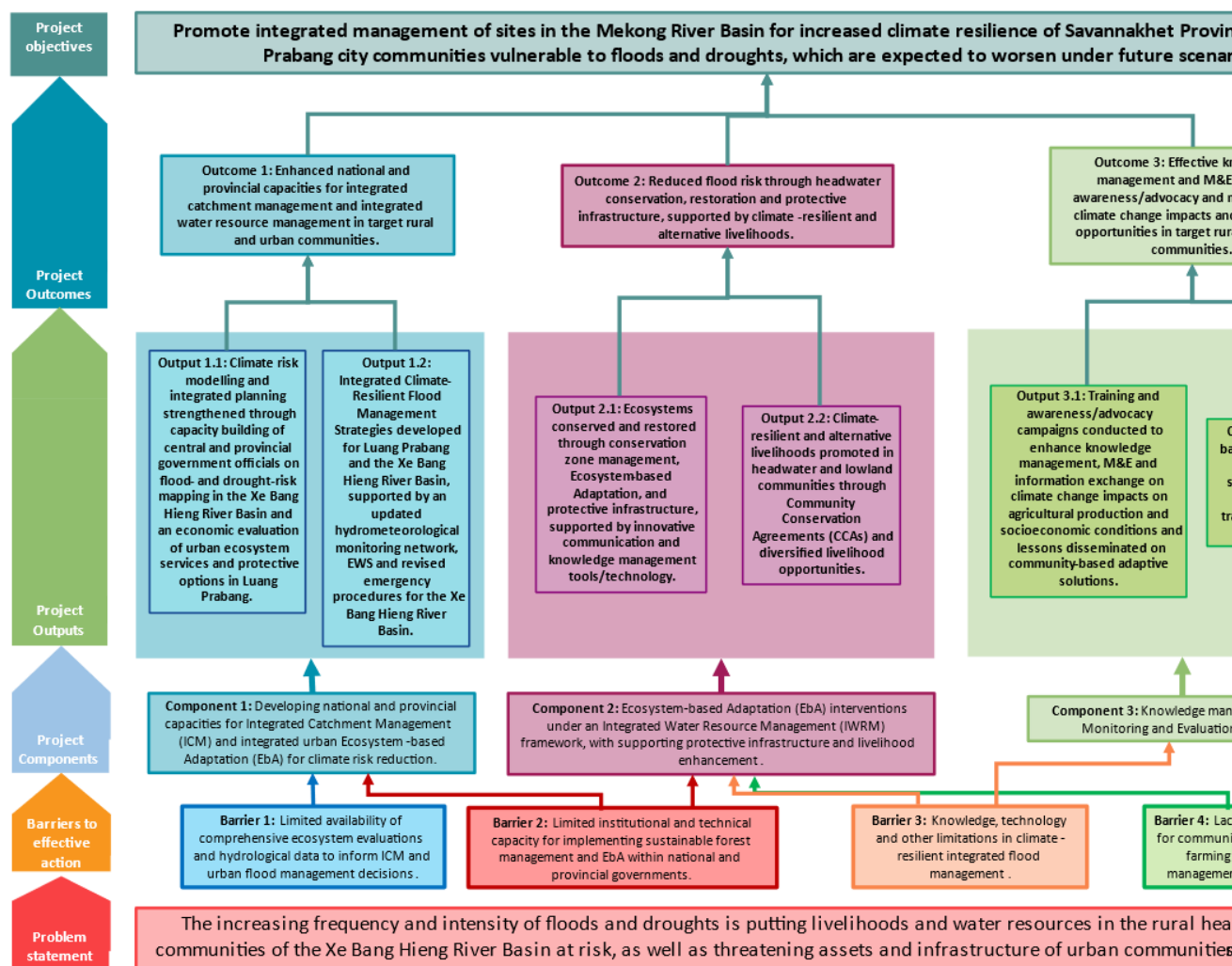


Figure 4. Theory of Change diagram

Baseline Analysis

The baseline is the 'business-as-usual' scenario that would take place during the next four years in the absence of the interventions planned under the proposed project. Under the baseline scenario, development activities would be undertaken; however, these activities would be limited in scope, scale and sustainability.

Under this business-as-usual scenario, communities in the Xe Bang Hieng River Basin will be increasingly vulnerable to the impacts of climate change and land degradation, as both headwater and lowland communities rely heavily on forest resources and the climate-sensitive sector of agriculture, with limited capacity for alternative livelihoods. Despite current efforts of the Government of Lao PDR (GoL) to address deforestation, the vulnerability of the headwater communities to floods and droughts will be increased without an integrated approach to reduce their vulnerability taking into account both

climate change and land degradation. Lowland communities will further be affected by more frequent and intense floods, exacerbated by forest degradation happening locally. These extreme climatic events will lead to increased runoff, soil erosion and losses of: i) crops; ii) livestock; iii) drinking water; and iv) soil nutrients, amongst other impacts.

Currently, the expansion of swidden agriculture into natural ecosystems is exacerbating the degradation of forests in the Xe Bang Hieng river basin^[92]⁹². The reduction of these farming techniques is a priority for the GoL, partly because degradation of forest ecosystems reduces the capacity of local communities in both lowlands and headwaters – mostly affected by floods and droughts, respectively – to adapt to the negative effects of climate change. This makes these local communities exceedingly dependent on forest ecosystems, and especially vulnerable to these disasters.

Rapid urban growth in cities adjacent to the Mekong River, such as Luang Prabang, is adding to the challenge of managing climate change-induced flooding in Lao PDR. During the wet season, heavy rainfall in catchments with low infiltration rates causes large volumes of rapidly flowing runoff. This results in flash floods in urban and peri-urban streams and canals. These flash floods damage infrastructures as well as urban agricultural areas. In cities with inadequate drainage, such as Luang Prabang, runoff accumulates and causes ponding that results in disruptions to business, damage to property and human health, as well as agricultural losses. In a business-as-usual scenario, increased floods in Lao PDR will threaten urban food and water security, population health and infrastructure and decrease the potential for tourism in the heritage site of Luang Prabang.

To address the abovementioned problems, the GoL has begun to develop institutional frameworks focused on climate change, environmental degradation and natural disasters, including a National Strategy on Climate Change and a Forestry Strategy (See Table 7 in Section 7). However, these frameworks are currently in nascent stages and often address each of these issues separately. Despite having national targets and plans for addressing both climate change adaptation and land degradation, there has been little integration between these two focal areas. For example, the 2010 Strategy on Climate Change of the Lao PDR recommends adaptation options in the forestry, agriculture and water sectors separately, as opposed to taking an integrated approach. Similarly, in Savannakhet Province, the linkages between water flows, agriculture and forests in the context of climate change are not well integrated into development planning, resulting in a siloed approach to addressing climate change. Despite the need for an integrated approach to increase the resilience of communities such as those in the Xe Bang Hieng River Basin, the national and provincial governments currently do not offer integrated catchment management interventions as proposed in the LDCF project.

Under the business-as-usual scenario, current and predicted impacts of climate change will continue to negatively affect headwater and lowland communities of the Xe Bang Hieng River Basin, as well as urban communities of Luang Prabang city. To overcome this, the proposed project will develop national and provincial capacities for Integrated Catchment Management and urban Ecosystem-based Adaptation for climate risk reduction. Furthermore, the proposed project will introduce EbA interventions, with supporting protective infrastructure, and livelihood enhancement to vulnerable

communities in the Xe Bang Hieng River Basin, as well as establishing systems to ensure knowledge management and Monitoring, Evaluation and Learning.

The goL and its development partners (donor community) have initiated activities to address realizing impacts of climate change in Lao PDR. These activities have included: i) identifying priority climate change impacts and vulnerabilities (for example through the country's NAPA and Second National Communication); ii) developing policies and strategies to respond to climate change (such as the National Strategy on Climate Change and the 7th National Social Economic Development Plans); and iii) the implementation of baseline climate change initiatives. In addition, government departments such as the Department of Water Resources within the Ministry of Natural Resources and Environment are collecting climate information to inform the management of, and response to, climate change scenarios. The GoL's focus on preparatory work and engagement with global climate change agenda have provided a foundation for climate-resilient development and planning within the country. However, as a result of limited technical and institutional capacity in Lao PDR, the GoL has not been able to build on this foundation sufficiently. Further details of baseline initiatives can be found in Section IV of the Project Document.

The project will be implemented through the following three interrelated components:

- Component 1: Developing national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction.
- Outcome 1: Enhanced national and provincial capacities for integrated catchment management and integrated water resource management in target rural and urban communities.
- Component 2: Ecosystem-based Adaptation (EbA) interventions under an Integrated Water Resource Management (IWRM) framework, with supporting protective infrastructure and livelihood enhancement.
- Outcome 2: Reduced flood risk through headwater conservation, restoration and protective infrastructure, supported by climate-resilient and alternative livelihoods.
- Component 3: Knowledge management and Monitoring and Evaluation (M&E).
- Outcome 3: Effective knowledge management and M&E through awareness/advocacy and monitoring of climate change impacts and adaptation opportunities in target rural and urban communities.

Baseline initiatives

The proposed project will specifically build on and complement several baseline projects in the Xe Bang Hieng River Basin:

Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR (SAFE Ecosystems) (2016-2022)

The ongoing GEF Trust Fund (TF) SAFE Ecosystems Project is being implemented in an area covering much of the Xe Banh Hieng River Basin. This project seeks to i) strengthen land and resource use planning capacities and procedures; ii) strengthen the policies and regulations that govern them; iii) expand and strengthen the management of resources on the ground by government agencies, local communities and private sector actors; and iv) develop innovative financing mechanisms and programmes ? including ecotourism and livelihoods programmes ? that can ensure the sustainability of improved land use and resource management approaches.

The proposed project will build on the enabling policy environment developed under Component 1 of the SAFE Ecosystems project, using the assessments and plans developed under the SAFE Ecosystems project to inform the training and capacity building activities and the development of plans. Furthermore, the project will enable the upscaling of training and capacity building from SAFE Ecosystem project target districts to its target districts and Luang Prabang city. The expansion of protected areas and increased sustainable forest management under the SAFE Ecosystems project will inform the implementation of Component 2 of the project, specifically the support related to restoration of degraded forests and strengthening the capacity of local communities to sustainably manage local ecosystems. Component 2 will be further supported by the incentives and sustainable financing developed and promoted under the SAFE Ecosystems project, which will inform the development of CCAs and diversified livelihood opportunities. The proposed project will build off the SAFE Ecosystems project interventions implemented in Xonnabouly and Songkhone districts and will upscale the interventions implemented in Phine, Phalamxay and Thapangthong to Champhone, Nong and Sepone districts.

?Mekong Integrated Water Resources Management Project? (2012?2021)

The World Bank Mekong Integrated Water Resources Management Project focuses on the development of comprehensive water resources modelling packages and river basin management plans for 10 priority river basins ? including the Xe Bang Hieng River Basin. Component 1 of the proposed project will build on the outcomes of the World Bank project, specifically the National Water Resources Management Component, in the development of ICM and urban EbA strategies. Furthermore, the National Water Resources Management Component (Component 3.1) will inform the design of training and capacity building for climate risk-informed water management. The Mekong Integrated Water Resources Management Project?s multi-level focus on regional, national and site-specific water management will inform how Integrated Climate-Resilient Flood Management Strategies are designed, specifically informing the upscaling potential of these strategies for application in other districts, provinces and across the region. The proposed project will complement this flood management planning by focusing its activities on climate change-induced flooding and drought management in the river basin. The activities will include mapping current and future zones of the Xe Bang Hieng River Basin which area at risk of climate change-induced flooding and drought. The proposed project will also build upon the institutional arrangements made under the World Bank Project by training the Xe Bang Hieng River Basin Coordinating Committee, established under the World Bank project, on the use of climate risk information in planning and implementing water

management practices. Coordination meetings between the ongoing World Bank and proposed LDCF project teams in Savannakhet are envisaged before the closure of the World Bank project in 2021.

Community-led initiative in critical wetland biodiversity in four districts of Savannakhet Province (2020-2024)

A part of the Wildlife Conservation Society (WCS) Lao PDR's Savannakhet Landscape program, this initiative is supporting communities in the Xe Champhone wetlands to develop land and resource-use plans that improve local livelihoods and biodiversity conservation. The focus of this initiative is to fill the gap of lacking informed, cohesive resource and land-use planning that has resulted in the over exploitation of fisheries and degradation of land and water in Lao PDR's largest wetlands. To achieve sustainable use of the Xe Champhone Wetlands, this initiative has developed frameworks for participatory data collection and mapping with communities in the affected areas.

The proposed project will build on the frameworks developed by this initiative to inform the development of land-use and resource management plans under Component 1 that will be undertaken in the target districts, including Champhone. Further to this, the alternative livelihood strategies and Community Conservation Agreements (CCAs) under Component 2 of the proposed project will build on the strategies for community engagement developed by the WCS initiative.

Expected Results:

The overall objective of the project is to promote the integrated management of target sites in the Mekong River Basin for increased climate resilience of communities in Savannakhet Province and Luang Prabang city vulnerable to floods and droughts. In these communities, the impacts of floods and droughts are projected to worsen under future climate change, such as projected by the AR5 greenhouse gas emissions scenarios^[93]⁹³. The integrated management objective will be achieved by implementing a suite of complementary adaptation interventions, namely the: i) development of national and provincial capacities to implement Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) in response to the increasing frequency and intensity of floods and droughts; ii) implementation of EbA interventions ? primarily conservation^[94]⁹⁴ and restoration^[95]⁹⁵ of partly and severely degraded forests - within this ICM framework, with supporting protective infrastructure^[96]⁹⁶ and sustainable livelihood enhancement; and iii) promotion of knowledge management and Monitoring and Evaluation (M&E) to ensure that the lessons learned and best practices for ICM, flood management and EbA are collected and disseminated to inform the upscaling of these interventions across Lao PDR. Details on the outcomes and outputs that comprise each of the three Components ? as outlined in the Theory of Change are provided below. Details on the activities associated with each output, are provided in Annex 4: Multi Year Work Plan.

Component 1: Developing national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction.

Component 1 of the proposed project will focus on developing national and provincial officials and decision-makers' capacity to design and implement ICM and integrated urban EbA to enhance the climate resilience of rural and urban communities and ecosystems in Lao PDR. This integrated approach will be underpinned by enhanced climate-resilient planning at the national and provincial levels and include the use of innovative tools, such as EbA and hydrological modelling, to ensure that it is comprehensive and effective. Moreover, by considering future climate change projections for target sites, this approach will help planning for current and future flood and drought risks. This will ensure that the applied approaches are contextually relevant for the projected hazards in urban and rural settings. In addition to developing the technical expertise of decision-makers, capacity building will also include a focus on the needs and concerns of vulnerable population groups, including those engaged with during the development of the Stakeholder Engagement Plan (Annex 9). This will ensure that the capacity-building activities effectively integrate community and environmental needs. Activities implemented under Component 1 will involve: i) developing institutional and technical capacity; ii) providing tools and assessments to develop the knowledge base; iii) undertaking planning processes in Savannakhet Province and Luang Prabang; iv) assessing and updating hydrological networks; and v) revising EWS in the Xe Bang Hieng River Basin. Furthermore, the activities under this Component will be complemented by awareness-raising activities that will be conducted under Component 3 of the project.

Outcome 1: Enhanced national and provincial capacities for integrated catchment management and integrated water resource management in target rural and urban communities.

Output 1.1: Flood- and drought-risk maps of and an economic evaluation of urban ecosystem services and protective options produced for the Xe Bang Hieng River Basin and Luang Prabang city, respectively.

Under this output, training will be provided to relevant Government of Lao PDR (GoL) officials, decision-makers and planners to increase their technical and institutional capacity for Integrated Catchment Management (ICM) to plan and improve climate resilience and risk management at a national and provincial level in Lao DPR. This training will enable the production of downscaled and projected climate risk information for the target rural and urban sites. Additionally, the training will include gender mainstreaming components, in accordance with the Gender Action Plan (GAP) and will identify how the development of ICM plans and climate risk information can be used to address the concerns of vulnerable communities, such as those highlighted during consultations with vulnerable groups for the development of Annex 9: Stakeholder Engagement Plan. Training activities will also apply GIS-based integrated hydrological models developed under the complementary ongoing World Bank-funded ?Mekong Integrated Water Resources Management Project?[97]⁹⁷. In addition, this

training will enable the development of a database on water inventory and will support water-user rights planning and implementation.

Risk maps will be developed for the Xe Bang Hieng River Basin which identify which current and predicted zones are most at risk from climate change-induced floods and droughts. These maps will be based on existing hydrological models and will be used to inform DWR and DoNRE decision making for ICM. Additionally, detailed risk zone maps will enable protective infrastructure optioneering to be conducted, to identify the most effective and appropriate protective infrastructure interventions to implement in the target communities, under Output 2.1. **This optioneering will involve assessing the resilience and adaptation needs of each target site to ensure that community needs are considered and met in the design and selection of infrastructure interventions.**

Economic valuations focused on the ecosystem services provided by urban riparian areas, wetlands and streams will help identify which areas in Luang Prabang need to be the focus of urban flood management plans. The economic valuations will also include an options analysis of on-the-ground interventions ? such as protective infrastructure and EbA alternatives ? to inform improved planning and support climate-resilient integrated urban flood management and will be supported by present and projected hydrological assessments. Furthermore, the evaluations will be supported through cooperation with the Department of Heritage ? under the Ministry of Information, Culture and Tourism ? to ensure that Luang Prabang?s status as a UNESCO World Heritage site is considered in all evaluations and that all findings and recommendations are in accordance with government regulations for the preservation and protection of Luang Prabang?s cultural heritage. Project interventions in Luang Prabang city will support and enable the interventions being implemented under the GCF urban resilience project ?Building resilience of urban populations with ecosystem-based solutions in Lao PDR? ? in Vientiane, Paksan, Pakse and Savannakhet City ? to be upscaled to Luang Prabang, including: i) wetland restoration and management; ii) natural urban stream rehabilitation and management; and iii) permeable paving solutions in public areas.

Activities under this output will include:

- ? Activity 1.1.1: Design and implement central and provincial training programmes to enable climate risk-informed water management practices in target urban and rural areas
- ? Activity 1.1.2: Map current and future zones of the Xe Bang Hieng River Basin at risk of climate change-induced flooding and drought based on existing hydrological models and conduct protective infrastructure optioneering based on the identified at risk zones
- ? Activity 1.1.3: Conduct an economic valuation of urban ecosystem services and protective options in Luang Prabang

-
Output 1.2: Integrated Climate-Resilient Flood Management Strategies developed for Luang Prabang and the Xe Bang Hieng River Basin, supported by an updated hydrometeorological monitoring network, EWS and revised emergency procedures for the Xe Bang Hieng River Basin.

The results from the implementation of Output 1.1's activities will be applied under Output 1.2 to further support the alignment of policy frameworks with ICM and IWRM frameworks to support long-term climate resilience. The evidence base formed in Activities 1.1.2 and 1.1.3 will inform Integrated Climate-Resilient Flood Management Strategies (ICFMS) necessary to build the long-term resilience of communities and ecosystems in the headwaters and lowlands of the Xe Bang Hieng River Basin and Luang Prabang city. The ICFMS developed under Activity 1.2.1 will include fine-scale climate-resilient development and land-use plans, which will work with the hydrometeorological monitoring network and revised EWS in the basin, updated under Activity 1.2.2. This will further strengthen the capacity of communities and officials to plan for and respond to future flood and drought events, as well as to implement ICM and IWRM strategies.

Access to reliable information, forecasting and EWS was identified by the GoL as a priority for improvement following the 2019 floods in Savannakhet Province^[98]⁹⁸. The existing EWS in Xe Bang Hieng Basin communities are inadequate for implementing multiple hazard responses in an integrated manner, as communities currently depend on radio or telephone broadcasts from the Department of Meteorology and Hydrology. There has been no integration between communities that do have basic monitoring equipment and government systems. This reduces the effective coordination of responses across sectors. In addition, these systems are not well adapted to the projected increasing frequency and severity of floods and droughts under climate change scenarios. The data produced by the hydrometeorological stations will be compliant with and transmitted to the World Meteorological Organization's Global Basic Observations Network^[99]⁹⁹. The updating of EWS will include capacity building and improved methodologies to analyse and interpret climate data and forecasts similar to those produced by the hydrometeorological monitoring networks. These updates will also include upgrading formal communication mechanisms as well as informal tools such as radio, loudspeakers, social media and written materials used to disperse and communicate climate warnings to affected communities in the target river basins. These updated, formal EWS will be integrated with the community level communication and knowledge management tools introduced under Output 2.1. In addition, climate resilience will be enhanced by designating and protecting areas to prevent further degradation and loss of ecosystem services, which would otherwise compound the negative effects of climate change.

In Luang Prabang, the project will use the hydrological and ecosystem assessments from Output 1.1 to develop city-level ICFMS and mainstream urban EbA into relevant policies and plans to strengthen IWRM in the city. Furthermore, the project will apply lessons learned from the GCF urban resilience project to inform these relevant policies and plans. This will enable city officials and decision makers to inform the location and design of appropriate flood management and adaptation interventions.

Activities under this Output will include:

? Activity 1.2.1: Draft and validate Integrated Climate-Resilient Flood Management Strategies for Luang Prabang city and the headwater and lowland areas of the Xe Bang Hieng River Basin

? Activity 1.2.2: Assess and update current Xe Bang Hieng River Basin hydrological monitoring network ? including village weather stations ? to improve efficiency

? Activity 1.2.3: Review and revise EWS and emergency procedures of vulnerable Xe Bang Hieng River Basin communities (identified under Activity 1.1.2)

-
Component 2: Ecosystem-based Adaptation (EbA) interventions under an Integrated Water Resource Management (IWRM) framework, with supporting protective infrastructure and livelihood enhancement.

-
Component 2 will build upon the enabling environment and ICM framework established under Component 1 through the implementation of EbA interventions ? primarily conservation and restoration of partly and severely degraded forests ? in Savannakhet Province. The sustainability of the EbA interventions will be supported and reinforced by protective infrastructure and climate-resilient livelihood enhancement. Interventions under this Component will be implemented under an IWRM framework in target villages across the Xe Bang Hieng River Basin. This will include a combination of approaches? such as the implementation of protective infrastructure or the conservation and restoration of protected areas? to address the different dynamics of current and future vulnerability to climate change. Implementing EbA interventions in headwater conservation zones will help support more effective IWRM, while the construction of protective infrastructure in downstream target sites will help reduce climate vulnerability and prevent further loss and degradation. Moreover, the introduction of alternative livelihood opportunities will help increase the climate resilience of both headwater and downstream communities, in addition to helping prevent further ecosystem loss and degradation by shifting communities away from unsustainable practices and behaviours. Activities implemented under Component 2 involve: i) conserving and restoring protected and degraded forest ecosystems; ii) constructing protective infrastructure to reduce flood and drought risk; iii) developing communication and knowledge management tools for communities and training them on their use; iv) conducting market analyses on community livelihoods; v) engaging communities in the development of Community Conservation Agreements; and vi) introducing diversified livelihood activities and opportunities.

-
Outcome 2: Reduced flood risk through headwater conservation, restoration and protective infrastructure, supported by climate-resilient and alternative livelihoods.

Output 2.1: Ecosystems conserved and restored through conservation zone management, Ecosystem-based Adaptation, and protective infrastructure, supported by innovative communication and knowledge management tools/technology.

To improve climate resilience in headwater areas, protected areas in the target districts will be conserved and degraded ecosystems will be restored. Under the amended Law on Water and Water Resources, 'areas at waterheads' and 'areas at risk of flood and drought' such as the target headwater conservation zones can be designated as 'water resources reserved areas', to which additional protections and regulations can be applied for the protection of Lao PDR's water resources^[100]¹⁰⁰. Conservation activities will include enhancing conservation zone management, forest boundary management and natural regeneration processes, while restoration activities will include the enrichment planting to promote natural re-growth in secondary forests and reforestation through replanting ecologically appropriate species to restore ecosystem functioning. These activities will be informed by, *inter alia*: i) the predicted impacts of climate change on the target areas; ii) the capacity of introduced species to maintain the provision of ecosystem goods and services under projected climate change conditions, specifically focusing on indigenous species that are drought- or flood-resilient; and iii) community needs and preferences. The conservation and restoration of vulnerable and degraded headwater ecosystems will promote water infiltration, evapotranspiration and availability and will reduce soil erosion and surface runoff. These EbA interventions will help restore and protect critical ecosystem goods and services for communities in the headwaters, including: i) livestock grazing areas^[101]¹⁰¹; ii) soil nutrient retention and reduced erosion; iii) infiltration; and iv) non-timber forest products (NTFPs) for food, resale, enhanced livelihoods and household purposes. Supported NTFPs will include: i) mushrooms and wild vegetables; ii) frogs, snails and insect products; iii) bamboo and rattan; iv) dammar resin; and v) herbal medicines^[102]¹⁰². The improved provision of ecosystem goods and services resulting from restoration activities will build the resilience of communities in the Xe Bang Hieng River Basin to extreme climate events particularly droughts and floods which are projected to increase in intensity and frequency under future climate change conditions. Conserving and restoring headwater ecosystems will not only increase the climate resilience of headwater communities but also lowland communities. This will result from headwater conservation activities preventing the degradation of headwater ecosystems and restoration activities decreasing surface runoff and overland flow, thereby increasing floodwater attenuation.

Further protection from extreme climate events will be provided by investments in protective infrastructure that mitigates against the impacts of floods and droughts in the lowlands and headwaters, respectively. The selection, design and distribution of these activities will be determined by the land-use planning and protective infrastructure optioneering conducted under Output 1.1 and in consultation with community stakeholders. The implementation of protective infrastructure will prioritise the use of EbA measures as well as measures that combine 'grey' and 'green' interventions. Where possible, the project will implement interventions which are able to support the restoration and rehabilitation of partially degraded forest and riverbank ecosystems. This will involve, for example, vegetative gabion walls, vegetative gabion revetments, live check dams, vegetative gabion spurs, vegetative gabion check dams, vegetative stone rip rap, vegetative dry stone check dams and cascading weirs. Where forest ecosystems are irreparably degraded, non-existent or where EbA is inappropriate given landcover, human settlement or agricultural needs, 'grey' protective infrastructure will mimic the lost ecosystem

services for flood management. In addition, infrastructure to reduce drought risk will be built to enhance the adaptive capacity of communities to address water insecurity related to prolonged dry seasons or late-onset wet seasons, which are projected to occur more frequently under future climate scenarios. The design of protective infrastructure will take community needs into consideration and will use lessons learned from projects such as the GIZ project ?Measures to fight drought in the lowlands of Ethiopia?[103]¹⁰³ to integrate protective measures into agricultural and water resource management systems. This integration will strengthen IWRM in target communities and will support the introduction of alternative and enhanced livelihood opportunities under Output 2.2. The design of protective infrastructure will additionally be supported by engagement with the private sector, facilitated through the knowledge management hub established under Activity 3.1.2. This engagement will provide private sector stakeholders with practical examples of how construction designs and standards can be adjusted to account for the impacts and risks of climate change. The designing of specific protective infrastructure will additionally involve the development of specific operations and maintenance (O&M) plans for each intervention. O&M activities will be implemented by DWR and Savannakhet PONRE for a period of 15 years post the completion of the protective infrastructure.

Protective infrastructure interventions will be supported by tools and technologies for advancing communication and knowledge management at the community level to improve community response to ? and management of ? the abovementioned climate hazards. Communities are currently dependent on radio and telephone broadcast alerts from the Department of Meteorology and Hydrology (DMH), within in MoNRE, for early warnings about extreme climate events. The development and introduction of these new tools and technologies? such as mobile phone apps and improved community radios? will enable the DMH to provide communities with more advanced warnings and longer-term forecasts. The integration of these communication and protective infrastructure interventions with the ICM strategies and EWS developed under Output 1.2 will strengthen the climate resilience of vulnerable communities and enable the implementation of IWRM strategies. In addition to integrating these communication tools with the interventions developed under Output 1.2, they will also be integrated with the community monitoring systems developed and introduced under Output 3.2. This integration will enable decision makers to develop and implement ICM strategies that are informed by community level data from across the Xe Bang Hieng River Basin. The tools and technologies developed under this output will also be integrated with the knowledge management hub established under Output 3.1, to better strengthen communication channels between the target communities and the PMU ? and by extension DWR and MoNRE.

The conservation and restoration of protected forests and degraded ecosystems will support the goals for reforestation set by the Savannakhet Provincial Agriculture and Forestry Office. The provincial goals target 16,200 ha for reforestation and ~190,000 ha for forest regeneration. The project will engage with district representatives to ensure that project activities are in accordance with regulations and work towards any specific targets set for the selected districts.

Activities under this Output will include:

? Activity 2.1.1: Conserve Xe Bang Hieng protected forests through enhanced conservation zone management and enhanced natural regeneration and restore Xe Bang Hieng degraded headwater conservation zones and implement EbA interventions to improve ecological integrity for the delivery of ecosystem services.

? Activity 2.1.2: Construct protective infrastructure to reduce flood risk (through cascading weirs and drainage channels) and drought risk (by means of reservoir networks and rainwater harvesting).

? Activity 2.1.3: Develop and distribute communication and knowledge management tools and technologies (such as mobile phone apps and community radio) and train communities on their use to support headwater conservation zone management and increase their resilience to floods and droughts.

Output 2.2: Climate-resilient and alternative livelihoods promoted in headwater and lowland communities through Community Conservation Agreements (CCAs) and diversified livelihood opportunities.

The sustainability of the conservation and restoration activities, as well as the protective infrastructure, implemented in the Xe Bang Hieng River Basin will be enhanced by introducing incentives to communities to maintain ecosystems and expand the restored areas of the river basin. These activities and incentives for improving resilience will include promoting a shift towards more sustainable practices in current livelihoods ? such as agriculture, fisheries, and forestry ? as well as promoting context-appropriate alternative livelihood products, methods and practices under an IWRM framework. These activities will include, *inter alia*: i) climate-resilient agriculture ? such as agroforestry, intercropping, minimum-tillage, integrated soil fertility management and water harvesting and management; ii) silvopasture^[104]; iii) cultivation and sale of NTFPs; iv) ecotourism related to protected areas; and v) aquaculture. The selection and application of these livelihood practices? as well as the identification of additional opportunities? will be informed by a robust, climate-sensitive market analysis which will review existing barriers and opportunities to inform long-term climate-resilient strategies and contribute to promoting catchment integrity and reducing deforestation/forest degradation through ICM and IWRM practices. Furthermore, the introduction of alternative livelihoods will take existing livelihood practices into consideration and will ensure that community members engaged in unsustainable practices, such as swidden agriculture or the use of agrochemical fertilisers, are not only informed of alternative opportunities but are trained on how to transition from unsustainable practices to sustainable ones^[105]. This training will also raise awareness in communities on the need for sustainable livelihood practices and the impacts that unsustainable practices have on their climate-resilience.

Lessons from the past GEF-LDCF project titled 'Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts' and the ongoing GEF-LDCF project 'Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR' for example, will also be used to inform livelihood enhancement activities. Livelihood enhancement will be underscored by, and implemented through, CCAs. These agreements are based on the concept of conservation or stewardship agreements, incentivising communities to engage with climate change adaptation activities in return for benefits derived from project outputs. Similar agreements are already practised in the Xe Bang Hieng River Basin and elsewhere in Lao PDR, to conserve and restore ecosystems and promote biodiversity conservation. CCAs have also helped overcome matters related to insecure land tenure and promote community involvement in sustainable natural resource management. The ongoing GEF-LDCF project in the Savannakhet Province^[106] is establishing CCAs with 15 villages to relieve pressure from local communities on forest resources in the region. The proposed project will therefore establish CCAs with five villages (one village from Xonbuly district and two villages from each of Sepone and Nong districts), drawing on lessons learned from the ongoing GEF-LDCF project. These CCAs will be signed for a one-year period, after which they will be reviewed and renewed if they are deemed successful. After three years, if the CCAs are determined to be effective and are supported by the community the project will seek to establish links between the successful CCAs and financial sustainability mechanisms, such as trust funds based on payment for ecosystem service schemes, or by promoting the implementation of government programs that will support conservation and livelihood enhancement through the implementation of similar agreements. The specific benefits packages provided by the CCAs will be determined per community, reflecting the needs and circumstances of the target communities. The proposed project will channel benefits through Village Development Funds, as implemented effectively elsewhere in Lao PDR, and will support Village Development Committees in managing the funds and their disbursement through capacity building and the establishment of communication channels between the Village Development Committees, the PMU and the relevant District Office of Natural Resources and Environment (DONRE). The design of the CCAs will take the ICFMS, developed under Activity 1.2.1, into consideration to ensure that the Village Development Committee are able to effectively monitor and report on the implementation of the CCAs.

Investment support provided through CCAs will be specifically conditional on conservation performance, ensuring that communities are aware that funding for the investment is a benefit. Agricultural support, alternative livelihood support and direct payments to Village Development Funds will be provided to target villages on the basis of the implementation of forest conservation strategies (see Budget Note 13). These are mutually agreed upon by DONRE and the relevant communities and stipulated in signed CCAs between the parties. This approach will be expanded and built upon so as to ensure the effectiveness of the CCAs and, by extension, the alternative livelihood activities introduced under the proposed project.

The design and development of both CCAs and enhanced livelihood opportunities will also be informed by the results and outputs of projects such as the Participatory Forest and Land Use Planning and Management Process (FALUPAM), developed by The Agro-Biodiversity Initiative^[107] and

implemented in northern Lao PDR, and the livelihood zones and adaptive capacity maps generated under the GEF project 'Strengthening Agro-climatic Monitoring and Information Systems (SAMIS) to improve adaptation to climate change and food security in LAO PDR', in partnership with FAO[108]¹⁰⁸.

Activities under this Output will include:

- ? Activity 2.2.1: Conduct market analyses, including: i) analysing supply chains for climate-resilient crops, livestock, and farming inputs; ii) assessing economic impacts and market barriers; and iii) recommending mitigating strategies to address these barriers.
- ? Activity 2.2.2: Undertake CCA process to encourage climate-resilient agriculture, fisheries, and forestry/forest-driven livelihoods and practices
- ? Activity 2.2.3: Introduce diversified activities and opportunities through CCAs (developed under Activity 2.2.1) in agriculture (livestock and crops, including vegetable farming) as well as fisheries, NTFPs, and other off-farm livelihoods.

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

Component 3 will focus on capturing and disseminating the lessons learned during project implementation, as well as ensuring sustainability of project interventions through monitoring systems that will enable the adaptive management of project interventions and the achievement of the preferred solution, as outlined in the Theory of Change. Knowledge management and M&E will be implemented through training and awareness raising campaigns on national and provincial levels, as well as by establishing community monitoring systems on a local level and through project M&E activities. Project lessons will be shared to encourage scaling-up of project interventions at national and international scales. Project M&E will involve ongoing, day-to-day M&E by the Project Coordinator as well as independent Mid-Term and Terminal Evaluations. Activities implemented under Component 3 involve: i) providing training and awareness raising to communities in the Xe Bang Hieng River Basin; ii) establishing a knowledge management hub for project lessons; iii) conducting awareness raising campaigns in Luang Prabang city; iv) developing and implementing community-based monitoring systems, as well as training communities on their operations and maintenance.

The establishment of an online portal that will function as a knowledge management hub, under Output 3.1, will enable the Project Management Unit to actively collect and collate project lessons. The knowledge management hub will provide a platform for community monitoring and reporting and for the PMU to provide feedback on the results of community monitoring and reporting. Furthermore, the knowledge management hub will enable the PMU to compare results from the various target communities to assess and respond to differences. The continual collection and management of project lessons will enable the project team to receive feedback from project activities, such as training and

awareness raising, and respond to it to ensure the effectiveness of project activities and interventions. The sharing of lessons with similar projects will strengthen and expand the knowledge base that the PMU has for the implementation and monitoring of project activities.

The implementation of community-based monitoring systems, and the training of community members on their use, will enable relevant government officials, and the communities themselves, to actively monitor the effectiveness of project interventions. By establishing communication channels whereby communities regularly report on their monitoring activities to the knowledge management hub, the project will strengthen the knowledge base that DWR, and other government officials, are able to draw on to develop local level land and integrated water resource management plans. Furthermore, this integration with the knowledge management hub will enable the lessons learned from the implementation of community-based monitoring systems to be promoted to other communities in both Savannakhet Province and the rest of Lao PDR.

Outcome 3: Effective knowledge management and M&E through awareness/advocacy and monitoring of climate change impacts and adaptation opportunities in target rural and urban communities.

Output 3.1: Training and awareness/advocacy campaigns conducted to enhance knowledge management, M&E and information exchange on climate change impacts on agricultural production and socioeconomic conditions and lessons disseminated on community-based adaptive solutions.

Communities in the Xe Bange Hieng River Basin will undergo awareness raising and training on the impacts that climate change has on their livelihoods and socioeconomic conditions, as well as on how they can adapt to these impacts as communities through the implementation of IWRM. These trainings and the raising of awareness will strengthen local communities' appreciation of the unseen and indirect benefits provided by in-tact and robust ecosystems, while also training them on how to manage these ecosystems sustainably while still providing direct economic benefits. Additionally, the training provided will include gender mainstreaming for application at the community and village level, in accordance with the Gender Action Plan (GAP). Awareness raising campaigns will also be conducted in Luang Prabang to inform communities and the private sector on the urban EbA and flood management. Awareness raising campaigns, both rural and urban, will help strengthen the sense of ownership that communities have of project interventions, by instilling in them an understanding of how the impacts of climate change affect them, as well as informing them on the role ICM and IWRM play in strengthening their climate-resilience. In addition to engaging with communities, these awareness raising campaigns will engage with the private sector to educate them on the risks and impacts of climate change.

Project sustainability and scalability will be promoted under this output by capturing and disseminating lessons learned from project implementation, as well as creating a knowledge base which can be used to strengthen the capacity of government decision-makers, local communities and private sector stakeholders to implement similar projects. The collection and sharing of project lessons across Lao PDR, as well as internationally through South-South exchanges^[109], will support the upscaling and

replication of project interventions in baseline projects both nationally and regionally. These lessons will record any unforeseen barriers or delays to implementation and how they are overcome to ensure they can be avoided when replicated or upscaled. In addition, lessons learned will also include the identification and recording of the limitations of the interventions implemented by the project. This will be followed by recommendations on how to address limitations and barriers encountered by the project, which will also be disseminated nationally and internationally. The design of project interventions will be accomplished in coordination with the knowledge management hub, to ensure all designs are collected in a centralised system and to ensure that project interventions are designed in consideration of each other, as appropriate. The knowledge management hub will also provide a centralised system through which the project will be able to coordinate with relevant stakeholders at different levels, such as Village Development Committees or PONRE representatives, and record feedback and monitoring reports from these stakeholders. Furthermore, the establishment of this knowledge hub will enable project staff to engage with the private sector and provide them with an evidence base that will support and contribute to adjusting construction and design standards, and analytics, in a manner that takes climate change and the impacts of climate change into consideration. The knowledge hub will also provide a platform for DWR to monitor the progress of projects and engage with local communities, post project completion.

Activities under this Output will include:

- ? Activity 3.1.1: Provide training and awareness raising to Xe Bang Hieng River Basin communities on: i) climate change impacts on agricultural production and socioeconomic conditions; and ii) community-based adaptation opportunities and strategies (including water resources management, agroforestry, conservation agriculture, alternatives to swidden agriculture) and their benefits.
- ? Activity 3.1.2: Establish a knowledge management hub to collect, and from which to share, project lessons, within Lao PDR and through South-South exchanges, on strengthening climate resilience with regards to: i) catchment management; ii) flash flood management; and iii) EbA.
- ? Activity 3.1.3: Conduct awareness-raising campaigns on urban EbA and flood management for communities and the private sector in Luang Prabang.

Output 3.2: Community-based water resources and ecological monitoring systems established, and community members trained in their operations and maintenance.

To promote local ownership of the project, further contribute to changing community behaviour towards restoration and conservation and upskill communities on implementing IWRM, a community-based water resources and ecological monitoring system will be developed. This system will contribute to understanding the baseline conditions and impacts of project outcomes for these valuable ecosystems. The ecological monitoring system will be integrated with the communication and knowledge management tools developed under Output 2.1 to provide up-to-date indicators and measures of the health and resilience of the Xe Bang Hieng River Basin, which can be used by

community members and policymakers to make informed decisions on planning, land-use management and the provision of government services. This will improve communities' response to climate change, while also reducing their exposure to extreme climate events. Additionally, the ecological monitoring of the Xe Bang Hieng River Basin will enable the sustainable offtake of timber, wood fuel and NTFPs that can further promote the development and enhancement of the alternative livelihoods introduced under Output 2.2.

The community-based water resource and ecological monitoring systems will support the training and awareness raising conducted under Activity 3.1.1 by ensuring that communities have an active role in the monitoring of the local impacts of climate change. The monitoring systems will be designed to be easily operated by communities, while the training in their use will ensure that communities understand how the data the systems collect, and which the communities will feedback to the project staff and DWR, will benefit them. Consideration for the implementation and support of this monitoring will be included in the CCAs developed and implemented under Output 2.2. Additionally, these systems will be integrated with the knowledge management hub, to ensure that the observations recorded add to the local knowledge and context available to the project. This will also enable local level changes to be acted upon more effectively. Potential aspects of these monitoring systems include the regular measuring/reporting of rainfall, river speed, water quality or local vegetation conditions. Furthermore, by ensuring that the systems involve accurate GPS positioning the project will enable government officials and decision makers to monitor how the different communities are affected by the impacts of climate change, as well as potentially integrating the monitoring systems into the early warning systems developed under Activity 1.2.3. Local government officials and community leaders will be involved in recording the GPS positioning of these systems during implementation and during regular calibration checks ? such as quarterly, annually or after flooding events ? as appropriate per site.

Local ownership of the project will be further promoted by the training these communities receive on the operations and maintenance of the monitoring systems. This will ensure that communities are able to perform basic assessments of the conditions the monitoring systems, as well as perform basic repairs when aspects of the monitoring systems suffer minor damages. Furthermore, the monitoring systems will be designed to be operational and maintainable by the target communities and to require minimal external input, to ensure ease of use and sustainability post project completion. Communication channels established for the transfer of data from communities to project staff and DWR will also serve to communicate the operational status of monitoring systems, enabling communities to alert DWR to maintenance needs that they are unable to perform themselves.

Activities under this Output will include:

- ? Activity 3.2.1: Develop and implement community-based monitoring systems to measure changes in key ecological determinants of ecosystem health and resilience in the Xe Bang Hieng River Basin.
- ? Activity 3.2.2: Community members trained on the operations and maintenance of systems developed under Activity 3.2.1

Alignment with GEF focal areas

The implementation of the proposed project will align with the GEF focal areas and Impact Program strategies. This conformity was considered in the design of the project's components. The proposed project contributes to the three core objectives of the GEF programming strategy on adaptation to climate change for the LDCF 2018-2022:

Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.

The proposed project will reduce the climate change vulnerability of target communities and increase resilience by restoring degraded forest and river ecosystems using an EbA approach (Component 2). Further to this, the project will increase the capacity of local communities living around these ecosystems to adopt innovative and climate-resilient livelihoods through Community Conservation Agreements.

Objective 2: Mainstream climate change adaptation and resilience for systemic impact.

The proposed project will facilitate the integration of climate risk-informed water management practices by enhancing the capacity for integrated catchment and flood management of government officials in the target rural and urban communities (Component 1). Climate-resilient development and land-use plans developed by the proposed project under Component 1 will mainstream climate change adaptations at local and provincial levels.

Objective 3: Foster enabling conditions for effective and integrated climate change adaptation.

The proposed project will conduct community awareness raising campaigns on the impacts of climate change and community-based adaptation opportunities and strategies in the target areas of the Xe Bang Hieng River Basin and Luang Prabang city (Component 3). Community-based water resources and ecological monitoring systems established by the proposed project will ensure the sustainability and integration of climate change adaptations.

Three GEF Focal Area Outcomes will be addressed through the proposed project, as detailed below:

CCA 1.1 Technologies and innovative solutions piloted or deployed to reduce climate-related risks and/or enhance resilience

The proposed project will facilitate the adoption of ICM and integrated urban flood management as institutional mechanisms for enhancing the climate resilience of vulnerable communities in the Xe Bang Hieng basin and Luang Prabang city ? and subsequently in other river basins and cities across Lao PDR. These approaches provide innovative strategies for considering and incorporating numerous stakeholders' interests and priorities into increasing drought and flood resilience. Based on the ICM framework, several adaptation and climate risk-reduction measures will be deployed in a coordinated manner in the Xe Bang Hieng basin. These measures will include EbA interventions, complemented by flood protection measures and communication systems (Outcome 2). Community climate resilience will be further increased through the development of Community Conservation Agreements, which will support communities to deploy new and improved livelihood strategies. Moreover, the use of innovative and accessible communication technologies ? such as mobile phone applications ? will

maximise the benefit of the Community Conservation Agreements and on-the-ground interventions by promoting local awareness of climate risks and adaptation opportunities.

CCA 2.3: Institutional and human capacities strengthened to identify and implement adaptation measures.

Under Outcome 1 of the proposed project, the institutional capacity of Lao PDR's national and provincial governments to implement integrated catchment and flood management strategies will be improved. Specifically, the implementation of this Outcome will include capacity development and training programmes at the central and provincial level to enable climate risk-informed water management practices in urban and rural areas. Human capacities for the implementation of adaptation measures will be strengthened under Outcome 2 by training communities on how to support conservation zone management activities and the introduction of alternative livelihood opportunities, which will reduce pressures on local ecosystems. Furthermore, human capacity will be strengthened under Outcome 3, by training communities and raising awareness on: i) the implementation, operation and maintenance of community-based monitoring systems; ii) climate change impacts on agricultural production and socioeconomic conditions; and iii) community-based adaptation opportunities, strategies and their benefits

CCA 3.1: Climate-resilient planning enabled by stronger climate information decision-support services and other relevant analysis

Under Outcome 1 of the proposed project, the capacity of Lao PDR's national and provincial governments to undertake climate risk modelling will be improved. This outcome will be implemented in coordination with the ongoing World Bank project, entitled 'Mekong Integrated Water Resources Management Project', which focuses on developing comprehensive water resources modelling packages and river basin management plans at the regional, national, and sub-national levels. The capacity development activities that will be implemented under Outcome 1 of the proposed project will target technical staff and use existing hydrological modelling and climate risk assessment systems to produce high-resolution assessments of the Xe Bang Hieng River Basin and Luang Prabang city. The results generated from this project outcome will inform sustainable development and land-use planning in the Xe Bang Hieng River Basin, as well as the development of Integrated Climate-Resilient Flood Management Solutions (ICFMS) for Luang Prabang city. Early-warning and response systems will also be strengthened using this information to ensure that target communities are able to effectively plan for and respond to climate change-induced disasters, which will improve the climate resilience of these communities. Outcome 1 will also support the continuous updating and improvement of hydrological observation systems, which will facilitate continuous improvements in hydrological information availability to support climate-resilient planning. Through a community-based monitoring system (Outcome 3), lessons learned, and an evidence base for EbA and flood protection measures will be developed. This information will be disseminated to decision-makers and communities both provincially and nationally to facilitate the implementation and upscaling of effective adaptation measures, as well as inform adaptation planning across Lao PDR.

CCA 3.3: Institutional and human capacities strengthened to identify and implement adaptation measures

The proposed project will develop technical and institutional capacity for effective climate change adaptation at national-, river basin- and community-levels in Lao PDR. This will be achieved by: i) identifying and integrating context-specific adaptation opportunities for the Xe Bang Hieng River Basin and Luang Prabang city into development plans or ICFMS (Outcome 1); ii) providing community-level training on the identification process and on effective techniques for implementing urban EbA measures in Lao PDR (Outcome 3). In addition to this training, an assessment will be undertaken to identify opportunities for improving the climate resilience of local livelihoods in the Xe Bang Hieng River Basin (Outcome 2). Findings from this assessment will inform the development of CCAs and interventions to support the adoption of climate-resilient livelihood strategies and farming

methods in the Xe Bang Hieng River Basin ? and accordingly, facilitate long-term climate change adaptation in the vulnerable communities located within it.

GEF incremental value per outcome and output

Table 2. Results of the incremental cost analysis per Output.

Outcome	How much has/is being spent as the baseline level of each component/output	How much GEF funding will be spent on top of that per component/output
Output 1.1	2,600,000	483,959
Output 1.2	3,700,000	427,959
Output 2.1	3,700,000	2,565,539
Output 2.2	4,400,000	500,769
Output 3.1	700,000	654,722
Output 3.2	600,000	442,722

Component 1: Developing national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction.

This component will contribute to building national and provincial capacity for integrated management to build resilience against climate change through rural catchment management in the Xe Bang Hieng river basin in Savannakhet Province, as well as urban flood management in Luang Prabang city.

Business as usual scenario

The GoL and the donor community have initiated activities to address the increasing impacts of climate change in Lao PDR. These activities have included: i) identifying priority climate change impacts and vulnerabilities (for example through the country's NAPA and Second National Communication); ii) developing policies and strategies to respond to climate change (such as the National Strategy on Climate Change and the 7th National Social Economic Development Plans); and iii) the implementation of baseline climate change initiatives. In addition, government departments such as the Department of Water Resources ? within the Ministry of Natural Resources and the Environment ? are collecting climate information to inform the management of, and response to, climate change scenarios. The GoL's focus on preparatory work and engagement with global the climate change agenda have provided a foundation for climate-resilient development and planning within the country. However, as a result of limited technical and institutional capacity in Lao PDR, the GoL has not been able to build on this foundation sufficiently[110]¹¹⁰.

While Lao PDR's capacity for the management of climate change impacts is increasing, the rate and scale at which these impacts occur is increasing even more rapidly. Increased cross-sectoral capacity building is therefore required to ensure that government officials and decision makers are suitably prepared to implement integrated management strategies at national and provincial levels. This includes increasing capacity to produce climate risk information for both rural and urban sites and for application in GIS-based integrated models, as well as modelling of climate hazard risk zones.

Adaptation scenario

GEF resources will be used for training to strengthen the institutional and technical capacity of government officials, planners and decision makers to better plan for climate resilience and risk management. This training will improve the technical skills, of government officials, for producing downscaled and projected climate risk information for rural and urban sites and in applying GIS-based integrated hydrological models developed under the complementary ongoing World Bank-funded *Mekong Integrated Water Resources Management Project*, mapping current and future flood and drought risk zones. To achieve these outcomes, US\$7,500,000 will be allocated through funding from GEF and co-financing to the Component Outcomes, described below.

Developing an integrated approach in order to manage climate risks requires that cross-sectoral cooperation and comprehensive planning are informed by technical assessments to map risks, as well as an understanding and appreciation of the value of ecosystem services. Capacity development will, therefore, be further supported through improved and updated mapping of current and future at-risk zones within the Xe Bang Hieng River Basin, as well as ecosystem valuations^[111] and present and projected hydrological assessments in Luang Prabang city. These assessments will also include options analyses of potential on-the-ground interventions, such as protective infrastructure or EbA alternatives, to inform improved planning and support climate-resilient integrated urban flood management.

This Component will support Components 1 and 2 by creating an enabling environment for: i) undertaking investments to further build the climate resilience of current and projected at-risk communities; and ii) inducing a shift away from unsustainable and vulnerable practices and livelihoods. This approach will also contribute to the sustainability and scalability of the project to other contexts.

Component 2: Ecosystem-based Adaptation (EbA) interventions under an Integrated Water Resource Management (IWRM) framework, with supporting protective infrastructure and livelihood enhancement .

This component will focus primarily on implementing concrete on-the-ground EbA interventions with complementary protective measures in the rural communities of the Xe Bang Hieng River Basin in Savannakhet Province. Building upon the enabling environment and ICM framework developed under Component 1, Component 2 will strategically target interventions in the Xe Bang Hieng River Basin that combine approaches and activities to address the dynamics of current and future vulnerability to climate change using climate models and projections for mapping future areas of risk. The EbA interventions in the headwater conservation zones will help manage water resources by restoring degraded ecosystems, while the protective infrastructure and livelihood outputs will help to reduce climate vulnerability and prevent further loss and degradation.

Business as usual scenario

Under a business-as-usual scenario, communities in the Xe Bang Hieng River Basin that are reliant on ecosystem services and a climate-sensitive agricultural sector will be increasingly vulnerable to the impacts of climate change and land degradation. With limited capacity for alternative livelihoods and as furthering ecosystem degradation exacerbates climate change impacts, these communities will experience increasing flood and drought hazards.

The expansion of swidden agriculture also known as slash and burn agriculture into natural ecosystems is causing degradation of forests in the Xe Bang Hieng River Basin. This expansion is as a result of: i) increased population growth; ii) limited alternative livelihoods; iii) limited knowledge of communities and local governments about forest ecosystem services and potential for EbA; iv) soil deterioration; and v) land concessions to commercial farming. The GoL has identified the reduction of

these farming techniques as a priority and has developed land and forest policies to reduce swidden agriculture practices (See Section II Development Challenge in the Project Document for further details on national initiatives). Degradation of forest ecosystems reduces the capacity of local communities in Savannakhet Province's lowlands and headwater ? which are most affected by floods and droughts, respectively ? to adapt to the negative effects of climate change. Local communities' dependence on ecosystem services makes them especially vulnerable to climate disasters which impact these services.

Despite current efforts of the GoL to address deforestation, the vulnerability of headwater communities will increase without an integrated approach which considers both climate change impacts and land degradation. Lowland communities will further be affected by more frequent and intense floods, which are exacerbated by forest degradation occurring in headwater areas. The combination of extreme climatic events with land degradation results in increased run off, soil erosion and loss of livelihoods and resources. Further to this, EbA measures and protective infrastructure for floods and droughts are limited in Savannakhet Province, which contributes to high levels of loss and damage flooding events in recent years.

Adaptation scenario

GEF resources will be used to increase the resilience of rural communities in the Xe Bang Hieng River Basin to current and future climate change hazards by implementing EbA measures as well as complementary protective measures ? such as cascading weirs, drainage channels, reservoir networks and rainwater harvesting. Additionally, under this component the proposed project will increase the adaptive capacity of headwater and lowland communities through the introduction of climate-resilient and alternative livelihoods, supported through Community Conservation Agreements. By building on the enabling environment and ICM framework established under Component 1, Component 2 of the proposed project will ensure sustainability of project interventions.

Component 3: Knowledge management and Monitoring, Evaluation and Learning (MEL)

This component will contribute to knowledge management, within Savannakhet Province and Luang Prabang city, by capturing the lessons learned during project implementation and ensuring that these lessons are shared ? both within Lao PDR and through international South-South exchanges ? to promote the sustainability and scalability of the project. This component will also contribute to increasing local communities' knowledge and awareness of integrated catchment management and integrated urban flood management.

Business as usual scenario

Local communities have limited understanding of the impact that inappropriate management and unsustainable livelihood options have on local ecosystems, or the indirect benefits those ecosystems provide through goods and services. In the absence of the proposed project, the public awareness of these benefits and the opportunities they provide will remain limited in the Xe Bang Hieng River Basin and Luang Prabang city. Additionally, upscaling of initiatives across districts has been limited and lessons learned from other projects have not been systematically collated and disseminated, which has hindered their replication.

Adaptation scenario

GEF resources will be used to increase the knowledge and awareness of integrated catchment management and integrated urban flood management. Awareness of the importance of forest and wetland ecosystems, in both rural and urban locations, and the goods and services they provide will be increased to promote sustainable community management of the environment. To achieve this, US\$1,675,670 of GEF funding and co-financing will be allocated to: i) increase awareness of climate change impacts and adaptation opportunities; and ii) establish community-based water resource and ecological monitoring systems. The proposed project will also improve the sustainability and scalability of adaptation measures in Savannakhet Province and Luang Prabang city by developing

community ownership of project interventions through the community-based awareness-raising of climate change risks and adaptation opportunities.

The total cost of the project is US\$32,792,037. This is financed through a GEF LDCF grant of US\$5,329,452 and UNDP TRAC resource co-financing of US\$250,000 to be administered by UNDP and US\$27,212,585 in in-kind co-financing from the Government of Lao PDR and development partners.

UNDP, as the GEF Implementing Agency, is responsible for the oversight of the GEF resources and the cash co-financing transferred to the UNDP bank account only.

- Confirmed Co-financing: The actual realisation of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. Note that all project activities included in the project results framework that will be delivered by co-financing partners (even if the funds do not pass-through UNDP accounts) must comply with UNDP's social and environmental standards. Co-financing will be used for the following project activities/outputs:

Co-financing source	Co-financing type	Co-financing amount (USD)	Planned Co-financing Activities/Outputs	Risks	Risk Mitigation Measures
Wildlife Conservation Society ? Community-led initiatives conservation critical wetland biodiversity in four districts in Savannakhet	In-kind	1,213,862	<ul style="list-style-type: none"> - Wetland Conservation aimed at reducing wetland loss - Livelihood improvement, to link conservation outcomes with community livelihood improvement - Policy Engagement to promote replication of successful scalable models of community led wetlands conservation 	<p>Low level engagement with the project.</p> <p>Risk ? Low</p>	Confirmation of co-finance support letter received

United Nations Environment Programme ? Building resilience of urban populations with ecosystem-based solutions in Lao PDR	In-kind	864,000	<ul style="list-style-type: none"> - Co-financing corresponds to on-going activities in Savannakhet Province including hydrological and hydraulic modelling, capacity building, flood management planning, and restoration of downstream riparian areas - These activities contribute to the promotion of integrated management of sites in the Mekong River Basin for increased climate resilience of Savannakhet province. 	<p>Low level engagement with the project.</p> <p>Risk ? Low</p>	Confirmation of co-finance support letter received
Republic of Korea ? Enhancing Integrated Water Management and Climate Resilience in Vulnerable Urban Areas of the Mekong River Basin	In-kind	1,072,267	<p>? Support provided to project through climate risk and water resource management baseline assessment.</p> <ul style="list-style-type: none"> - Support provided to enhance community preparedness and EWS systems. 	<p>Low level engagement with the project.</p> <p>Risk ? Low</p>	Confirmation of co-finance support letter

Department of Planning and Finance ? Mekong Integrated Water Resources Management	Public investment	13,030,740	<p>Support provided to activities in the Xe Bang Hieng River Basin and Luang Prabang city, namely:</p> <ul style="list-style-type: none"> ? Water quality and ecosystem health ? Water resources modelling and assessment ? Hydrological and meteorological (Hydro-Met) network upgrading ? River Basin Management ? Sustainable irrigation and drainage 	<p>Low level engagement with the project.</p> <p>Risk ? Low</p>	Confirmation of co-finance support letter received
Department of Irrigation ? Partnership for Irrigation and Commercialisation of Small Stakeholder Agriculture (PICA)	Public investment	5,258,716	<p>Supportive provided to EbA implementation in Luang Prabang city, in particular programs and activities related to:</p> <ul style="list-style-type: none"> ? Intensified agricultural development. ? Value chains developed. - Improved nutrition practices 	<p>Low level engagement with the project.</p> <p>Risk ? Low</p>	Confirmation of co-finance support letter received
Provincial Department of Agriculture and Forestry, Savannakhet Province ? Climate-Friendly Agribusiness Value Chains Sector (CFAVC)	Public investment	5,773,000	<p>- Support provided to activities in the Xe Bang Hieng River Basin and Luang Prabang city, particularly those relating to commercial crop production.</p>	<p>Low level engagement with the project.</p> <p>Risk ? Low</p>	Confirmation of co-finance support letter received

GEF Agency (UNDP TRAC Resources)	Grant	250,000	Support of USD250,000 grant will be used to support PMU costs including, Project Coordinator, Project Assistant, Production of Visibility materials, National Communication and Design Specialist and DPC for UNDP Execution Support Services. Details of co-finance allocation can be found in Budget Note 35?39	Low level engagement with the project. Risk ? Low	
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Innovativeness, Sustainability and Potential for Scaling Up

Innovativeness

An integrated approach to river basin/catchment management is widely recognised as an international best practice. ICM allows for balancing the competing priorities and interests of different sectors (including water, agriculture, and land) when pursuing economic development, social equity, environmental sustainability, and climate resilience. Similarly, the integrated urban flood management approach applied in the GCF urban resilience project entitled 'Building resilience of urban populations with ecosystem-based solutions in Lao PDR'[112]¹² will support the coordination of efforts to address flood risk in Luang Prabang city. These approaches require an enabling environment that is supported by an appropriate institutional framework, regular capacity building and an effective knowledge management system. The proposed project will deliver an innovative approach to enhancing the resilience of the most vulnerable communities in Savannakhet Province and Luang Prabang city to floods and droughts at the river basin-wide and city level. This will be achieved by considering and incorporating the relevant stakeholders, interests and climate factors where necessary. The implementation of targeted interventions in headwater and lowland communities will help reduce vulnerability to floods and droughts at both the local and provincial scale, as interventions will be designed to also benefit communities downstream of the implementation site. This approach will be conducted in a manner that promotes sustainability and that is scalable within Lao PDR ? as well as neighbouring countries. Further details on the scalability of project interventions are described below under the section entitled 'Potential for scaling up?'. The proposed project will deliver innovative approaches at community level by integrating physical interventions, such as physical infrastructure and EbA interventions, with technologies and information systems, such as early warning systems and climate information awareness raising and trainings. This approach will support the specification of

interventions to communities? needs, while also enabling the development of networks, such as for communication, between communities so that the development of climate resilience has a wider impact than on just several target communities. Moreover, the development of Community Conservation Agreements, alternative livelihood opportunities and community-based monitoring systems will enable communities to take a more active role in the strengthening of their own climate resilience.

Sustainability

The project has been designed to align strongly with Lao PDR's national, provincial and district development and climate change adaptation priorities. This has been done to promote long-term investment into the project interventions by the relevant decision-makers in the country, which, in turn, will enhance the adaptation impact of the interventions. Additionally, extensive engagements with national-level stakeholders and target communities have been convened during the project development phase to secure ownership of the interventions. The project will also build on previous and ongoing projects in the area or sector, collaborating with stakeholders and partners to address gaps, avoid redundancy and promote complementarity.

During project implementation, regular engagements will continue to be held to increase the role of community members ? particularly women ? as active participants in the interventions taking place in their communities. Moreover, community ownership will be promoted through the introduction of diversified and alternative livelihood opportunities, coupled with awareness-raising campaigns, by engaging with communities to expand their knowledge and understanding of the roles of their local ecosystems in reducing flood and drought risks. This will contribute to promoting the sustainable use of local ecosystem goods and services. By promoting community ownership, the project will ensure long-term community buy-in, and integration into livelihood practices will ensure the sustainability of the interventions.

In addition, project sustainability will be enhanced through the activities in Component 1, which will: i) build institutional and technical capacity; ii) facilitate development and land-use planning; iii) facilitate the creation of flood management strategies; iv) update the existing flood management knowledge base; and v) revise or update current hydrological networks and early warning systems (EWS) to improve resilience beyond project completion. The sustainability of financial investments into EbA and protective infrastructure in Component 2 will also be supported by: i) ?soft?[113]¹¹³ technical assistance in strengthening headwater conservation zone management; ii) providing communication and knowledge management tools and technologies; and iii) developing Community Conservation Agreements (CCAs). These supportive elements will ensure the continued implementation of interventions without GEF grant financing once the project is completed. Finally, Component 3 will contribute to the long-term sustainability of the project through knowledge management and M&E interventions to capture and distribute the lessons and outputs of the project for future use by stakeholders/beneficiaries.

The proposed project will be implemented in accordance with international rights and is designed to avoid any adverse impacts on human rights (civil, political, economic, environmental, social or cultural) of any stakeholders involved, or the broader population. This approach will be supported by the risk assessments and safeguards mentioned above ? including the ESMF, GA, GAP, and GRM ? which will help ensure the implementation of project interventions do not result in adverse human rights impacts.

Potential for scaling up

The Integrated Catchment Management (ICM) and Integrated Climate-Resilient Flood Management Solutions (ICFMS) approaches are designed to be readily upscaled and replicated across other river basins and cities in Lao PDR, as well as in neighbouring countries. Widespread interest in ICM and EbA beyond the target sites will be generated as stakeholders – including rural households, farmers, the private sector, training organisations and national stakeholders – connect throughout the project. This will enable the interventions introduced by the project to be scaled up and replicated, initially in non-target villages throughout Savannakhet Province and eventually in other Lao PDR provinces.

The restoration and protective infrastructure interventions implemented in Savannakhet Province – and resultant lessons learned – will serve as an evidence base for upscaling EbA interventions across different provinces and other countries in the region. By implementing effective CCAs at the target sites, the project will create a strong case for presenting other CCAs to communities. Further to this, the ecological principles applied for successful restoration at the project sites can be used for up-scaling restoration efforts in other parts of the province and the country where similar ecosystems are found.

National capacity building for hydrological modelling will also contribute to the scalability of evidence-based adaptation planning to other provinces in Lao PDR, by improving the tools and capacity that government officials and decisions-makers have for catchment management and planning. In addition, the participatory processes with stakeholders will contribute to producing replicable models for addressing climate vulnerability to floods and droughts in similar urban, agricultural or forest contexts. The knowledge management and M&E activities will further contribute to this upscaling potential by capturing, packaging, and sharing the project's lessons to support the replication of ICM, ICFMS and contextually appropriate adaptation activities (including EbA) across Lao PDR and neighbouring countries.

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- [58] Days where the maximum temperature surpasses 35°C, as classified by the World Bank Group's Climate Change Knowledge Portal (CCKP). More information available at: <https://climateknowledgeportal.worldbank.org/>
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[83] Building resilience of urban populations with ecosystem-based solutions in Lao PDR. Available at: <https://www.greenclimate.fund/project/sap009>

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[86] A false economy is an apparent financial saving that instead leads to greater expenditure.

[87] National Report on Land Degradation Neutrality Target Setting Programme: Lao PDR. Available online at: https://knowledge.unccd.int/sites/default/files/ldn_targets/2020-11/Lao%20PDR_LDN%20TSP%20Final%20Report%20%28English%29.pdf

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[93] World Bank Group. 2020. Climate Change Knowledge Portal: Laos. Available at: <https://climateknowledgeportal.worldbank.org/country/laos/climate-data-projections>

[94] Conservation activities will include, *inter alia*: i) enhancing conservation zone management, land-use planning and the implementation of regulations related to protected areas; and ii) enhancing the natural regeneration process.

[95] Restoration activities will include, *inter alia*: i) enrichment planting of native species for biodiversity in natural re-growth and secondary forests, following degradation; and ii) planting ecologically appropriate species in degraded forest land areas or planting both ecologically and economically appropriate species in degraded land designated for communities? sustainable agricultural lands.

[96] Such as cascading weirs, drainage channels, reservoir networks and rainwater harvesting structures.

[97] This complementary project aims to map several current and future flood and drought risk zones

[98] Savannakhet Department of Natural Resources and Environment. Flooding Report ? Savannakhet 2019.

[99] The Global Basic Observations Network is a system to provide World Meteorological Organization members with reliable weather forecasts and climate analyses that are essential for public service that help save lives, protect property and foster economic prosperity. Further information available: <https://community.wmo.int/gbon> Accessed: 18 February 2021

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[101] Many communities living in the DDP forests practice a rudimentary form of silvopasture, where animals are grazed in forested areas. For more on this, see Russell et al., 2015. *Using Forests to Enhance Resilience to Climate Change: The Case of Smallholder Agriculture in Savannakhet Province in Lao PDR*. Available:

https://www.researchgate.net/publication/286936624_Using_Forests_to_Enhance_Resilience_to_Climate_Change_The_Case_of_Smallholder_Agriculture_in_Savannakhet_Province_in_Lao_PDR

[102] Russell et al., 2015. *Using Forests to Enhance Resilience to Climate Change: The Case of Smallholder Agriculture in Savannakhet Province in Lao PDR*

[103] Measures to fight drought in the lowlands of Ethiopia project outline available online at: <https://www.giz.de/en/worldwide/23119.html>

[104] Silvopasture is the practice of integrating trees, forage and domesticated animal grazing into a mutually beneficial system.

[105] National Report on Land Degradation Neutrality Target Setting Programme: Lao PDR. Available online at: https://knowledge.unccd.int/sites/default/files/ldn_targets/2020-11/Lao%20PDR_LDN%20TSP%20Final%20Report%20%28English%29.pdf

[106] Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR

[107] Further details on FALUPAM available online at: <https://www.tabi.la/results/land-use-planning/falupam-results/>

[108] Further details on the SAMIS project available online at: <http://www.fao.org/in-action/samis/en/>

[109] South-South cooperation is a broad framework of collaboration among countries of the South in the political, economic, social, cultural, environmental and technical domains (<https://www.unsouthsouth.org/about/about-sstc/>)

[110] Second National Communication to the United Nations Framework Convention on Climate Change, Lao People's Democratic Republic. 2013

[111] These are assessments to determine the economic value of the ecosystem services provided by urban riparian areas, wetlands and streams.

[112] More information available at: <https://www.greenclimate.fund/project/sap009>.

[113] ?Soft? refers to the provision of assistance that does not involve the construction of physical infrastructure.

1b. Project Map and Coordinates

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

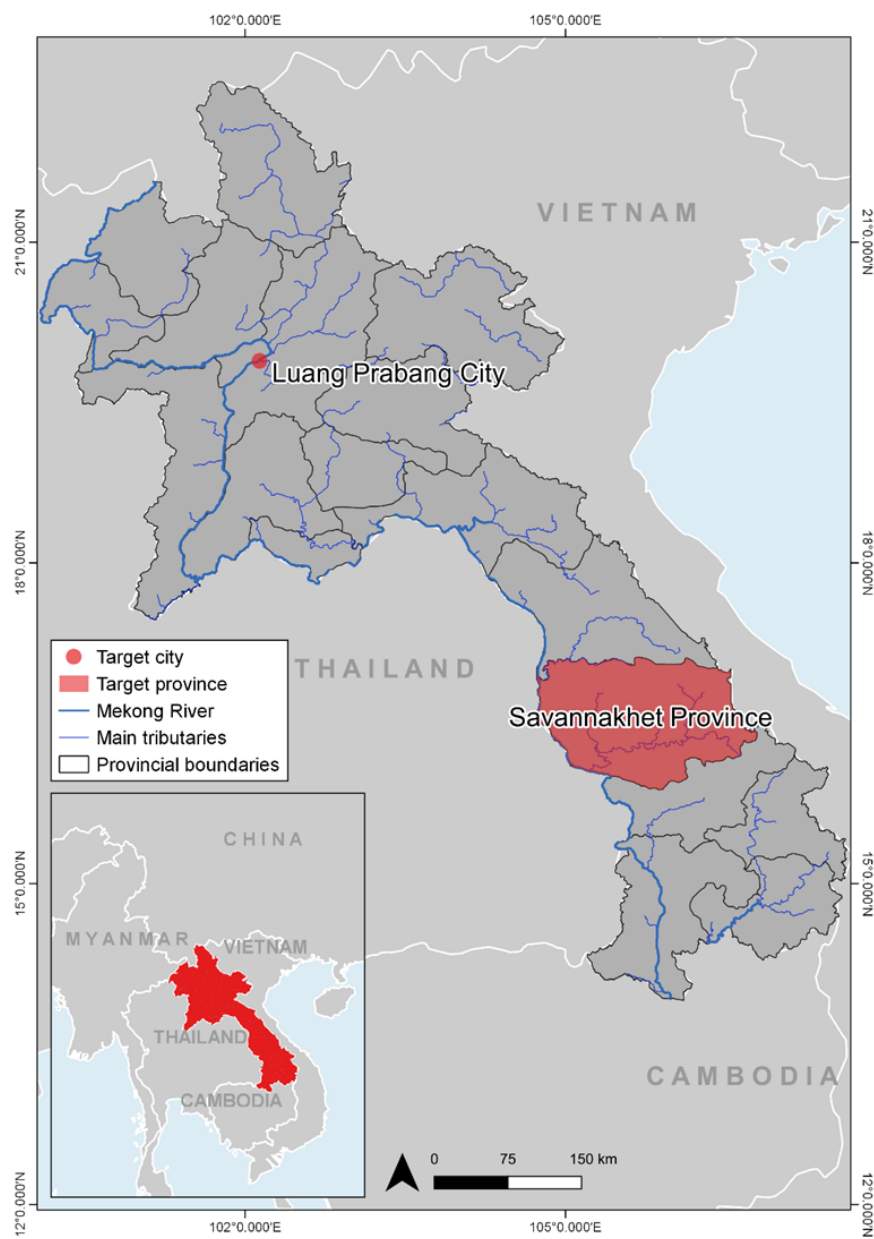


Figure 5. Map of the proposed project's target areas on a national level.

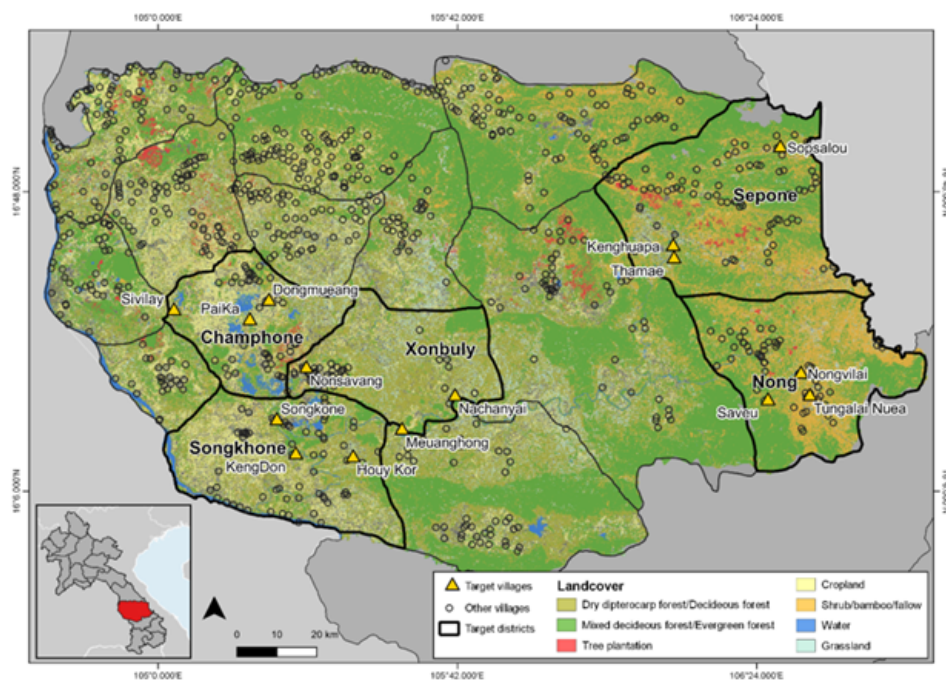


Figure 6. Map of the target villages in Savannakhet province selected for interventions under Component 2.

Table 3. GPS coordinates for each of the target villages.

District	Name	Longitude	Latitude
Sepone	Sopsalou	106.4475	16.9025
	Kenghuapa	106.1969	16.6719
	Thamae	106.1989	16.6432
Nong	Nongvilai	106.4958	16.3738
	Tungalai Nuea	106.5164	16.3218
	Saveu	106.4187	16.3115
Champhone	Dongmueang	105.2515	16.5437
	Sivilay	105.0295	16.5218
	Paika	105.2068	16.4990
Xonbuly	Nonsavang	105.3391	16.3867
	Nachanyai	105.6868	16.3214

	Meuanghong	105.5628	16.2423
Songkhone	Houyakor	105.4483	16.1784
	Kangdone	105.3142	16.1853
	Songkone	105.2703	16.2650

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

N/A

2. Stakeholders

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

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

- Following close collaboration with stakeholders during project development, the implementation strategy for the proposed project includes extensive stakeholder participation. At a broad level, stakeholder participation and representation will be conducted through the governance structures established by the project as outlined and depicted in the organogram in the Governance and Management Arrangements (Section VIII), and through the existing structures at national and local/village levels (such as women's associations). A Stakeholder Engagement Plan for the implementation phase has been developed during the project inception workshop and is attached as Annex 9. In the Stakeholder Engagement Plan, stakeholders are grouped into four main categories: i) central government level; ii) provincial governments; iii) local communities; and iv) related NGOs or CSOs. Within these four categories, the Stakeholder Engagement Plan identifies 17 stakeholder groups. The Plan details the interests each group holds in the proposed project, as well as preferred methods of engagement and allocated time and cost budgets for engagement. Based on stakeholder engagements done during the PPG phase, the Plan also includes detailed strategies for engaging with the communities in the proposed project's target villages, including preferred methods of communication, local language and specific needs to make engagement accessible. These details are disaggregated by gender and age categories. In addition, the Stakeholder Engagement Plan also includes the Grievance Redress Mechanisms (GRM) for the project, in accordance with UNDP standard procedures.

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- The Stakeholder Engagement Plan will be presented and discussed at the Inception Workshop. Stakeholders will be consulted throughout the project implementation phase to: i) promote community understanding of the project's outcomes; ii) promote local community ownership of the project by engaging in planning, implementing and monitoring of the CCA interventions ? which will contribute to the sustainability of the project; iii) communicate to the public in a consistent, supportive and effective manner; and iv) maximise synergies with other ongoing projects.

- As a result of the Covid-19 pandemic, stakeholder engagements and consultations during the implementation phase will need to include considerations for the ability of stakeholders and vulnerable groups, such as women and local communities, to access meetings ? particularly in the case of future national lockdown measures. The accessibility of stakeholder engagements includes factors such as, inter alia: i) the availability and ease of transport to consultations; ii) the safety of stakeholders, both in regard to their health through potential Covid-19 exposure while travelling or at the consultation and their physical safety, especially that of women, while travelling; and iii) whether stakeholders located in remote areas are able to access the consultations remotely if travel to consultations were not possible.

- 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.

- The project will be executed by the Department of Water Resources (DWR), under the Ministry of Natural Resources and the Environment (MoNRE), as the primary government stakeholder. DWR will function as the national entity designated by UNDP to assume responsibility for delivering on the project objective and outcomes, as well as the entity accountable to UNDP for the use of funds. During implementation, several other stakeholders will be involved in the project including NGOs, CSOs and local communities ? as detailed in the table below. Primary stakeholders have been informed about the project and its objectives and have subsequently participated in baseline surveys and workshops to: i) identify priorities for interventions; ii) determine the project baseline; and iii) determine selected impact and outcome indicators. Furthermore, these stakeholders were also involved in the Project Document validation workshop. **At the start of project implementation, representatives from civil society will be identified to serve as Beneficiary Representatives on the Project Steering Committee. This will ensure the sufficient involvement of relevant beneficiaries in the implementation of project interventions.**

- To bring the voice of Lao PDR to global and regional fora, the project will also explore opportunities for meaningful participation in specific events where UNDP could support engagement with the global development discourse on EbA and ICM. The project will furthermore provide opportunities for regional cooperation with countries that are implementing initiatives on EbA and ICM in geopolitical, social and environmental contexts relevant to the proposed project in Lao PDR

? Please also refer to Annex 9 of ProDoc - Stakeholder Engagement Plan, uploaded to RoadMap but due to the large size, may be best directly accessed via this link:
https://pims.undp.org/attachments/6547/217292/1749818/1797096/Annex%209.%20Stakeholder%20Engagement%20Plan_7%20February%202022.docx

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

Below is only an excerpt - Please see the full document of Stakeholder Engagement Plan (Annex 9 to the Project Document) also uploaded to GEF Portal.

Simplified Stakeholder Engagement Plan

Table 5.1 below outlines the simplified stakeholder engagement plan. This stakeholder engagement plan should be reviewed and modified accordingly to ensure its effectiveness in securing meaningful and effective stakeholder participation. The project will engage with the stakeholders identified in Table 5.1 at annual Engagement Workshop, under Activity 3.1.2[1]. Additionally, the PMU will engage with relevant stakeholders during training workshops associated with project activities.

Table 5.1. Simplified Stakeholder Engagement Plan

Stakeholder Group	Why included (interests)	Participation methods	
		Methods	Responsibility
Government Department at the central level			
? Department of Water Resources (DWR) in MONRE	? Protection of water resources as well as environmental protection ? Data quality control and sharing	Email, meetings, telephone	? Planning, coordinating, managing, M&E and reporting. ? Risks management, procurement of goods and services, financial management, approving and signing the multiyear workplan, the combined delivery reports and signing the financial report ? Development of flood protection infrastructure ? Supervise the work of PMU in day to day operation of the project including administration, management and technical support to Project Manager
? Department of Meteorology and Hydrology (DMH) in MONRE	Information on meteorology and hydrology	Email, meetings, telephone	? Hydrological monitoring

Stakeholder Group	Why included (interests)	Participation methods	
		Methods	Responsibility
? Department of Climate Change Management (DCCM) in MONRE	Community preparation for climate change adaptation	Email, meetings, telephone	? Mainstreaming urban EbA ? Development of knowledge management and community-based ecological monitoring systems
? Department of Forestry (DAFO) in MAF	Reforestation for protection of water resources	Email, meetings, telephone	? execution of EbA activities, primarily reforestation, in coordination with target communities
? Department of Technical Extension and Agro-processing (DTEAP) in MAF	Promotion of climate change adapted farming system	Email, meetings, telephone	? enhance climate-resilient livelihoods
Government departments at the provincial level			
? Department of Natural Resources and Environment	? Protection of water resources as well as environmental protection	Email, meetings, telephone	? Oversee project implementation in their respective provinces ? Coordination the implementation of the project activities with the district authorities
? Department of Agriculture and Forestry	Promotion of climate change adapted agricultural practices	Email, meetings, telephone	? Provision of technical expertise in climate resilient farming and livelihood development
? Department of Information and Tourism/Heritage Office	Protection of World heritage site in Luang Prabang City	Email, meetings, telephone	? Coordination in the development of

Stakeholder Group	Why included (interests)	Participation methods	
		Methods	Responsibility
? Sub-Commission for the Advancement of Women and Mother and Child at the provincial level	Promote gender equality and protection of women and children against all forms of violence	Email, meetings, telephone	? Provide expertise in gender mainstreaming and advice on GAP implementation
Community level			
? Village Leaders	Protection of water resources and forest area Protect the rights of the villagers against the social and environmental impacts of development works	Telephone, Letters	? Mobilize community participation in project activities
? Village Development Committee	Livelihoods development of the villagers	Telephone, Letters	Assist village leaders in mobilizing community participation in project activities
? Village Water User Committee	Water availability for household use and for the agriculture	Telephone, Letters	Mobilize farmers to take ownership in the O&M of the irrigation system after rehabilitation
? Other vulnerable groups (ethnic minorities, elderly, disabled, women and children)	Livelihood development Evacuation to the safe shelter during natural disaster	Telephone, Loudspeakers	Participation and contribution in project activities
NGOs/CSOs			
? International Union for the Conservation of Nature (IUCN)	Conservation of the RAMSAR area in Champhone and Songkhone Districts, conservation of crocodiles in Champhone and Songkhone district	Email, meetings, telephone	Coordination in RAMSAR and World Heritage area conservation
? Lao Civil Society Organization Coordination Office	Community mobilization for water resources and forest management	Email, meetings, telephone	Coordination in community-based water resources management

Stakeholder Group	Why included (interests)	Participation methods	
		Methods	Responsibility
? Lao Wildlife Conservation Association (LWCA)	Conservation of wildlife especially the endangered species I the National park and protected areas	Email, meetings, telephone	Coordination in wildlife conservation
? Wild Life Conservation Society (WCS)	Conservation of wildlife especially the endangered species I the National park and protected areas	Email, meetings, telephone	Coordination in wildlife conservation

2. Resources and Responsibilities for Implementing Stakeholder Engagement Plan

2.1. Resources

Resources for managing and implementing the SEP will be the responsibility of PMU and project implementing partners at the central, provincial and district levels. Budget allocated for stakeholder engagement is integrated in the budget for activities implementation of each output of the respective components.

During project implementation phase, a list of responsible persons for the implementation of the SEP with title, telephone number, address as well as email address must be provided to the village authorities as well as concerned government offices in five target districts and Luang Prabang City.

2.2. Management Function and Responsibilities

Stakeholder engagement activities at different levels of project interventions will be carried out by different concerned parties responsible for each output of the respective components. The Project Manager and the M&E specialist will ensure the implementation of the SEP by the concerned project implementing partners. The M&E specialist will develop stakeholder data base and comments will be registered in the data base.

[1] See Budget Note 23 of Section IX. Total Budget and Work Plan in the Project Document

Select what role civil society will play in the project:

Consulted only; No

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Table 4. **Gender Action Plan.**

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsib le agency
Component 1: Developing national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction.	Outcome 1: Enhanced national and provincial capacities for integrated catchment and flood management in target rural and urban communities	Output 1.1: Flood- and drought-risk maps of and an economic evaluation of urban ecosystem services and protective options produced for the Xe Bang Hieng River Basin and Luang Prabang city, respectively.	Activity 1.1.1: Design and implement central and provincial training program to enable climate risk-informed water management practices in target urban and rural areas	At least 30% of Women participation in the training programme by the end of the project with the target of 15% by the mid-term end	Relevant female staff of MONRE and PONRE to have access to the training program	PIP, Project management Unit (PMU), DoNRE
			Activity 1.1.2: Map current and future zones of the Xe Bang Hieng River Basin at risk of climate change-induced flooding and drought based on existing hydrological models and conduct protective infrastructure optioneering based on the identified at risk zones.	At least 25% of the participants in the consultation during the mapping exercise must be the women	The consultations for mapping zones at risk of climate change must take into account the concerns and the opinion of the women	PIP, PMU, DoNRE

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
			Activity 1.1.3: Conduct an economic valuation of urban ecosystem services and protective options in Luang Prabang.	At least 25% of the informants for Economic valuation must be the women	The economic valuation of urban ecosystem services and protective options	PIP, PMU, DoNRE
		Output 1.2: Integrated Climate-Resilient Flood Management Strategies developed for Luang Prabang and the Xe Bang Hieng River Basin, supported by an updated hydrometeorological monitoring network, EWS and revised emergency procedures for the Xe Bang Hieng River Basin.	Activity 1.2.1: Draft and validate fine-scale climate-resilient development and land-use plans for Luang Prabang and in the headwater and lowland areas of the Xe Bang Hieng River Basin	Women participation in land use planning must be at least 25% and land-use plans must be gender responsive	Women in the project areas accessing land as a result of the land use planning	PIP, PMU, DoNRE
			Activity 1.2.2: Assess and update current Xe Bang Hieng River Basin hydrological monitoring network ? including village weather stations ? to improve efficiency.	At least 25% of the participants in the consultation on the assessment of the hydrological network must be the women		PIP, PMU, DoNRE

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsib le agency
			Activity 1.2.3: Review and revise early-warning systems and emergency procedures of vulnerable Xe Bang Hieng River Basin communities	Early-warning systems and emergency procedures must be gender responsive	Consultation with women and women?s groups on their needs and requirements for revision of the early-warning system and emergency procedures	PIP, PMU, DoNRE
Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure[1], and livelihood enhancement.	Outcome 2: Reduced flood risk through headwater conservation, restoration and protective infrastructure, supported by climate-resilient and alternative livelihoods.	Output 2.1: Ecosystems conserved and restored through conservation zone management, Ecosystem-based Adaptation, and protective infrastructure, supported by innovative communication and knowledge management tools/technology.	Activity 2.1.1: Conserve Xe Bang Hieng protected forests through enhanced conservation zone management and enhanced natural regeneration and restore Xe Bang Hieng degraded headwater conservation zones and implement EbA interventions to improve ecological integrity for the delivery of ecosystem services.	At least 25% women participation in the consultations on the EbA interventions for improvement of ecological integrity	Consultation with women and women?s groups on needs and requirements associated with restoration of Xe Bang Hieng headwater conservation zones	PMU, PIP & DWR

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
			Activity 2.1.2: Construct site specific protective infrastructure to reduce flood risk (such as cascading weirs and drainage channels) and drought risk (such as reservoir networks and rainwater harvesting) based on protective infrastructure optioneering conducted under Output 1.1.	Women participation in the trainings must be at least 45% by the end of the project with the 25% target by mid-term end	Women access to the training in the use of improved practices, tools and technologies to support head water conservation zone management	PMU, PIP & DWR

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
			Activity 2.1.3: Develop and distribute communication and knowledge management tools and technologies (such as mobile phone apps and community radio) and train communities on their use to support headwater conservation zone management and increase their resilience to floods and droughts.	Women participation in the consultations on the development of protective infrastructure must be at least 25%	Consultation with women and women's groups on needs and requirements associated with the construction of protective infrastructure to reduce flood and drought risks	PMU, PIP & DWR

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
		Output 2.2: Climate-resilient and alternative livelihoods promoted in headwater and lowland communities through Community Conservation Agreements (CCAs) and diversified livelihood opportunities.	Activity 2.2.1: Conduct market analyses, including: i) analyzing supply chains for climate-resilient crops, livestock, and farming inputs; ii) assessing economic impacts and market barriers; and iii) recommending mitigating strategies to address these barriers.	Women participation in consultation of market analysis must be at least 25%	Consultation with women and women's groups in analyzing supply chains for climate-resilient crops, livestock and farming inputs, in assessing economic impacts and market barriers; and the concerns of women are taken into consideration in recommending mitigating strategies	PMU, PIP & DOF
			Activity 2.2.2: Undertake Community Conservation Agreement process to encourage climate-resilient agriculture, fisheries, and forestry/forest-driven livelihoods and practices	Women participation in the consultations on the community conservation agreement must be at least 25%	Consultation with women and women's groups on needs and requirements in community conservation agreement in climate-resilient agriculture, fisheries and forest drive livelihoods and practices	PMU, PIP & DOAE (MAF)

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
			Activity 2.2.3: Introduce diversified activities and opportunities through community Conservation Agreements (developed under Activity 2.2.1) in agriculture (livestock and crops, including vegetable farming) as well as fisheries, non-timber forest products (NTFP), and other off-farm livelihoods	At least 25% of the participants benefiting in the diversified activities must be the women	Equal access to diversified livelihood activities and opportunities between men and women	PMU, PIP & DOAE (MAF)

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
Component 3: Knowledge management and Monitoring and Evaluation (M&E).	Outcome 3: Effective knowledge management and M&E through awareness/advocacy and monitoring of climate change impacts and adaptation opportunities in target rural and urban communities.	Output 3.1: Training and awareness/advocacy campaigns conducted to enhance knowledge management, M&E and information exchange on climate change impacts on agricultural production and socioeconomic conditions and lessons disseminated on community-based adaptive solutions.	Activity 3.1.1: Provide training and awareness raising to Xe Bang Hieng River Basin communities on: i) climate change impacts on agricultural production and socioeconomic conditions; and ii) community-based adaptation opportunities and strategies (e.g., water resources management, agroforestry, conservation agriculture, alternatives to shifting cultivation) and their benefits	At least 40% of the training participants in the training must be the women with the target of 30% by mid-term end	Women in project areas accessing training in climate change impacts on agricultural production and socioeconomic conditions and community-based adaptation opportunities and strategies and their benefits	PMU, PIP & DoDMCC

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
			Activity 3.1.2: Establish a knowledge management hub to collect, and from which to share, project lessons, within Lao PDR and through South-South exchanges, on strengthening climate resilience with regards to: i) catchment management; ii) flash flood management and iii) EbA.	At least 25% of the participants in the exchange sharing must be the women	Women access to the exchange visits on catchment management, flash flood management and EbA.	PMU, PIP & DoDMCC
			Activity 3.1.3: Conduct awareness-raising campaigns on urban EbA and flood management for communities and the private sector in Luang Prabang.	At least 25% of the participants in the awareness raising campaign must be the women	Women access to the campaign in Luang Prabang on urban EbA and flood management	PMU, PIP & DoDMCC

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
		Output 3.2: Community-based water resources and ecological monitoring systems established, and community members trained in their operations and maintenance	Activity 3.2.1: Develop and implement community-based monitoring systems to measure changes in key ecological determinants of ecosystem health and resilience in the Xe Bang Hieng River Basin.	At least 10% of the committee members for community-based monitoring mechanism must be the women	Consultation with women and women's groups in the development	PMU, PIP & DoDMCC
			Activity 3.2.2: Community members trained on the operations and maintenance of systems developed under Activity 3.2.1	All female members of the committee members for community-based monitoring system must participate in the training.	Women access to training on the operation and maintenance of the monitoring systems.	PMU, PIP & DoDMCC
Project Management Unit	Effective project implementation and monitoring	GAP is operationalized at all levels of project implementation and monitoring	Monitoring the implementation of the GAP	Gender balance targets of all outputs are achieved by the mid-term of the project	Promotion of active involvement of women and monitoring and evaluation of GAP implementation	Project Gender Office, PMU

Project component s	Project outcomes	Project outputs	Project activities	Gender Balanced Target	Actions	Responsible agency
			Awareness raising on gender mainstreaming and the GAP for the district level project officers and coordinators included in training under Activity 1.1.1.	15 participants from each of the 5 target districts and Luang Prabang City		
			Awareness raising on gender mainstreaming and the GAP at the village level included under in training under Activity 3.1.1.	15 participants from each of the 18 target villages		

[1] Such as cascading weirs, drainage channels, reservoir networks and rainwater harvesting structures

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

Yes

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

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

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

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

The proposed project will engage the private sector during the implementation of Activity 1.1.3. This activity will involve conducting an economic valuation of urban ecosystem services and protective options in Luang Prabang. The results of this valuation will enable Luang Prabang city officials to engage with the private sector on how to sustainably manage the city's ecosystem services while also ensuring that they can provide financial benefits for both the private sector and local communities. The project will also facilitate engagement between the private sector and Luang Prabang officials based on the results of the valuation of protective options in the city. This engagement will focus on securing support from private sector stakeholders for the expansion and improvement of extreme climate event protection options in Luang Prabang city, while also determining how the capacity of the private sector can be built, under Activity 3.1.3, to understand and consider the risks and impacts of climate change on its investments.

Activity 2.2.1 will involve conducting market analyses including, *inter alia*: i) analysing supply chains for climate-resilient crops, livestock and farming inputs; ii) assessing economic impacts and market barriers; and iii) recommending mitigating strategies to address these barriers. While conducting these market analyses, the project will engage with private sector stakeholders, such as from the agriculture and forestry industries, to further identify how the private sector can be engaged in the development and implementation of alternative livelihood opportunities and Community Conservation Agreements (CCAs). These engagements will also promote discussion around how commercial agricultural concession owners can implement climate change adaptation measures into their operations to ensure their contribution to national climate change adaptation targets. To achieve this, the private sector and commercial agricultural concession owners will engage with the abovementioned market analyses results to facilitate the implementation of climate change and land degradation adaptation measures

within their operations. Upon the successful implementation of CCAs after three years, the project will engage with financial sustainability mechanisms, such as payment for ecosystem service schemes, to ensure the continued successful implementation of CCAs in target communities and to facilitate the upscaling of CCAs to other local communities.

The proposed project will also engage with the private sector through the implementation of Activity 3.1.3. This activity will involve conducting awareness-raising campaigns within the city of Luang Prabang to inform both vulnerable communities and the private sector about the risks and impacts of climate change. These awareness-raising campaigns will involve educating the private sector on urban EbA and flood management, specifically their relevance to this sector and how the sector can engage with the Government of Lao PDR on implementing urban EbA and flood management practices in Luang Prabang. As part of the awareness-raising campaign, the private sector will be engaged on introducing climate change adaptation considerations into its operations, while also identifying climate change risks to their investments. These engagements will subsequently be used to facilitate a closer relationship for climate change adaptation action between GoL decision-makers, local communities and the private sector. In addition, the knowledge management hub, established under Activity 3.1.2, will engage with the private sector to adjust existing, and develop new, construction and design standards that are considerate of climate change and its impacts. This engagement will be supported by the development of an evidence base consisting of lessons learned from the implementation of project interventions and from South-South exchanges and cooperation with similar projects.

5. Risks to Achieving Project Objectives

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):

Table 5 and Table 6, below, outline the general project risks and SES project risks, respectively, as well as management measures for them.

Table 5. General Project Risks Assessment and Mitigation Measures

Description	Risk Category	Impact & Probability (1?5)	Management Measures	Risk Owner
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Description	Risk Category	Impact & Probability (1?5)	Management Measures	Risk Owner
Risk 1: NIM modality not functioning as planned and or as per POPP agreement with government	Financial Operational	L = 1 I = 5	Measure in place through PB, Audits and sport checks ? and the provision of technical specialists to monitor and ensure compliance with agreed standards. UNDP POPP NIM Training will be provided prior commencing project implementation to ensure that all procedures will be followed strictly.	UNDP & GoL
Risk 2: Lower than anticipated institution capacity of the initial implementing partner. Based on HACT assessment	Operational Capacity development of national partners	L= 2 I= 2	Additional support to the institutions of the GoL (M/PONRE) that will lead project implementation. In addition, the project will employ a full-time UNDP Technical Specialist. and a full-time Project Coordination, Monitoring & Evaluation (and reporting) Expert who will be responsible for assisting DWR in coordinating its activities as Executing Agency with the UNDP. The recommendations on the HACT report should be implemented and updated as quarterly basis. UNDP will work closely with IP to strengthen their capacity as needed.	DWR
Risk 3: Potential negative impacts from project activities involving reforestation. Caused from tree seedling being planted.	Environmental ? biodiversity and use of natural resource	L=1 I= 2	Village forestry will only be carried out in the context of approved sustainable forestry management plans; reforestation will be carried out using clear criteria regarding use of native species, avoidance of land degradation, etc.	Target communities/ villages
Risk 4: Slow implementation/ progress because of required institutional arrangements.	Organisational ? institutional arrangements	L=2 I = 2	MOUs/Latter of Agreements issued with RPs ? MOUs closely monitored.	DWR

Description	Risk Category	Impact & Probability (I?L)	Management Measures	Risk Owner
Risk 5: Complex organizational arrangement between DWR, national, provincial and district level (and between Ministries).	Organisational ? institutions arrangements	I = 2 L = 2	Special attention by board, MoUs with relevant parties, Operational Guide by project. Clear and regular coordination mechanisms will be established	DWR MONRE
Risk 6: Changes in staff results in Weak delivery by extension staff, other implementers	Operational ? leadership & management	I = 4 L = 2	Strict field monitoring; Support & encouragement by senior officers	DWR
Risk 7: Natural disasters within the project area ? including flooding Ecosystems are not sufficiently resilient and their biological and physical integrity are incrementally compromised by the effects of global and regional climate change.	Environmental ? climate change and disaster	I = 3 L = 2	Clear planning and monitoring to avoid rainy season and provision of support when needed. EWS established and capacity of preparedness enhanced	Target communities
Risk 8: Changes in priorities and livelihood needs ? between conservation and livelihoods	Strategic ? Theory of Change	I = 4 L = 1	Careful and cautious design of conservation programme in close consultation with local authorities and communities	DWR
Risk 9: Alignment with National priorities - Conflicts and misunderstanding among public institutions, private sector partners, NGOs and resource users undermine partnership approaches and implementation of cooperative governance arrangements	Political ? Operational ? alignment with national priorities	I = 2 L = 1	During project preparation, numerous non-governmental organizations, private sector partners, and development institutions were consulted on the project goals and strategies.	Government

Description	Risk Category	Impact & Probability (1?5)	Management Measures	Risk Owner
Risk 10: Findings and recommendations of Social Environment Screen (risks) not followed-up on and addressed. Note overall finding is considered substantial in screening	Operational	I = 3 L- 2	SES screen and plan updated after 12 first 12 months and then on an ongoing basis.	
Risk 11: Ethnic groups (including Katang and Bru people) inhabit the project implementation area of Savannkhet Province. Project activities will be implemented on lands where they live and will have some effect upon natural resources and livelihoods.	Operational	I = 2 L = 4	An Ethnic Groups Planning Framework was prepared for the Project.	MONRE / GoL

Table 6. Project SES risks assessment and mitigation measures.

Description	Risk Category	Impact & Likelihood (1?5)	Significance (Low, Moderate, Substantial, High)	Management Measures
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<p><u>Risk 1:</u> Marginalized members of participating communities may not be able to engage with Community Conservation Agreements, project activities or have equal opportunities to participate in decision making processes during project implementation.</p> <p>Principle 1: Question P.5 Principle 3: Question P.13 & P.14 Standard 6: Question 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7,</p>	Social	I = 3 L = 4	Moderate	<p>The project will provide stakeholder consultations and involve all targeted groups, through identifying individuals, Government agencies, NGOs, private sectors, local communities, and other stakeholders that may be directly or indirectly affected by the project. These consultations will apply the best recognised principles for stakeholder engagement.</p>
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<p>Risk 2: Proposed land tenure arrangements for the conservation of Xe Bang Hieng Protected forests may restrict access to resources, affect customary land rights, and create some level of economic displacement (particularly for marginalized people and ethnic groups).</p> <p>Principle 1: Question P.6 Principle 3: Question P.14 Standard 5: Questions 5.1,5.2, 5.3 & 5.4 Standard 6: Question 6.1, 6.2, 6.3, 6.5 6.6 6.7</p>	Social	<p>I = 4 L = 3</p>	Substantial	<p>The SEP, GA/GAP, ESMF, IPP, FPIC and GRM prepared during the PPG will be implemented as required with communities prior to the implementation of any activities involving land management.</p> <p>For the activities not falling under CCAs, Process Framework(s) will be developed this will include the cases of permanent or temporarily resettlement, economic displacement, forced evictions and impacts on community based property rights, land tenure arrangements, customary rights to land, territories and resources.</p> <p>As noted under Risk 6, project activities will be implemented within 4 National Protected Areas. Proposed conservation zone management and forest boundary management in such areas would be based upon pre-existing boundaries, rules, regulations, protected area management plans and laws which may not be known or well understood by local communities or other stakeholders. The ESMF will contain</p>
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<p><u>Risk 3:</u> Government staff at Provincial and District levels have limited capacity to implement some project activities, including ICM, EbA and Community Conservation Agreements effectively to ensure the intended benefits to participating communities.</p> <p>Principle 1: Question P.2 Principle 3: Question P.14</p>	Operational	I = 3 L = 4	Moderate	<p>Management ? Government Staff Capacity with ICM and EbA</p> <p>To address this government staff capacity, Component 1 of the proposed project will focus on developing national and provincial officials and decision-makers' capacity to design and implement ICM and integrated urban EbA to enhance the climate resilience of rural and urban communities and ecosystems in Lao PDR. This integrated approach will be underpinned by enhanced climate-resilient planning at the national and provincial levels and include the use of innovative tools, such as EbA and hydrological modelling, to ensure that it is comprehensive and effective. A SESA will be applied to the development and implementation of ICM and integrated urban EbA such that potential social and environmental downstream impacts arising from the development of guidelines, ICM, policy directions will be identified.</p> <p>Management ? Government Staff Capacity with CCAs</p>
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<p><u>Risk 4:</u> Women may not be able to equally engage with Community Conservation Agreements or benefit from project introduced livelihood activities.</p> <p>Principle 2: Question P.8, P.9 & P.10</p> <p>Principle 3: Question P.14</p>	Social	<p>I = 3</p> <p>L = 3</p>	Moderate	<p>Strategic areas for addressing gender issues in the three project components are as follows:</p> <p>? Assurance of gender disaggregated data in planning, implementing, monitoring and reporting.</p> <p>? Increase Women Access to and Control over Productive resources.</p> <p>? Operationalize Gender Action Plan at Village, district and provincial levels.</p>
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<p>Risk 5: The project will construct protective infrastructure within and adjacent to waterways such as weirs, canals and small-scale irrigation schemes. Such developments have the potential to create hydrological changes and adverse social and environmental effects. These also have the potential to pose safety risks to local communities during the construction phase through actual construction activities, the transportation of materials, potential release of pollutants and generation of waste.</p> <p>Principle 3: Question P.14 Standard 1: Questions 1.1 1.7 & 1.11 Standard 3: Questions 3.1 3.2 3.3 3.4 3.5 3.6 & 3.7 Standard 8: Question 8.1 & 8.2</p>	Environmental	I = 3 L = 3	Moderate	<p>The SEP, GA/GAP, ESMF, IPP, FPIC and GRM prepared during the PPG will be applied as required with communities prior to the construction of any civil works. The risk will be identified prior any physical work starts. The ESMF contains a procedure for the preparation of the Social Environmental Impact Assessment procedure to international standards and the Decree on Environment Impact Assessments 2019 (No. 21/GOL) of the Lao People's Democratic Republic. The SEIA procedure helps to identify the environmental risks, identify project alternatives, and develop mitigation measures through the life cycle of the project.</p> <p>The SEIA will be implemented for the activities implemented under Activity 1.1.2 as the risk identified based on the hydrogeological models will influence the protective infrastructure optioneering</p>
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<p>Risk 6: The implementation of project activities within 4 Protected Areas, 1 Ramsar Site and 1 World Heritage Site could involve or lead to temporary or permanent damages to those sites, and the biodiversity/ecosystems and cultural heritage they contain.</p> <p>Principle 3: Question P.14 Standard 1: Question 1.2 Standard 4: Question 4.1</p>	Environmental	I = 2 L = 4	Moderate	<p>As noted under Risk 2, any proposed conservation zone management and forest boundary management within National Protected Areas would be based upon pre-existing boundaries, rules, regulations, protected area management plans and laws which may not be known or well understood by local communities or other stakeholders.</p> <p>Management and Implementation of any project activities within National Protected Areas will be completed as required in accordance with the following: ? Forestry Law of Lao PDR 2019 (Amended / No. 255/NA) of the Lao People's Democratic Republic</p> <p>The project, through detailed studies in ESIAs, will aim to avoid any damages to the ecosystem in the naturally protected areas and when avoidance is not possible, the impact will be monitored and mitigated with the definition of monitoring plans (Environmental and Social Management Plan ESMP) and Action Plans.</p> <p>Appropriate</p>
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<p>Risk 7: Through introducing climate-resilient agriculture and aquaculture, as well as EbA which involves reforestation activities, there is the potential of non-indigenous species being utilized.</p> <p>Principle 3: Question P.14 Standard 1: Question 1.6, 1.8 & 1.10</p>	Environmental	<p>I = 4 L = 2</p>	Moderate	<p>The SEP, GA/GAP, ESMF, IPP, FPIC and GRM prepared during the PPG will be implemented as required with communities prior to the implementation of any activities involving the potential use of non-indigenous species.</p> <p>The above noted activities will be informed by, inter alia: i) the predicted impacts of climate change on the target areas; ii) the capacity of introduced species to maintain the provision of ecosystem goods and services under projected climate change conditions, specifically focusing on indigenous species that are drought- or flood-resilient; and iii) community needs and preferences. Specific studies and targeted assessment on ecologically appropriate species and methodologies for introduction will be developed by experts.</p>
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<p>Risk 8: Protective infrastructure such as weirs, canals and small-scale irrigation schemes constructed during this project could be vulnerable to the impacts of climate change.</p> <p>Principle 3: Question P.14 Standard 2: Question 2.1 & 2.2</p>	Operational	I = 3 L = 3	Moderate	<p>The SEP, GA/GAP, ESMF, IPP, FPIC and GRM prepared during the PPG will be applied as required with communities prior to the construction of any civil works.</p> <p>Current climatic variability and flood risks will also be taken into account when selecting intervention sites, periods for construction as well as the design and implementation of all interventions. Disaster risk and response plans will be put in place in collaboration with selected communities.</p> <p>The design of the infrastructures proposed will be developed according to climate forecast flood risks models to ensure that the infrastructure will resist to climate change effects. At the same time a maintenance plan will be developed and made available to the local communities and authorities to ensure that the infrastructures will function properly.</p>
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<p>Risk 9: During the current global COVID-19 Pandemic, there is a risk of community transmission (potentially resulting in death) between government officers, project staff, service provider contractors, and local communities through site visits and project implementation activities.</p> <p>Principle 3: Question P.14 Standard 3: Question 3.4</p>	Social	<p>I = 3 L = 3</p>	Moderate	<p>The COVID-19 pandemic is a ?once in a lifetime? crisis which is causing untold health and economic disparities across the globe. The pandemic has proven to be dynamic, particularly with the emergence new contagious variants.</p> <p>At the time of writing, Lao PDR is currently under a ?flexible? lockdown order as per the Prime Minister Order (No. 532 /OPM) on Guidelines for Implementing Policies and Measures for Economic and Social Impacts of the COVID-19 Outbreak.</p> <p>The UN implements a global health and safety policy with regards to COVID-19 which it implements within all agency offices. As part of this policy, all UN Agencies are to follow National Guidance; in Lao PDR, this is the guidelines of the Prime Minister?s Order. All project implementation and risk management will be subject to this and will be dynamic based upon monitoring</p>
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<p>Risk 10: Service Provider Contractors may not follow or be in violation of National Labour Laws during construction of protective infrastructure. This may pose potential physical safety risks to workers.</p> <p>Principle 3: Question P.14 Standard 7: 7.1 7.3 & 7.6</p>	Operational	I = 3 L = 4	Moderate	<p>All civil works related to protective infrastructure within and adjacent to waterways such as weirs, canals and small-scale irrigation schemes valued over 100,000,000 LAK will be procured by UNDP through the organization's Procurement Policy. Civil works less than this value will be procured by the Implementation Partner utilizing the guidance notes for National Implementation Modality agreed upon by the Government of Lao PDR and UNDP.</p> <p>To monitor the construction of any civil works, the project will separately contract an Engineer (or Engineer Team) to monitor work being completed is structurally sound and follows all technical plans and bill of quantities. Additionally, both the Project Team and assigned UNDP staff will perform regular, unannounced site visits and audits to observe the respect of the National labor law and UNDP Health, Safety and Working Conditions standards are being met.</p> <p>Management and</p>
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<p>Risk 11: During project implementation, objects (or infrastructure) with historical, cultural, artistic traditional or religious value may be affected in Savannakhet through project staff and Service Provider workers visiting and possibly inhabiting villages during project implementation.</p> <p>Principle 3: Question P.14 Standard 4: Question 4.1 4.2 4.3 4.5</p>	Social	<p>I = 3 L = 3</p>	Moderate	<p>Project activities will be designed and implemented in a way that avoids the alteration, damage or removal of any physical cultural resources and sites, as well as any sites recognised as having unique value at the community, national or international level. Regional experts will be consulted (as necessary) to ensure compliance with national heritage legislation and that project design adheres to best practice guidelines. Impacts on cultural heritage (tangible and intangible) will be mitigated and monitored with the preparation of a Cultural Heritage Action Plan.</p>
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<p>Risk 12: Ethnic Groups (including Katang and Bru Ethnic Groups) inhabit the project implementation area of Savannakhet Province. Project activities will be implemented on lands where they live; proposed land tenure arrangements may restrict access to resources.</p> <p>Principle 3: Question P.14 Standard 6: Question 6.1 6.2 6.3 6.4 6.5 6.6 & 6.7</p>	Social	<p>I = 4 L = 4</p>	Substantial	<p>EGP (Ethnic Groups Plan) (IPP equivalent): will be prepared during implementation, building on the EGPF (Ethnic Groups Planning Framework).</p> <p>Free Prior Informed Consent (FPIC): serves as a safeguard in ensuring potential negative social and environmental impacts of any project from the perspectives of Ethnic Groups and Local Communities are considered and addressed.</p> <p>The FPIC process also allows all Ethnic Groups and Local Communities to voice out their concerns on potential adverse impacts of projects, which should be taken into account. In this process, they can demand for clear information disclosure from the project proponents that shall include results of feasibility study as well as comparative studies relating to the project.</p> <p>Consultation Across the Project Cycle: Meaningful consultation with EGs will be ensured by harnessing culturally appropriate communication</p>
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Risks that may impact the project, and the measures proposed to mitigate these risks, are outlined in Annex 7: UNDP Risk Register. As per UNDP requirements, the Project Coordinator, with the support of the Technical Specialist and the M&E Reporting Specialist, will monitor risks on a quarterly basis, and report on the status of these risks to the UNDP Country Office (CO). The UNDP CO will then record progress in the UNDP ATLAS risk log on a scale of 1-5 where 1 is the lowest risk and 5 is the highest risk. These risks will be reported as critical when the impact and probability are high (for example, when the impact rating is 5, as well as when the impact rating is 4 alongside a probability rating of 3 or higher). Management responses to critical risks will also be reported to the GEF in the annual PIR.

The Social and Environmental Screening Procedure (SESP), attached to the project as Annex 6, provides a detailed analysis of the project's social and environmental risks. This analysis examines the risks presented in Table 5 and provides detailed assessments of these risks, as well as identifying how the project will manage these risks to ensure that they do not occur. Moreover, the SESP addresses a set of six questions relating to the identification and management of project risks. The SESP identified 12 risks, of which 10 were scored as Moderate and 2 were scored as Substantial, resulting in an overall categorisation of Substantial Risk.

A full Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (ESMP) is anticipated to be necessary, given the project's overall substantial risk profile. An Environmental and Social Management Framework (ESMF) has been prepared to ensure that the additional required targeted assessments and stand-alone management plans will be prepared during the first year of project implementation (Annex 10: Environmental Social Management Framework). Project activities will only commence once these assessments have been completed, the required management plans have been prepared and the plans have been disclosed and approved by the Project Board.

The ESMF includes an Ethnic Groups Planning Framework, for which the corresponding FPIC process has been initiated and will continue throughout project implementation. In addition, a Gender Assessment (GA) and Gender Action Plan (GAP) were noted as priorities in the SESP. The GA and GAP provide details about gender-related risks, gender-responsive approaches and mitigation pathways for the project. Finally, a project-level Grievance Redress Mechanism (GRM) is included in the Stakeholder Engagement Plan. This will detail how grievances can be submitted to the PMU, as well as how they will be collected, addressed and resolved.

Besides the ESMF, a Covid-19 Framework has been developed – detailed in Annex 13c: Covid-19 Analysis and Action Framework – to identify how Lao PDR has been affected by the pandemic, using the impact of Covid-19 on the Sustainable Development Goals as an indicator. The framework discusses how the proposed project is likely to be impacted by Covid-19, and the project strategy for dealing with these impacts and potential COVID-19-related risks.

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.

The project will be executed under National Implementation Modality (NIM), with execution by the Department of Water Resources, Ministry of Natural Resources and Environment (MoNRE), following UNDP's Programme and Operations Policies and Procedures, per its role as implementing agency. Execution of the project will be subject to oversight by a Project Steering Committee. Day to day coordination will be carried out under the supervision of a Project Management Office, led by a Project Coordinator who will be based in the Department of Water Resources. The executing agency will take responsibility for different outcomes/activities according to existing capacities and field realities, ensuring effective and efficient use of GEF resources.

Roles and responsibilities of the project's governance mechanism:

Implementing Partner: The Implementing Partner for this project is the Department of Water Resources (DWR), under the Ministry of Natural Resources and the Environment (MoNRE). Following Government protocols all reporting and requests to and from the DWR will be made via the Department of Planning and Finance, MoNRE.

The Implementing Partner is the entity to which the UNDP has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

The Implementing Partner is responsible for executing this project. Specific tasks include:

- ? project planning, coordination, management, monitoring and evaluation (M&E) and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.
- ? risk management as outlined in this Project Document;
- ? procurement of goods and services, including human resources;
- ? financial management, including overseeing financial expenditures against project budgets;
- ? approving and signing the multiyear workplan;
- ? approving and signing the combined delivery report at the end of the year; and
- ? signing the financial report or the funding authorisation and certificate of expenditures.

Responsible Parties: The Responsible Parties are the entities entrusted to be responsible for implementing specific project focal areas. The RPs for this project include Department of Meteorology and Hydrology, Department of Disaster Management and Climate Change, under Ministry of Natural Resources and Environment (MONRE) and Department of Forestry, Department of Technical Extension and Agro-processing under the Ministry of Agriculture and Forestry (MAF). See further details below.

Under Component 1: i) the Department of Water Resources (DWR) will be responsible for activities developing national and provincial capacity for ICM; ii) DWR will coordinate and work with the

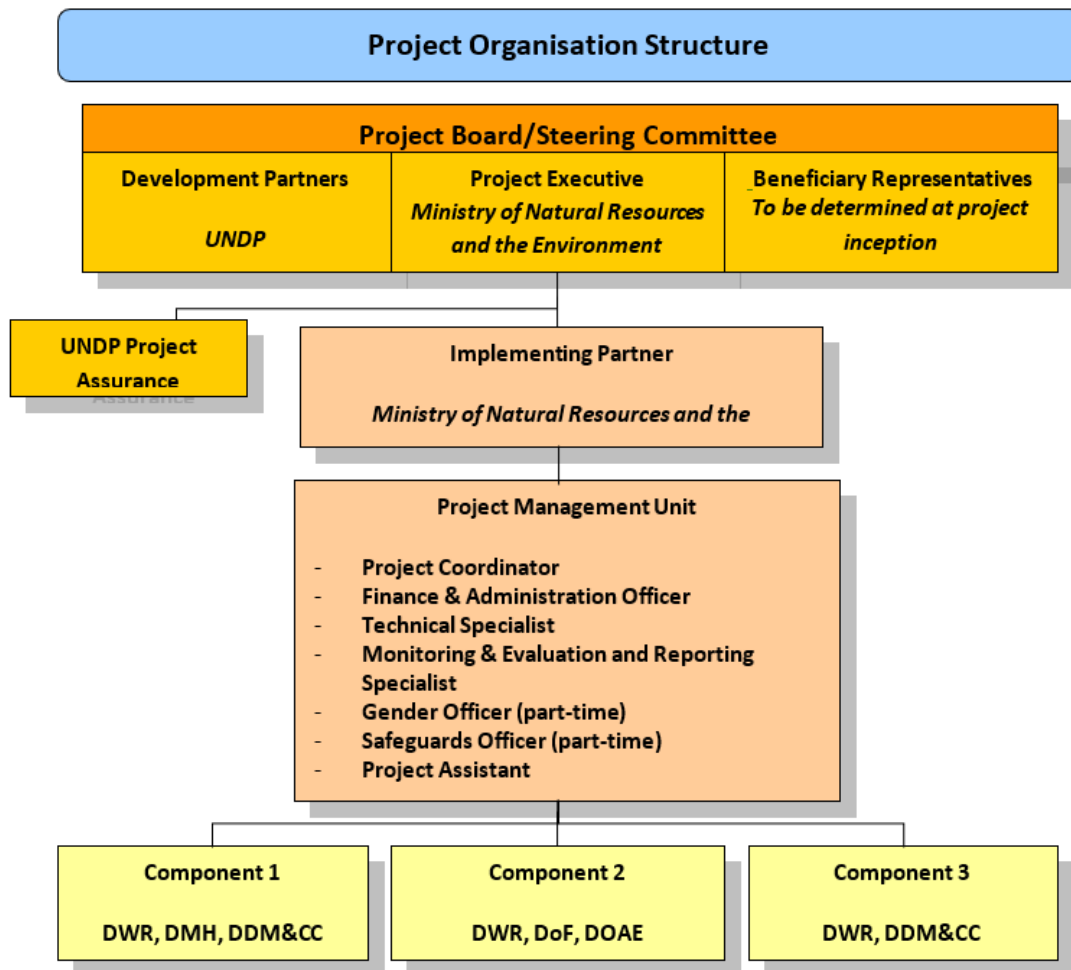
Department of Meteorology and Hydrology who will be responsible for hydrological monitoring activities; and iii) DWR will coordinate and work with the Department of Disaster Management and Climate Change who will be responsible for activities for mainstreaming urban EbA.

Under Component 2: i) the DWR will be responsible for activities developing flood protection infrastructure; ii) DWR will coordinate and work with the Department of Forestry who will be responsible for the execution of EbA activities, primarily reforestation, in coordination with target communities; and iii) DWR will coordinate and work with the Department of Technical Extension and Agro-processing who will be responsible for activities enhancing climate-resilient livelihoods.

Under Component 3, the Department of Water Resources will coordinate and work with the Department of Disaster Management and Climate Change will be responsible for activities developing knowledge management, integrated catchment management, and community-based ecological monitoring systems.

Project stakeholders and target groups: The composition of the Project Board will include Representative Beneficiaries to ensure that all target groups are represented in the highest governance structure of the project. Capacity-building and training programmes will enable the Representative Beneficiaries of these groups to be informed on and engage in integrated catchment management (ICM) practices. This will enable the Representative Beneficiaries to provide the appropriate support to the Project Board, while ensuring that the needs and rights of target groups are considered throughout project implementation.

UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes the oversight of project execution to ensure that the project is carried out in accordance with agreed standards and provisions. As such, UNDP is responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Board/Steering Committee.



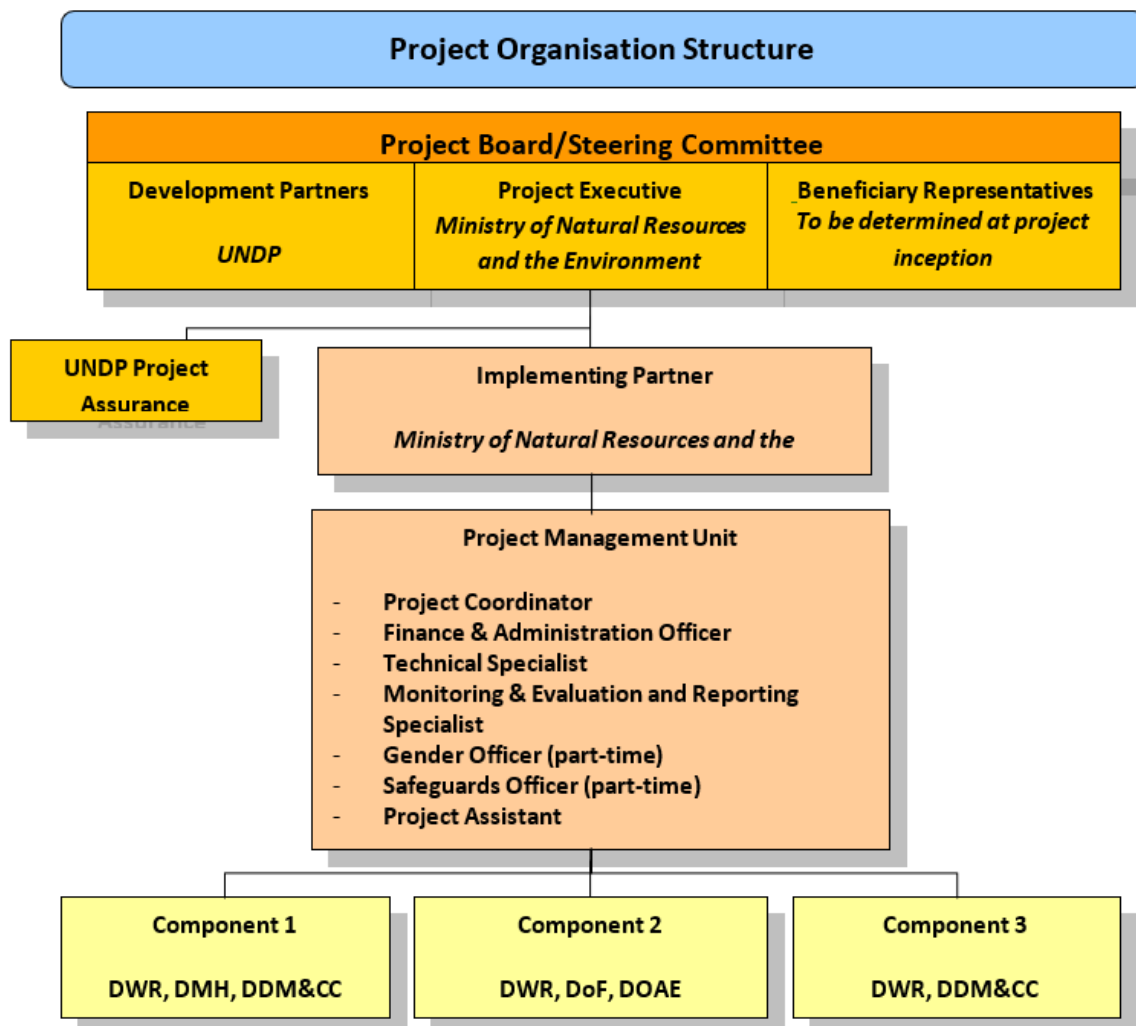


Figure 6. Project Organisation Structure.

The Project Board (also called Project Steering Committee) is responsible for taking corrective action as necessary to ensure the project achieves the desired results. To ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that will ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition.

In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

- Specific responsibilities of the Project Board are to:

- ? provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- ? address project concerns as raised by the project coordinator;

- ? provide guidance on new project risks and agree on possible mitigation and management actions to address specific risks;
- ? agree on project coordinator's tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project coordinator's tolerances are exceeded;
- ? advise on major and minor amendments to the project within the parameters set by UNDP-GEF;
- ? ensure coordination between different donor and government-funded projects and programmes;
- ? ensure coordination with different government agencies and their participation in project activities;
- ? track and monitor co-financing for this project;
- ? review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
- ? appraise the annual project Implementation Report, including the quality assessment rating report;
- ? ensure commitment of human resources to support project implementation, arbitrating any concerns within the project;
- ? review combined delivery reports prior to certification by the implementing partner;
- ? provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- ? address project-level grievances;
- ? approve the project's Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- ? review the final project report package during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up; and
- ? ensure the highest levels of transparency and incorporate all measures to avoid any real or perceived conflicts of interest.

The composition of the Project Board should include the following roles:

- a. Project Executive: Is the individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. The Project Executive is the Deputy Minister of the Ministry of Natural Resources and the Environment, who will report to the Project Board twice a year on the progress of the project and the emerging results.

The Executive is ultimately responsible for the project, supported by the Beneficiary Representatives and Development Partners. The role of the Executive is to ensure that the project is focused throughout its life cycle on achieving its objectives and delivering outputs that will contribute to higher level outcomes. The Executive should ensure that the project provides value for money, ensuring a cost-conscious approach to the project, balancing the demands of the beneficiary and supplier.

Specific Responsibilities will include:

- ? ensuring that there is a coherent project organisational structure and logical set of plans;
- ? briefing relevant stakeholders about project progress;
- ? organising and chairing Project Board meetings;
- ? providing project planning, coordination, management, monitoring and evaluation (M&E) and reporting ? including providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, as well as results and financial data, as necessary;
- ? ensuring project-level M&E is undertaken by national institutes and is aligned with national systems to ensure that the data used and generated by the project supports national systems;
- ? carrying out risk management as outlined in this Project Document;
- ? procuring goods and services, including human resources;
- ? providing financial management, including overseeing financial expenditures against project budgets;
- ? approving and signing the multiyear workplan;
- ? approving and signing the combined delivery report at the end of the year; and
- ? signing the financial report or the funding authorisation and certificate of expenditures.

b. Beneficiary Representative(s): Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realisation of project results from the perspective of project beneficiaries. Often civil society representative(s) can fulfil this role. The Beneficiary representative(s) will be identified at the project inception meeting (start of project).

The Beneficiary Representative is responsible for validating the needs and for monitoring that the solution will meet those needs within the constraints of the project. The Beneficiary Representative role monitors progress against targets and quality criteria. This role may require more than one person to cover all the beneficiary interests. However, for the sake of effectiveness, the role should not be split between too many people.

Specific Responsibilities will include:

- ? prioritising and contributing beneficiaries? opinions on Project Board decisions on whether to implement recommendations on proposed changes;
- ? specify the beneficiaries? needs in an accurate, complete and unambiguous way;
- ? implement activities at all stages and monitor to ensure that they will meet the beneficiaries? needs and are progressing towards that target;
- ? evaluate the impact of potential changes from the beneficiary point of view; and
- ? frequently monitor the risks to the beneficiaries.

c. Development Partner(s): Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring and implementing). The Development Partner(s) is: UNDP Lao PDR.

Specific Responsibilities will include:

- ? ensuring that progress towards the outputs remains consistent from the supplier perspective;
- ? promoting and maintaining focus on the expected project output(s) from the point of view of supplier management;
- ? ensuring that the supplier resources required for the project are made available;
- ? contributing supplier opinions on Project Board decisions on whether to implement recommendations on proposed changes; and
- ? arbitrating on, and ensuring resolution of, any supplier priority or resource conflicts.

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Project Assurance: UNDP performs the quality assurance role and supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures that appropriate project management milestones are managed and completed, and conflict of interest issues are monitored and addressed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Management Unit. UNDP provides a three-tier oversight service involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is entirely independent of project execution.

Project Management Unit: The PMU will be responsible for running the project on a day-to-day basis on behalf of the Implementing Partner and within constraints laid down by the Project Board. The PMU will be hosted within DWR, MoNRE. The additional members of the PMU will provide project administration, management and technical support to the Project Coordinator as required. The Project Coordinator's function will end when the final project terminal evaluation report and corresponding management response, and other documentation required by the GEF and UNDP, have been completed and submitted to UNDP (including operational closure of the project). The PMU will work closely with the Project Board throughout the implementation of the project.

Specific responsibilities of the PMU will include:

- ? ensuring project activities are implemented according to the set objectives;
- ? facilitating communication and meetings of the Project Board to review activities achieved, and discuss activities planned for approval and implementation;
- ? ensuring periodic reporting on the implementation of project activities and that they are on schedule
- ? regarding progress, performance and budget execution ? as outlined in the M&E framework and project budget;
- ? supporting GoL departments responsible for the implementation of project activities;
- ? supporting collaboration between the proposed project and other ongoing climate change adaptation projects in Lao PDR and the target areas;
- ? holding regular meetings and other ad-hoc meetings with the Representative Beneficiaries to discuss plans and progress, and to follow up any concerns the beneficiary groups may have; and

? coordinating and liaising with other donor and government project managers to ensure that synergies are developed and that there is no overlap of tasks.

Project Coordinator:

The Project Coordinator (PC) will have full responsibility in ensuring delivery and quality of work programmes of components, annual component work plans and budget, and coordination of all components. He/she will provide overall guidance in implementing activities in the five-target district in Savannakhet Province and in Luang Prabang City and ensuring the smooth coordination with other project on day-to-day basis.

The PC will also provide overall coordination of day-to-day project planning, implementation, monitoring and overall management. He/she will provide technical guidance and technical advisory support to project implementing agencies and responsible parties to ensure realization of all outputs and outcomes as outlined in the approved project document and work plans developed by the project.

Project Extensions: The UNDP Resident Representative and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: i) one extension only for a project for a maximum of six months; ii) the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; iii) the UNDP Country Office oversight costs in excess of the CO's Agency fee specified in the DOA during the extension period must be covered by non-GEF resources.

To ensure the effectiveness and efficiency of interventions the proposed project will build on the lessons learned from the following projects and initiatives in Lao PDR:

- **•Building Resilience of urban populations with ecosystem-based solutions in Lao PDR (GCF; US\$11,500,00; 2020-2025)** is currently under implementation in four Lao cities. The objective of the project interventions is to shift urban flood management in Lao PDR from limited, hard infrastructure towards an integrated approach that enhances climate resilience. Coordination between the GCF project and the proposed GEF project will include synergy between the knowledge hubs established under each respective project. The knowledge hub on urban EbA established under Activity 1.1.2 of the GCF project will provide a knowledge base for the ecosystem evaluations and capacity building of national and provincial officials to design and implement integrated urban EbA under Component 1 of the proposed project. Further to this, the knowledge management hub established under Output 3.1 of the proposed project will contribute to the production and dissemination of information gathered by both these projects. In addition to expanding the information available on urban EbA in the Lao context, this project will also disseminate the lessons from implementing community-based monitoring systems (Output 3.2). With these measures, the proposed project will contribute to creating a well-rounded knowledge base that can be used to upscale interventions from both projects, which can be added to by future projects.

•The **CAWA project (GEF; US\$15,367,380; 2016-2020)** was implemented in local communities in two important wetland areas of Lao PDR, to enable them to adapt to the impacts of climate change and to contribute to the sustainability of their livelihoods. The project followed an ecosystem-based adaptation (EbA) approach to enable the restoration and sustainable management of the target, Ramsar designated, wetlands for the safeguarding of the wetlands' ability to buffer the livelihoods of local communities through the implementation of the following project Components: i) Improved understanding of CC impacts and risks in Xe Champhone and Beung Kiat Ngong wetlands; ii) Efficient and cost-effective adaptation measures; and iii) Integration of CC adaptation and disaster management measures into planning processes.

•The **Strengthening protection and management effectiveness for wildlife and protected areas project (GEF and World Bank; US\$7,440,000; ongoing)** aims to address the root causes of biodiversity and forest loss in protected areas, through the promotion of, and capacity building for, protected area management, wildlife protection and illegal wildlife trade control, sustainable forest management at the regional and national level, as well as activities in four National Protected Areas.

•The **Effective Governance for small-scale rural infrastructure and disaster preparedness in a changing climate project (GEF; US\$35,572,896; 2012-2016)** aims to secure the development prospects of local communities who are vulnerable to climate variability and change in the face of increasing climate risks and to ensure that their needs are fully reflected in local planning and budget processes. To achieve this, capacity building measures for climate sensitive planning targeting sub-district, district and provincial decision makers and planners will demonstrate the features and advantages of integrated ecosystems management and climate resilient physical infrastructure solutions. Socially inclusive tools of project identification will ensure that the different vulnerabilities of target populations are tackled, while climate sensitive district budgets are elaborated and their execution is monitored. This newly acquired expertise will facilitate the delivery of grants to implement climate resilient small-scale infrastructure linked to the well-established UNDP/UNCDF supported block grant mechanisms (District Development Fund).

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:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

Table 7. Alignment of the proposed project with national policies, strategies and plans.

National Strategies/Plans	Alignment
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National Adaptation Programme of Action (NAPA), 2009	The NAPA identifies supplementary activities and recommends that the GoL: i) strengthen the capacity of the National Disaster Management Committee to deal with likely future adverse impacts; ii) strengthen the Climate Change Office; iii) install an early-warning system (EWS) for flood-prone areas and improve existing flood protection systems; iv) initiate in-depth studies on the impacts of climate change; v) formulate a strategy on climate change; and vi) increase reforestation efforts for the protection of watersheds and the reduction of erosion in areas vulnerable to floods and droughts. The proposed project is aligned with the adaptation priorities set out in the NAPA, particularly improving flood and drought resilience. This will be done by improving EWS (Output 1.2), on-the-ground protection measures (Outcome 2) and enhancing climate-resilient livelihoods (Output 2.2). The project will also contribute to building national and provincial capacity for adaptation planning and building the climate resilience of water resources.
Decree on Climate Change, 2019	The decree determines the principles, regulations and measures on the management, monitoring and inspection of tasks relevant to climate change. This intends to prevent, protect and decrease the potential impacts of climate change, with the aim of ensuring the safety of lives, health, property, environment, biodiversity, and infrastructure. In addition, this includes coordination with regional and international stakeholders to contribute to socioeconomic development for sustainability and green growth. The proposed project will be implemented in line with the principles, regulations and measures of the decree.
National Strategy on Climate Change (NSCC), 2010	The NSCC highlights integrated solutions, awareness, education, community participation, innovative financial instruments, and the integration of climate and disease-resilient crops and farming patterns into landscapes. The strategy further outlines adaptation and mitigation options for different sectors, which the proposed project will contribute to realising, including: i) improving and monitoring water resources and water supply systems and rehabilitating flood control systems in the agricultural sector; ii) improving forest management systems; and iii) developing reliable EWS to reduce the impacts of disasters such as floods and droughts (Output 1.2).
Climate Change Action Plan (CCAP)	The proposed project is consistent with the adaptation actions outlined in the CCAP. This includes actions to: i) develop institutional and human capacity to address climate change (Outcome 1); ii) build climate resilience for urban communities, farming systems and rural economies (Outcome 2); iii) improve the resilience of forest ecosystem goods and services (Outcome 2); iv) improve the management of agricultural lands; and v) strengthen education and public awareness in media (Outcome 3).
Lao PDR ? United Nations Partnership Framework 2017-2021	The Lao PDR?UN Partnership Framework (UNPF) is an articulation of the shared commitment of the UN Country Office to coordinate their efforts and maximise resources and contributions in the best interests of the people of Lao PDR. The proposed project aligns with Outcome 3 of Pillar I of this framework, which relates to the protection of ecosystems and the increased resilience of people to climate-related events and disasters.

Law on Meteorology and Hydrology, 2017	This law defines how meteorological and hydrological activities are to be monitored, managed and evaluated in Lao PDR, to prevent and reduce the impacts of natural disasters. The law also aims to provide timely and accurate data that can be integrated at regional and international levels to contribute to sustainable national socioeconomic growth. The proposed project will contribute to the provisions of this law by increasing the capacities of national and provincial government for monitoring and evaluating flood and drought risks (Output 1.1).
Environmental Protection Law, 2013	The Environmental Protection Law defines the principles, regulations and measures related to environmental management and monitoring of environmental protection, control, preservation and rehabilitation and the reduction of global warming. Additionally, the law relates to the prevention and management of natural disasters. The proposed project will contribute to the provisions of this law by conserving and restoring protected and degraded areas (Output 2.1) and introducing Community Conservation Agreements that will incentivise communities to maintain ecosystems and expand restored areas (Output 2.2).
Water and Water Resources Law, 2019	This updated law adds new provisions on water rights and use, including waste-water discharge permits, wetlands and water-resources protection, groundwater management, and river-basin management. Additionally, the law expands the terms and conditions of large-, medium-, and small-scale uses and includes articles on environmental flows for hydropower as well as stipulations related to irrigation use. The proposed project will contribute to the provisions of this law by increasing capacities for protecting wetlands and water resources through improved land-use planning and updated hydrological monitoring networks (Output 1.2)
Forestry Law, 2019	The Forestry Law determines the principles, regulations and measures on forest and forestland?s: i) management; ii) preservation; iii) development; iv) utilisation; and v) inspection. The law promotes tree plantation and regeneration to ensure forest resources are rich and stable livelihood sources for the people of Lao PDR. The law also aims to ensure the protection of soil quality, air quality, water sources and biodiversity of forest and forestland, which contributes to national socioeconomic development. The reforestation and restoration activities of the proposed project (Output 2.1) will contribute to the protections under this law. Climate resilient livelihoods and Community Conservation Agreements (CCAs) established under Output 2.2 will also contribute to the stable livelihood sources the Forest Law seeks to protect.
Disaster Risk Management Law, 2019	This law determines the regime, regulation and measures relating to disaster management to ensure the efficient, effective and up-to-date implementation of disaster management. The key intention of these measures is to examine and mitigate the impact of disasters on human health, life, communal and individual assets, impacts on the environment and on infrastructure. Disaster management shall ensure timely and clear information dissemination that also links with the regional and international community while contributing to green and sustainable socioeconomic development, which also contributes to ensuring national security. The proposed project will contribute to the intended measures of this law by increasing the capacities of national and provincial government to plan for and respond to natural disasters (Outcome 1). Community awareness and ecological monitoring systems established under Outcome 3 will further support the measures of the Disaster Risk Management Law.

Ten-Year Natural Resources and Environment Strategy, 2016-2025	The National Natural Resources and Environmental Strategy to 2025 provides a vision and strategic direction for the development and management of natural resources and the environment, ensure sustainable socioeconomic development, and build capacity for climate change adaptation and mitigate the risks of natural disaster. This strategy aims to achieve sustainable utilisation and management of natural resources and the environment, together with improving a healthy environment and wealth for all people in Lao PDR. The proposed project aligns with this strategy's aims by: i) building capacity of provincial and national governments for climate change risk reduction (Outcome 1) and; ii) establishing CCAs and climate-resilient livelihoods for sustainable use of natural resources (Output 2.2).
Urban Development Strategy to 2030	This strategy outlines the Ministry of Public Works and Transport's vision on urban development and the country's regional integration into the main transport and development corridors of the Great Mekong Subregion from 2016 to 2030. The main objective is to define directions, targets and investment plans for urban development and should serve as the main reference for infrastructural developments and the protection of the country's architectural, cultural and environmental heritage. Rationales include the urbanisation of rural areas through the development of small towns towards reducing rural-urban disparities, as well as strengthened regional integration through the development of economic centres along main trans-country corridors. The proposed project will contribute to this strategy through the establishment of climate-resilient development and land-use plans in Savannakhet province and Luang Prabang city (Output 1.2) which can be upscaled to other areas through the technical training programmes under Output 1.1.
Vision 2030 and Ten-Year Socio-economic Development Strategy (2016-2025)	The Vision 2030 aims for Lao PDR to 'become a developing country: i) with upper-middle income and with innovative, green and sustainable economic growth; ii) where there is availability of industrial pillars and a strong basic infrastructure system to support industrialization and modernization (the country systematically follows a socialist market economy); iii) where there is social justice, peace and order; iv) where peoples' livelihoods are improved and solidarity promoted; v) where there are improved development disparities between urban and rural areas; vi) where there is improved human development that ensures all have access to quality social services; vii) where peoples' rights are protected under the effective rule of law, the administrative system is enhanced by following the '3-builds' directive; viii) where there is environmental protection through efficient utilization of the natural resources to ensure sustainability; ix) where there is political stability and strength; x) where the country is actively moving toward regional and international integration'. The 10-year strategy builds upon Lao PDR's goal to graduate from LDC status by 2020 and the national strategy for the transition period of LDC graduation by 2025. The proposed project will contribute to the Vision 2030 aims through i) sustainable growth income under Output 2.1; ii) implementing environmental and ecosystem protections with EbA and protective infrastructure under Output 2.2; and iii) facilitating knowledge sharing at local and regional levels (Output 3.1).
Agricultural Development Strategy (ADS), 2011-2020	The ADS highlights the threat of land degradation, lower productivity and desertification from shifting cultivation. Particularly relevant are the objectives to restore degraded forests and reduce upland degradation to improve resilience to climate change, as well as the aim to stabilise swidden agriculture by 2020. The proposed project will contribute to these objectives by facilitating Integrated Catchment Management (ICM) and the implementation of EbA in the Xe Bang Hieng River Basin to restore functional forest ecosystems. In addition, the project will work with rural communities to facilitate a transition to more sustainable agricultural practices and alternative climate-resilient livelihoods.

Forestry Strategy for 2020 (FS 2020)	Priorities set out in the FS 2020 are consistent with the EbA and forest restoration interventions to be implemented through the proposed project as well as the livelihood enhancement activities. The FS 2020 addresses the development of the forestry sector in accordance with national socioeconomic development plans and environmental conservation measures. To support poverty reduction goals through forestry, the FS 2020 highlights capacity-building, participation, NTFP management and the protection of soils and watersheds as priorities, which have been incorporated into the proposed project under Outcome 2.
National Growth and Poverty Eradication Strategy (NGPES)	The NGPES highlights the agricultural and forestry sectors as priorities where there are opportunities for supporting growth and poverty reduction, with agroforestry identified as a key sub-sector to support growth. The proposed project is aligned with the NGPES in promoting and building capacity for sustainable forest and watershed management.
9th Five-Year National Socio-Economic Development Plan (NSEDP), 2021-2025	<p>The 9th National Socio-Economic Development Plan (NSEDP) 2021-2025 highlights <i>inter alia</i> the priority to: i) ensure quality economic growth through a shift to sustainable natural resource use; ii) protect and sustain the environment and plan for climate change mitigation, specifically to preserve and enhance forest cover and conserve water; iii) develop comprehensive plans for land allocation and management of natural and environmental resources at the provincial level; and iv) ensure water resources are used to maximize socioeconomic development and sustainability.</p> <p>The proposed project's outcomes of enhancing the capacity for land use planning and management, improving watershed management strategies and promoting climate-resilient alternative livelihoods will contribute to the goals of the NSEDP.</p>
Second National Communication (SNC), 2013	The SNC highlights Lao PDR's commitments to addressing climate change and contains <i>inter alia</i> : i) an outline of the country's national and regional development priorities, objectives and circumstances with regards to addressing the adverse impacts of climate change; ii) a description of steps taken or envisaged by the GoL to integrate climate change into development planning; iii) a description of Lao PDR's vulnerability to the identified climate threats, including the most vulnerable economic sectors to these threats; and iv) the adaptation needs of the country, as well as barriers to achieving the adaptation and mitigation targets outlined in the country's NDC. The proposed project contributes to addressing the adaptation needs and vulnerability of communities by: i) integrating climate change into development planning (Component 1); and ii) addressing the vulnerability of important economic sectors threatened by climate change impacts, as identified in the SNC (Component 2).
Land Law, 2003	The interventions under the proposed project to promote fine-scale land-use planning and restore functional ecosystems are aligned with the Land Law. The objectives of the law are to determine the regime on the management, protection and use of land and to contribute to socioeconomic development and environmental protection.

Lao PDR Nationally Determined Contribution (NDC), 2020	Lao PDR's NDC 2020 has an increased focus on enhancing actions that aim to strengthen Lao PDR's response to the threat of climate change. The proposed project is aligned with the NDC, which highlights the risk of flooding and how it will increase as a result of climate change, and also contributes to the implementation of adaptation priorities relating to water resources, agriculture, forestry and land-use change. Several of Lao PDR's key sectors for long term adaptation objectives outlined in the 2020 NDC will be supported by the project interventions, including: i) agriculture; ii) forestry and land use changes; and iii) water resources.
MoNRE Vision towards 2030	The proposed project is aligned with the Vision 2030, which provides direction for: i) the development and management of natural resources and the environment; ii) building capacity for climate change adaptation; and iii) ensuring sustainable socioeconomic development. The Vision further highlights the impacts of floods and droughts on Lao PDR and how climate change affects the frequency and intensity of these disasters.
National Biodiversity Strategy and Action Plan 2016-2025	The restoration activities of the proposed project (Outcome 2) will support the National Biodiversity Strategy and Action Plan (NBSAP) 2016-2025 that seeks to establish direct interventions and build capacity within the GoL and partners to address the underlying issues affecting biodiversity loss, including in the agricultural and forestry sectors. The CCAs developed under Output 2.2 will address the underlying issues of degradation in the target areas while the EbA interventions and protective infrastructure interventions under Output 2.1 will contribute to ecosystem restoration and biodiversity loss mitigation.

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 proposed project will implement awareness-raising campaigns to improve the climate resilience of vulnerable communities, in conjunction with training programmes to build the capacity of government officials and decision-makers in Savannakhet Province and Luang Prabang City. The training programmes will strengthen the capacity of officials to develop and implement integrated water resource management (IWRM) strategies in urban and rural areas, as well as at both catchment and local levels. Complementary awareness-raising campaigns will educate communities on the impacts of climate change, as well as how they can adapt to these impacts, while community-level training programmes will train community members on the use of community-based monitoring systems, communication and knowledge management tools and on alternative livelihood opportunities.

To ensure the effectiveness and success of project activities, the project will apply lessons learned from other GEF funded projects in Lao PDR. In particular, the project will seek to learn lessons from the UNDP-GEF project 'Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR' to inform the Community Conservation Agreements and alternative livelihood options. Similarly, lessons from the UNEP-GCF project 'Building resilience of urban populations with ecosystem-based solutions in Lao PDR', that is designed to benefit urban communities in Lao PDR, will help inform the Integrated Climate-Resilient Flood Management Strategies that will be developed for

Luang Prabang. The project also will seek synergies with several other donor-funded projects in Lao PDR and also internationally.

The establishment of a knowledge management hub for the project will enable the Project Management Unit (PMU) to collect and record project lessons, and enable them to coordinate with synergistic projects for the sharing of lessons.

The knowledge management hub will also provide a platform that enables the PMU to engage with local communities and the private sector, by sharing lessons and capturing their experiences. Complementary awareness-raising campaigns and trainings conducted under Activities 3.1.1 and 3.1.3 will enable the formal collection and dissemination of information, while also enabling the establishment of communication channels for use outside of formalised project activities and beyond the project lifespan.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and evaluated periodically during project implementation. Where baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in Annex 5 details the roles, responsibilities, and frequency of monitoring project results.

Project-level monitoring and evaluation will be undertaken in compliance with United Nations Development Programme (UNDP) requirements as outlined in the [UNDP Programme and Operations Policies and Procedures \(POPP\)](#) and [UNDP Evaluation Policy](#). The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.

Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the [GEF Monitoring Policy](#) and the [GEF Evaluation Policy](#) and other [relevant GEF policies](#)^[1]. The costed M&E plan included below, and the Monitoring plan in Annex, will guide the GEF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

M&E Oversight and Monitoring Responsibilities:

Project Coordinator: The Project Coordinator is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Coordinator will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Coordinator will inform the Project Board, the UNDP Country Office and the UNDP-NCE RTA of any delays or difficulties as they arise during implementation to ensure the subsequent adoption of appropriate support and corrective measures.

The Project Coordinator will develop annual work plans based on the multi-year work plan included in Annex 4, including annual output targets to support the efficient implementation of the project. The Project Coordinator will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the several plans/strategies developed to support project implementation (e.g., ESMP, gender action plan and stakeholder engagement plan) occur on a regular basis.

Project Board: The Project Board will take corrective action as necessary to ensure the project achieves the desired results. The Project Board will conduct project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will conduct an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project Terminal Evaluation (TE) report and the management response.

Project Implementing Partner: The Implementing Partner is responsible for providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.

UNDP Country Office: The UNDP Country Office will support the Project Coordinator as necessary, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organise key GEF M&E activities including the annual GEF PIR, the independent mid-term review and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (such as the annual GEF PIR quality assessment ratings) should be addressed by the UNDP Country Office and the Project Coordinator.

The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

NCE (previously GEF) Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-NCE Regional Technical Advisor and the UNDP-NCE Directorate as needed.

Additional GEF Monitoring and Reporting Requirements:

Inception Workshop and Report: A project inception workshop will be convened within 60 days of the project CEO endorsement, with the aim to:

- a. Familiarise key stakeholders with the detailed project strategy and discuss any changes that may have occurred in the overall context since the project idea was initially conceptualised that may influence its strategy and implementation.

- b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
- c. Review the results framework and monitoring plan.
- d. Discuss reporting, M&E roles and responsibilities and finalise the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
- e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Environmental and Social Management Framework (ESMF) and other safeguard requirements; project grievance mechanisms (GRMs); gender strategy; knowledge management strategy, and other relevant management strategies.
- f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
- g. Plan and schedule Project Board meetings and finalise the first-year annual work plan.
- h. Formally launch the Project.

GEF Project Implementation Report (PIR):

The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR, including co-financing tracking

The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point, IP and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

Lessons learned and knowledge generation: Results from the project will be disseminated within and beyond the project intervention area through existing information-sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be beneficial to the project. In addition, the project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

LDCF Core Indicators:

The LDCF Core Indicators included as Annex 15 will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to the MTR and TE. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/TE

consultants prior to required evaluation missions, so these can be used for subsequent ground truthing. The methodologies for data collection have been defined by the GEF and are available on the GEF [website](#).

Independent Mid-term Review (MTR):

The terms of reference (TOR), the review process and the final MTR report will follow the standard templates and guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#).

The evaluation will be independent, impartial and rigorous. As such, the evaluators that will be hired to undertake the assignment will be independent from organisations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project under review.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the evaluation process. Additional quality assurance support is available from the BPPS/GEF Directorate.

The final MTR report and MTR TOR will be publicly available in English and will be posted on the UNDP ERC by 30 June 2024. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report's completion.

Terminal Evaluation (TE):

An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The TOR, the evaluation process and the final TE report will follow the standard templates and guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center](#).

The evaluation will be ?independent, impartial and rigorous?. Accordingly, the evaluators that will be hired to undertake the assignment will be independent from organisations that were involved in the design, execution or advising of the project to be evaluated. Similarly, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated. The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the TE process. Additional quality assurance support is available from the BPPS/GEF Directorate.

The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC by 31 March 2026. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report's completion.

Final Report:

The project's terminal GEF PIR along with the TE report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up.

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information: To accord adequate acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials such as publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord sufficient acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies, notably the UNDP Disclosure Policy[2] and the GEF policy on public involvement[3].

Table 8. GEF M&E requirements and M&E budget.

GEF M&E requirements	Primary Responsibility	Indicative costs (USD)	Time frame
Inception Workshop	UNDP Country Office	6,000	Within 60 days of CEO endorsement of this project.
Inception Report	Project Coordinator	None	Within 90 days of CEO endorsement of this project.
M&E of GEF core indicators and project results framework	M&E specialist	2,500 per annum ? implementation of this activity is part of the responsibilities of the M&E Specialist	Annually and at mid-point and closure.
GEF Project Implementation Report (PIR)	Project Coordinator, M&E specialist, and UNDP Country Office and UNDP-NCE team	2,000 per annum ? implementation of this activity is part of the responsibilities of the Project Coordinator, M&E specialist and UNDP team	Annually typically between June-August
Monitoring of social and environmental safeguard screening	Safeguards Officer, M&E specialist, Technical Specialist	3,000 per annum ? implementation of this activity is part of the responsibilities of the Safeguards Officer, M&E Specialist and Technical Specialist	On-going.
Monitoring of stakeholder engagement plan	Project Coordinator, M&E specialist	1,500 per annum? implementation of this activity is part of the responsibilities of the Project Coordinator	On-going.
Monitoring of gender action plan	Project Gender Officer	1,000 per annum ? implementation of this activity is part of the responsibilities of the Project Gender Officer	On-going.
Supervision missions	UNDP Country Office and UNDP-NCE team	None	Annually
Independent Mid-term Review (MTR)	UNDP Country Office and Project team and UNDP-NCE team	40,000 ? International Consultant 12,000 ? National Consultant	30 June 2024
Independent Terminal Evaluation (TE)	UNDP Country Office and Project team and UNDP-NCE team	40,000 ? International Consultant 12,000 ? National Consultant	31 March 2026

GEF M&E requirements	Primary Responsibility	Indicative costs (USD)	Time frame
TOTAL indicative COST		150,000 (~3%)	

[1] See https://www.thegef.org/gef/policies_guidelines

[2] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

[3] See https://www.thegef.org/gef/policies_guidelines

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) or adaptation benefits (LDCE/SCCF)?

Rural communities in Lao PDR strongly depend on agriculture, primarily rice cultivation, for their livelihoods. The implementation of project activities will support target communities by increasing their climate resilience to the impacts of floods and droughts. In addition to providing support to current livelihoods, such as agriculture, the project will further increase the climate resilience of vulnerable communities by introducing alternative livelihood opportunities, to decrease their reliance on existing livelihoods which may be vulnerable to the impacts of climate change. These alternative opportunities will include an increased focus on the sustainable gathering of non-timber forest products (NTFPs) and will be introduced through Community Conservation Agreements (CCAs) to ensure community participation and the sustainability of the opportunities introduced. Community training and awareness-raising campaigns will, in support of CCA implementation, educate communities on the importance of maintaining healthy ecosystems, as well as how to sustainably engage with their local ecosystems. In addition to support for livelihood opportunities, project activities will enhance water security in vulnerable communities by ensuring water availability during dry months and increasing the water retention and flood attenuation properties of local ecosystems. Increased water security will ensure that communities are able to access water resources, for agricultural irrigation, during dry months and periods of drought. The construction of hard interventions, such as cascading weirs, and improved land use and water resource management planning will reduce the socioeconomic impact of floods on target communities. This will also enable communities to make productive use of flood events ? such as the diversion of flood waters into retention ponds or irrigation networks, once they have been attenuated by protective infrastructure.

In addition to the climate related impacts affecting the target communities, the global Covid-19 pandemic ? which began in early 2020 ? has presented unique and new challenges and barriers to adaptation projects. Impacts of Covid-19 in Lao PDR have included, *inter alia*: i) increased food prices; ii) increased demand for agricultural production; and iii) higher unemployment rates; and iv) decreasing economic activity for many businesses.

In response to these Covid-19 impacts, the proposed project will support economic and social recovery through the benefits of the proposed interventions. Under Outcome 1, the project will work to align policy frameworks and plans for land and risk management to support the long-term climate resilience of communities and ecosystems. Activities implemented under this outcome will enable the project team to engage with the GoL to ensure the Transboundary Diagnostic Analyses (TDAs) and Strategic Action Programmes (SAPs) are updated, to build resilience to Covid-19 impacts. By updating the TDAs and

SAPs, the project open channels that can be used to work towards guaranteeing IWRM at local, regional and international levels in both the short and medium term.

The resilience of supply chains in Lao PDR's agricultural sector will be strengthened by supporting smallholder farmers and other stakeholders along the supply chain by investment support through CCAs established under Output 2.2. These CCAs, combined with climate-resilient alternative livelihood options introduced under this output, will work to reduce target communities' reliance on vulnerable and stressed ecosystem goods and services, thereby decreasing the overall risks exacerbated by the pressure of Covid-19 impacts. By helping communities recover from Covid-19 following a sustainable development approach ? rather than returning to the business-as-usual practices ? the project will contribute to Building Back Better.

The implementation of alternative livelihood options and awareness-raising campaigns will further contribute to establishing a nexus thinking approach to natural resource management. The awareness-raising campaigns will be conducted in a manner that demonstrates the linkages between sectors relevant to target communities ? such as agriculture, water, food security and disaster risk reduction. By promoting integrated land management and IWRM, the project will build the capacity of target communities to manage the impacts of floods and droughts on these communities and their critical ecosystems.

11. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approval	MTR	TE
High or Substantial			

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Please see full Social and Environmental Screening Report (SESP - Annex 6) and Environmental and Social Management Framework (ESMF - Annex 10) also uploaded here to the GEF Portal

Part B. Identifying and Managing Social and Environmental Risks

<p>QUESTION 2: What are the Potential Social and Environmental Risks?</p> <p><i>Note: Complete SESP Attachment 1 before responding to Question 2.</i></p>	<p>QUESTION 3: What is the level of significance of the potential social and environmental risks?</p> <p><i>Note: Respond to Questions 4 and 5 below before proceeding to Question 5</i></p>			<p>QUESTION 6: Describe the assessment and management measures for each risk rated Moderate, Substantial or High</p>
<p>Risk Description <i>(broken down by event, cause, impact)</i></p>	<p>Impact and Likelihood (1-5)</p>	<p>Significance <i>(Low, Moderate Substantial, High)</i></p>	<p>Comments (optional)</p>	<p>Description of assessment and management measures for risks rated as Moderate, Substantial or High</p>

<p>Risk 1: Marginalized members of participating communities may not be able to engage with Community Conservation Agreements, project activities or have equal opportunities to participate in decision making processes during project implementation.</p> <p>Principle 1: Question P.5 & P.7</p> <p>Principle 3: Question P.13 & P.14</p> <p>Standard 6: Question 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7</p>	<p>I = 3</p> <p>L = 4</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential inequitable or discriminatory adverse impacts on affected populations. - Potential exclusion marginalized groups from fully participating in decisions that may affect them. - Potentially rights-holders do not have the capacity to claim their rights. - Potential for grievances or objections from affected stakeholders. -Potential for community members to have unequal access to EWS -Potential conflict to project affected communities or individuals could inhibit the implementation or uptake of CCAs -Introduction of CCAs could exacerbate the risk of conflicts and/or violence among project affected communities or individuals seeking preferential agreements 	<p>Assessment</p> <p>A Stakeholders Engagement Plan (SEP) was developed during the PPG providing guidelines on how to engage different stakeholders throughout the life cycle of the Integrated Water Resources Management and Ecosystem-based Adaptation in Xe Bang Hieng River Basin in 5 districts of Savannakhet province and Luang Prabang city with the objective to establish a systematic approach to help the project in i) Identifying stakeholders and build and maintain a constructive relationship with them; ii) Assessing the level of stakeholder interest and support for the project and to enable stakeholder's views to be taken into account in project design and environmental and social performance.</p> <p>Management</p> <p>The project will provide stakeholder consultations and involve all targeted groups, through identifying individuals, Government agencies, NGOs, private sectors, local communities, and other stakeholders that may be directly or indirectly affected by the project. These consultations will apply the best recognised principles for stakeholder engagement.</p> <p>Additionally, both the Project Team and assigned UNDP staff will perform regular, unannounced community visits and audits of CCAs to ensure that participants are in observance of the National Labour Law and UNDP Health, Safety and Working Conditions standards. CCAs</p> <p>Further measures will be established in the ESMP(s) and other management plans to be developed during implementation, as per the project's ESMF/IPPF and as required for SES compliance.</p>
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<p>Risk 2: Proposed land tenure arrangements for the conservation of Xe Bang Hieng Protected forests may restrict access to resources, affect customary land rights, and create some level of economic displacement (particularly for marginalized people and ethnic groups).</p> <p>Principle 1: Question P.6</p> <p>Principle 3: Question P.14</p> <p>Standard 5: Questions 5.1,5.2, 5.3 & 5.4</p> <p>Standard 6: Question 6.1, 6.2, 6.3, 6.5 6.6 6.7</p>	<p>I = 4</p> <p>L = 3</p>	<p>Substantial</p>	<ul style="list-style-type: none"> - Potential for restriction of availability, quality of and access to resources. - Potential economic displacement due to loss of access to resources due to land acquisition or access restriction. - Possible affect upon land tenure arrangements and/or community-based property rights/customary rights to land, and/or resources. - Ethnic Groups present in the Project area. - Potential for economic displacement of ethnic groups through access restrictions to resources. - Potential for grievances or objections from affected stakeholders. 	<p>Assessment</p> <p>During studies and consultations at the Project sites, the SESP identified three instances where further targeted assessments were required to determine the significance of the impacts and define management strategies: stakeholders assessment, gender assessment and Ethnic Group Assessment. A Stakeholders Engagement Plan (SEP) was developed during the PPG identifying the stakeholders and providing guidelines on how to engage them. A Gender Action Plan was also developed. Further assessment in the form of ESAs is required during implementation.</p> <p>Management</p> <p>The SEP, GA/GAP, ESMF, IPPF, FPIC and GRM prepared during the PPG will be implemented as required with communities prior to the implementation of any activities involving land management.</p> <p>For the activities not falling under CCAs, in line with SES Standard 5, Process Framework(s) will be developed to manage access restrictions in legally designated protected areas or other common property resources.</p> <p>Permanent or temporary resettlement, economic displacement, or forced evictions may occur as a result of land tenure arrangements for the conservation of Xe Bang Hieng Protected forests proposed for Activity 2.1.1 and Activity 2.1.2. They may also restrict access to resources, affect customary land rights, and create some level of economic displacement (particularly for marginalized people and ethnic groups).</p> <p>For these activities the project will required to conduct a Process Framework (as reported in the ESMF document) in order to facilitate community endorsement, consensus and to manage the risk of economic displacement. The assessment will include appropriate consultation with affected communities, (including Ethnic Group if present in the area) to consult on potential impacts and</p>
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<p>Risk 3: Government staff at Provincial and District levels have limited capacity to implement some project activities, including flood management strategies, ICM, EbA and Community Conservation Agreements effectively to ensure the intended benefits to participating communities.</p> <p>Principle 1: Question P.2</p> <p>Principle 3: Question P.14</p>	<p>I = 3</p> <p>L = 4</p>	<p>Moderate</p>	<p>- Potentially duty-bearers do not have the capacity to meet their obligations.</p> <p>- Potential for grievances or objections from affected stakeholders.</p> <p>Lao PDR's capacity limitations are compounded by limited or ineffective coordination between relevant stakeholders from the sector and Ministry. Specifically, decision-makers, planners and contractors require technical training on effectively implementing ICM and EbA solutions to improve flood management.</p> <p>Regarding CCAs, it was determined they are currently in use by multiple actors in the Lao PDR, including with the GEF supported SAFE Ecosystems Project being implemented in Savannakhet Province. Despite the widespread use of CCAs,</p>	<p>Assessment</p> <p>During the PPG, it had been determined that Lao PDR's forestry sector has a long-term strategy on forestry, but notable capacity limitations hamper its enforcement in the Ministry of Agriculture and Forestry.</p> <p>Management ? Government Staff Capacity with ICM and EbA</p> <p>To address this government staff capacity, Component 1 of the proposed project will focus on developing national and provincial officials and decision-makers' capacity to design and implement ICM and integrated urban EbA to enhance the climate resilience of rural and urban communities and ecosystems in Lao PDR. This integrated approach will be underpinned by enhanced climate-resilient planning at the national and provincial levels and include the use of innovative tools, such as EbA and hydrological modelling, to ensure that it is comprehensive and effective. A SESA will be applied to the development and implementation of ICM and integrated urban EbA such that potential social and environmental downstream impacts arising from the development of guidelines, ICM, policy directions will be identified.</p> <p>Management ? Government Staff Capacity with CCAs</p> <p>In order to ensure effective application of CCAs being developed under Component 2, the project provide training to staff and Government Officials in order for them to understand and embrace CCAs as a co-management framework for working with participating communities in the project area - this relates to relevant DWRM as well as PONRE and DONRE personnel. CCAs should be integrated into the process of developing risk mapping and flood management plans for watershed management being developed under Component 1.</p> <p>It should be noted that the SEP, GA/GAP, ESMF, IPPF, FPIC and GRM prepared during the PPG have to be implemented</p>
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<p>Risk 4: Marginalised groups, such as women and children, may not be able to equally engage with Community Conservation Agreements or benefit from project introduced livelihood activities or may be at risk of exploitation in the implementation of CCAs.</p> <p>Principle 2: Question P.8, P.9 & P.10</p> <p>Principle 3: Question P.14</p> <p>Standard 7: Question 7.3</p>	<p>I = 3</p> <p>L = 3</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential adverse impacts on gender equality. - Potential discrimination against women based on gender, limiting access to opportunities and benefits with the project. - Potential for grievances or objections from affected stakeholders. - Potential for use of child labour in agricultural activities 	<p>Assessment</p> <p>A Gender Assessment and Gender Action Plan (GA/GAP) was developed during the PPG. As part of this, consultation meetings have been carried out with PONRE of both Savannakhet and Luang Prabang provinces with participation of DORES of the respective target districts on the current situation of climate change impacts, on the proposed activities by the local authorities, project target villages based on the selection criteria.</p> <p>Additionally, village level consultations meetings have also been carried out. Project objectives and preliminary activities have been shared with the villagers. Village socio-economic data have been collected from the village authorities and 4 separate group discussions have been carried out with the boys, girls, women and men in each target village to obtain information on productive, reproductive roles and community managing roles as well as access and control to resources of different groups.</p> <p>Management</p> <p>Both the Project Team and assigned UNDP staff will perform regular, unannounced community visits and audits of CCAs to ensure that participants are in observance of the National Labour Law and UNDP Health, Safety and Working Conditions standards.</p> <p>Strategic areas for addressing gender issues in the three project components are as follows:</p> <ul style="list-style-type: none"> ? Assurance of gender disaggregated data in planning, implementing, monitoring and reporting. ? Increase Women Access to and Control over Productive resources. ? Operationalize Gender Action Plan at Village, district and provincial levels.
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<p>Risk 5: The project will construct protective infrastructure within and adjacent to waterways such as weirs, canals and small-scale irrigation schemes. Such developments have the potential to create hydrological changes and adverse social and environmental effects. These also have the potential to pose safety risks to local communities during the construction phase through actual construction activities, the transportation of materials, potential release of pollutants and generation of waste.</p>	<p>I = 3 L = 3</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential adverse impacts to habitats. - Potential production and/or harvesting of fish populations. - Diversion / containment of surface water. - Consequential development activities which could lead to adverse social and environmental effects. - - Potential impact of soil degradation - Potential impact related to the use or handling of hazardous substances and chemicals - Protective infrastructure will be constructed under Activity 2.1.2 (Output 2.1) - Project construction could pose potential safety risks to local communities. - Potential risks to community health and safety due to the transport of dangerous materials during construction. 	<p>Assessment</p> <p>During the PPG, the extent of the civil works related to protective infrastructure within and adjacent to waterways such as weirs, canals and small-scale irrigation schemes was not fully known (both technology and sites). However, it is known that any civil works constructed will not be considered ?large-scale?.</p> <p>As such, all civil works will follow relevant environmental impact assessment procedures (if applicable) and will ensure compliance with: i)?national construction standards and norms; ii) sanitary norms and regulations; and iii)?all relevant national laws and regulations related to forestry, water, environment, and health.</p> <p>Management</p> <p>The SEP, GA/GAP, ESMF, IPPF, FPIC and GRM prepared during the PPG will be applied as required with communities prior to the construction of any civil works. The risk will be identified prior any physical work starts. The ESMF contains a procedure for the preparation of the Environmental and Social Impact Assessment (ESIAs) to international standards and the Decree on Environment Impact Assessments 2019 (No. 21/GOL) of the Lao People?s Democratic Republic, as well as compliance with the UNDP SES. The ESIA will identify the environmental risks, identify project alternatives, and develop mitigation measures through the life cycle of the project.</p> <p>To manage this specific risk, an ESIA will be conducted for the activities implemented under Activity 1.1.2 and the resulting ESMP will be implemented to manage this risk.</p>
<p>Principle 3: Question P.14</p>				
<p>Standard 1: Questions 1.1 1.7 & 1.11</p>				
<p>Standard 3: Questions 3.1 3.2 3.3 3.4 3.5 3.6 & 3.7</p>				
<p>Standard 8: Question 8.1 & 8.2</p>				

<p>Risk 6: The implementation of project activities within 4 Protected Areas, 1 Ramsar Site and 1 World Heritage Site[1] could involve or lead to temporary or permanent damages to those sites, and the biodiversity/ecosystems and cultural heritage they contain.</p> <p>Principle 3: Question P.14</p> <p>Standard 1: Question 1.1, 1.2 & 1.5</p> <p>Standard 4: Question 4.1</p>	<p>I = 2</p> <p>L = 5</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Project activities proposed within legally protected areas. - Potential for grievances or objections from affected stakeholders. -Potential for the exacerbation of illegal wildlife trade as a result of increased human activity around Protected Areas 	<p>Assessment</p> <p>However, during the PPG, an Environmental and Social Management Framework (ESMF) was prepared with the objective to identify environmental and social impacts and risks associated with the interventions in the National Protected Areas. The identified risks should be analysed and avoided or mitigated according to defined Action Plans, guidelines and specific procedures.</p> <p>Management</p> <p>As noted under Risk 2, any proposed conservation zone management and forest boundary management within National Protected Areas would be based upon pre-existing boundaries, rules, regulations, protected area management plans and laws which may not be known or well understood by local communities or other stakeholders.</p> <p>Management and Implementation of any project activities within National Protected Areas will be completed as required in accordance with the following:</p> <p>? Forestry Law of Lao PDR 2019 (Amended / No. 255/NA) of the Lao People's Democratic Republic</p> <p>The project, through detailed studies in ESIA's, will aim to avoid any damages to the ecosystem in the naturally protected areas and when avoidance is not possible, the impact will be monitored and mitigated with the definition of monitoring plans (Environmental and Social Management Plan ESMP) and Action Plans .</p> <p>Appropriate environmental and social indicators for Conservation of Biological Diversity, Protection of Natural Habitats, and Protection of Indigenous Wildlife Species will be developed, and regular monitoring and evaluation will take place for each of the activities implemented</p>
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<p>Risk 7: Through introducing climate-resilient agriculture and aquaculture, as well as EbA which involves reforestation activities, there is the potential of non-indigenous species being utilized, as well as the application or involvement of hazardous materials, chemicals, and pesticides.</p> <p>Principle 3: Question P.14</p> <p>Standard 1: Question 1.6, 1.8 & 1.10</p> <p>Standard 8: Question 8.3 & 8.4</p>	<p>I = 4</p> <p>L = 2</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential risk of introducing invasive alien species. - Project involves reforestation. - Potential production and/or harvesting of fish populations. - Potential for grievances or objections from affected stakeholders. - Potential use of hazardous chemicals and/or pesticides in the implementation of alternative livelihoods activities, specifically agricultural activities. 	<p>Assessment</p> <p>During the PPG, alternative livelihood products, methods and practices under an IWRM framework have been identified i) climate-resilient agriculture ? such as agroforestry, intercropping, minimum-tillage, integrated soil fertility management and water harvesting and management; ii) silvopasture; iii) cultivation and sale of NTFPs; and iv) aquaculture. The selection and application of these livelihood practices will be informed by a robust, climate-sensitive market analysis which will review existing barriers and opportunities to inform long-term climate-resilient strategies and contribute to promoting catchment integrity through ICM and IWRM practices and reducing deforestation/forest degradation.</p> <p>Additionally, proposed EbA project activities in will include reforestation and restoration of degraded ecosystems. This will be done by planting ecologically appropriate species to restore ecosystem function, as well as other methods including assisted natural regeneration and forest boundary management.</p> <p>Management</p> <p>The SEP, GA/GAP, ESMF, IPPF, FPIC and GRM prepared during the PPG will be implemented as required with communities prior to the implementation of any activities involving the potential use of non-indigenous species.</p> <p>The above noted activities will be informed by, inter alia: i) the predicted impacts of climate change on the target areas; ii) the capacity of introduced species to maintain the provision of ecosystem goods and services under projected climate change conditions, specifically focusing on indigenous species that are drought- or flood-resilient; and iii) community needs and preferences.</p> <p>Specific studies and targeted assessment on ecologically appropriate species and methodologies for introduction will be developed by experts. The ESMF</p>
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<p>Risk 8: Protective infrastructure such as weirs, canals and small-scale irrigation schemes constructed during this project could be vulnerable to the impacts of climate change.</p> <p>Principle 3: Question P.14</p> <p>Standard 2: Question 2.1 2.2 & 2.3</p>	<p>I = 3</p> <p>L = 3</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential outcomes of the project could be sensitive or vulnerable to potential impacts of climate change. - Project be susceptible to flooding and/or extreme climatic conditions. - Potential for grievances or objections from affected stakeholders. - Potential degradation of the constructed infrastructures due to lack of maintenance capacity with the consequent increase of flooding or water stagnation - Potential risk of collapse of the infrastructure 	<p>Assessment</p> <p>Project interventions such as the construction of hard infrastructure and the development of integrated climate-resilient flood management strategies will ensure that water resources and flood risks in the areas are managed in an integrated manner, considering the spatial interlinkages and dependencies between land use and ecosystem health, as well as the underlying causes of vulnerability to climate change.</p> <p>During the PPG, the extent of the civil works related to protective infrastructure within and adjacent to waterways such as weirs, canals and small-scale irrigation schemes was not fully known. However, it is known that any civil works constructed will not be considered 'large-scale'. As such, all civil works are to be assessed and prepared by experts (i.e. Civil and Hydrological Engineers) to ensure such infrastructure meet climate-resilient engineering standards.</p> <p>Management</p> <p>The SEP, GA/GAP, ESMF, IPPF, FPIC and GRM prepared during the PPG will be applied as required with communities prior to the construction of any civil works.</p> <p>Current climatic variability and flood risks will also be taken into account when selecting intervention sites, periods for construction as well as the design and implementation of all interventions. Disaster risk and response plans will be put in place in collaboration with selected communities.</p> <p>The design of the infrastructures proposed will be developed according to climate forecast flood risks models to ensure that the infrastructure will resist to climate change effects. At the same time a maintenance plan will be developed and made available to the local communities and authorities to ensure that the infrastructures will function properly.</p>
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<p>Risk 9: During the current global COVID-19 Pandemic, there is a risk of community transmission (potentially resulting in death) between government officers, project staff, service provider contractors, and local communities through site visits and project implementation activities.</p> <p>Principle 3: Question P.14</p> <p>Standard 3: Question 3.4</p>	<p>I = 3</p> <p>L = 3</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential health risks from vector-borne diseases (COVID-19). - Potential for grievances or objections from affected stakeholders. 	<p>Management</p> <p>The COVID-19 pandemic is a 'once in a lifetime' crisis which is causing untold health and economic disparities across the globe. The pandemic has proven to be dynamic, particularly with the emergence new contagious variants.</p> <p>At the time of writing, Lao PDR is currently under a 'flexible' lockdown order as per the Prime Minister Order (No. 532 /OPM) on Guidelines for Implementing Policies and Measures for Economic and Social Impacts of the COVID-19 Outbreak.</p> <p>The UN implements a global health and safety policy with regards to COVID-19 which it implements within all agency offices. As part of this policy, all UN Agencies are to follow National Guidance; in Lao PDR, this is the guidelines of the Prime Minister's Order. All project implementation and risk management will be subject to this and will be dynamic based upon monitoring updates provided by the Lao National COVID-19 Task Force of the Ministry of Health.</p> <p>When able to implement project activities, standard health and safety precautions required for protection against COVID-19 will be implemented, including, but not limited to: (i) wearing a face mask, (ii) handwashing regularly, (iii) social distancing, and (iv) enabling as possible for local communities, project staff, government staff and other stakeholders to voluntarily get vaccinated.</p>
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<p>Risk 10: Service Provider Contractors may not follow or be in violation of National Labour Laws during construction of protective infrastructure. This may pose potential physical safety risks to workers or lead to the potential for child labour.</p> <p>Principle 3: Question P.14</p> <p>Standard 7: 7.1, 7.3 & 7.6</p>	<p>I = 3</p> <p>L = 4</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential risks and vulnerabilities related to occupational health and safety due to physical hazards during Project construction. - Potential failure to comply with national labour standards. - Potential for grievances or objections from affected stakeholders. 	<p>Assessment</p> <p>No formal assessment was made during the PPG with regards to worker's rights and safety due to the fact that the extent of the civil works to be completed was not fully known. However, it is known that any civil works constructed will not be considered 'large-scale'. The Government of Lao PDR and UNDP have a pre-existing agreement on the management of such issues through the Guidance Notes on National Implementation Modality. Further assessment is required.</p> <p>Management</p> <p>All civil works related to protective infrastructure within and adjacent to waterways such as weirs, canals and small-scale irrigation schemes valued over 100,000,000 LAK will be procured by UNDP through the organization's Procurement Policy. Civil works less than this value will be procured by the Implementation Partner utilizing the guidance notes for National Implementation Modality agreed upon by the Government of Lao PDR and UNDP.</p> <p>To monitor the construction and civil works, a labour management procedure will be included in the ESMP of the project. The project will separately contract an Engineer (or Engineer Team) to monitor work being completed is structurally sound and follows all technical plans and 'bill of quantities'. Additionally, both the Project Team and assigned UNDP staff will perform regular, unannounced site visits and audits to observe the respect of the National labour law and UNDP Health, Safety and Working Conditions standards are being met.</p> <p>Management and Implementation of any civil works with regards to labor and worker's safety will be completed as required in accordance with the following:</p> <ul style="list-style-type: none"> ? Labor Law, 2013 (No. 43/NA) of the Lao People's Democratic Republic.
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<p>Risk 11: During project implementation, objects (or infrastructure) of religious value may be affected in Savannakhet through project staff and Service Provider workers visiting and possibly inhabiting villages during project implementation.</p> <p>Principle 3: Question P.14</p> <p>Standard 4: Question 4.1, 4.2, 4.3, 4.5</p>	<p>I = 3</p> <p>L = 3</p>	<p>Moderate</p>	<ul style="list-style-type: none"> - Potential for project adversely impact sites, structures, or objects with religious values. - Potential for grievances or objections from affected stakeholders. - Potential impacts on tangible and/or intangible cultural heritage 	<p>Assessment</p> <p>During the PPG, no formal assessment was carried out regarding how objects (or infrastructure) of religious value may be affected As this Risk is well understood, its management is to be integrated into all aspects of project implementation with local Ethnic Group communities.</p> <p>Management</p> <p>Project activities will be designed and implemented in a way that avoids the alteration, damage or removal of any physical cultural resources and sites, as well as any sites recognised as having unique value at the community, national or international level. Regional experts will be consulted (as necessary) to ensure compliance with national heritage legislation and that project design adheres to best practice guidelines. Impacts on cultural heritage (tangible and intangible) will be mitigated and monitored with the preparation of a Cultural Heritage Action Plan according to UNESCO best practices.</p>
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<p>Risk 12: Ethnic Groups (including Katang and Bru Ethnic Groups) inhabit the project implementation area of Savannakhet Province. Project activities will be implemented on lands where they live; proposed land tenure arrangements may restrict access to resources.</p> <p>Principle 3: Question P.14</p> <p>Standard 6: Question 6.1 6.2 6.3 6.4 6.5 6.6, 6.7 & 6.9</p>	<p>I = 3</p> <p>L = 5</p>	<p>Substantial</p>	<ul style="list-style-type: none"> - Ethnic groups present in the Project area. - Potential for economic displacement of ethnic groups through access restrictions to resources. - Potential for grievances or objections from affected stakeholders. - Potential impacts on tangible and/or intangible cultural heritage of Ethnic Groups. 	<p>Assessment</p> <p>During the PPG, an Ethnic Groups Planning Framework (EGPF) was prepared for the Project. The EGPF identifies Ethnic Groups in line with SES Standard 6; the project's impacts on them; appropriate ways of engaging with them; and beneficial and mitigation measures.</p> <p>The main objective of this EGPF is to help ensure that project is designed and implemented in a way that fosters full respect for EGs' identity, dignity, human rights, livelihood systems, and cultural uniqueness as defined by the EGs themselves to enable them to:</p> <ul style="list-style-type: none"> ? Exercise their rights, including to FPIC ? Receive culturally appropriate social and economic benefits, ? Do not suffer adverse impacts as a result of the project, and ? Can participate actively and meaningfully in the project. <p>The EGPF is intended to safeguard the rights of EGs to participate and equitably receive culturally appropriate benefits from the project. For this purpose, the EGPF has been prepared in participating communes subject to results of project screening which identifies (i) the presence of Ethnic Groups, and (ii) project impacts on Ethnic Groups whether positive or negative, direct or indirect, temporary or permanent.</p> <p>The EGPF was able to determine Katang, Bru, Ta Oy, Thang, Tri and Lao Loum Ethnic Groups inhabit the rural and forested areas of Nong, and Sepone Districts of Savannakhet Province.</p> <p>Management</p> <p><i>EGP (IPP equivalent): will be prepared during implementation, building on the EGPF (IPPF equivalent).</i></p>
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QUESTION 4: What is the overall project risk categorization?				
<i>Low Risk</i>	?			
<i>Moderate Risk</i>	?			
<i>Substantial Risk</i>	?		This screening assessment has identified 12 risks, of which 10 have been scored as ?Moderate? and 2 have been scored as ?Substantial? giving the project an overall categorization of ?Substantial Risk? . All principles and standards are triggered by this SESP screening.	
<i>High Risk</i>	?			
QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are triggered? (check all that apply)				
Question only required for Moderate, Substantial and High Risk projects				
<u><i>Is assessment required? (check if ?yes?)</i></u>	?			<i>Status? (completed , planned)</i>
<i>if yes, indicate overall type and status</i>		?	Targeted assessment(s) ? Stakeholder Analysis ? Gender Analysis ? Ethnic Groups Analysis	Completed
		?	ESIA (Environmental and Social Impact Assessment)	Planned
		?	SESA (Strategic Environmental and Social Assessment)	Planned
<i>Are management plans required? (check if ?yes)</i>	?			

	<i>If yes, indicate overall type</i>	?	Targeted management plans (e.g. Gender Action Plan, Emergency Response Plan, Waste Management Plan, others)	Completed
		?	Stakeholder Engagement Plan	
		?	Gender Action Plan	
		?	Ethnic Groups Plan	
		?	Identification of FPIC process	
		?	Grievance Redress Mechanism	
		?	ESMP (Environmental and Social Management Plan which may include range of targeted plans)	Planned
		?	ESMF (Environmental and Social Management Framework)	Completed (with IPPF equivalent)
	Based on identified risks, which Principles/Project-level Standards triggered?		Comments (not required)	
	Overarching Principle: Leave No One Behind			
	Human Rights	?	See Risks 1, 2 & 3	
	Gender Equality and Women's Empowerment	?	See Risk 4	
	Accountability	?	All Risks (Potential for grievances or objections from affected stakeholders.)	

1. Biodiversity Conservation and Sustainable Natural Resource Management	?	See Risks 5, 6 & 7
2. Climate Change and Disaster Risks	?	See Risk 8
3. Community Health, Safety and Security	?	See Risks 5 & 9
4. Cultural Heritage	?	See Risk 6
5. Displacement and Resettlement	?	See Risks 2 & 11
6. Indigenous Peoples	?	See Risks 2 & 12
7. Labour and Working Conditions	?	See Risk 10
8. Pollution Prevention and Resource Efficiency	?	See Risk 5

[1] These sites include: i) Laving Lavern National Protected Area; ii) Dong Phouvieng National Protected Area; iii) the National Eld's Deer Sanctuary; iv) Phou Xang He National Protected Area; v) The Xe Champhone Ramsar Site; and vi) Luang Prabang World Heritage Site.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
6547 Lao PPG_UNDP_Annex 10 ESMF-IPPF_clean and cleared_7 February 2022	CEO Endorsement ESS	
6547 Lao PPG_UNDP_Annex 6 SESP_clean and cleared_7 February 2022	CEO Endorsement ESS	

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).

<p>This project will contribute to the following Sustainable Development Goal (s): SDG 2: Zero Hunger; SDG 5: Gender Equality; SDG 8 Decent Work and Economic Growth; SDG 11: Sustainable Cities and Communities; SDG 13 Climate Action; SDG 15 Life on Land</p>				
<p>This project will contribute to the following country outcome (UNDAF/CPD, RPD, GPD): Outcome 1: All women and men have increased opportunities for decent livelihoods and jobs; Outcome 2: Accelerate structural transformations for sustainable development; Outcome 3: Forests and other ecosystems are protected and enhanced, and people are less vulnerable to climate-related events and disasters; and Outcome 6: The most vulnerable people benefit from improved food security and nutrition.</p>				
	Objective and Outcome Indicators (no more than a total of 20 indicators)	Baseline	Mid-term Target	End of Project Target
Project Objective: Promote integrated management of sites in the Mekong River Basin for increased climate resilience of Savannakhet Province and Luang Prabang communities vulnerable to floods and droughts, which are expected to worsen under future scenarios.	Mandatory <u>GEF Core Indicator 1:</u> # direct project beneficiaries disaggregated by gender (individual people)	0	164,152 people (~1/3 of the total target beneficiaries)	492,462 people (75% of the total population of the target districts in Savannakhet province plus the population of the target communities in Luang Prabang city)
	Mandatory <u>GEF Core Indicator 2:</u> Area of landscapes under climate-resilient management (ha)	0 ha under sustainable land management in production systems	~65,000 ha (~1/3 of the land area of the five target districts) under sustainable land management in production systems	~200,000 ha (based on the area of Protected Areas and irrigated agricultural land in the target districts) under sustainable land management in production systems
Project component 1	<i>Developing national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction.</i>			

Project Outcome 1 Enhanced national and provincial capacities for integrated catchment management and integrated water resource management in target rural and urban communities.	Indicator 3: Increased score on UNDP-GEF Capacity Development Scorecard for government officials who attended trainings	0	At least 50% of officials score better on UNDP-GEF Capacity Development Scorecard	80% of government officials score better on UNDP-GEF Capacity Development Scorecard
	Indicator 4: Level of use of fine-scale climate-resilient development and land use plans in target intervention sites	0	At least 1 target district and Luang Prabang city integrating fine-scale climate-resilience development and land use plans	All 5 target districts and Luang Prabang city integrating fine-scale climate-resilience development and land use plans
Outputs to achieve Outcome 1	Output 1.1: Flood- and drought-risk maps of and an economic evaluation of urban ecosystem services and protective options produced for the Xe Bang Hieng River Basin and Luang Prabang city, respectively. Output 1.2: Integrated Climate-Resilient Flood Management Strategies developed for Luang Prabang and the Xe Bang Hieng River Basin, supported by an updated hydrometeorological monitoring network, EWS and revised emergency procedures for the Xe Bang Hieng River Basin.			
Project component 2	<i>Ecosystem-based Adaptation (EbA) interventions under an Integrated Water Resource Management (IWRM) framework, with supporting protective infrastructure and livelihood enhancement.</i>			
Outcome 2 Reduced flood risk through headwater conservation, restoration and protective infrastructure, supported by climate-resilient and alternative livelihoods.	Indicator 5: Area (ha) of land restored and conserved through Ecosystem-based Adaptation interventions	0 ha restored/conserved	~3,000 ha conserved in protected areas and ~200 ha of degraded ecosystems restored	~10,000 ha conserved in protected areas and ~500 ha of degraded ecosystems restored
	Indicator 6: Number of CCAs under implementation supporting alternative climate-resilient livelihoods	0 CCAs implemented in target communities	At least 2 CCAs under implementation in target communities	5 CCAs under implementation in target communities

Outputs to achieve Outcome 2	<p>Output 2.1: Ecosystems conserved and restored through conservation zone management, Ecosystem-based Adaptation, and protective infrastructure, supported by innovative communication and knowledge management tools/technology.</p> <p>Output 2.2: Climate-resilient and alternative livelihoods promoted in headwater and lowland communities through Community Conservation Agreements (CCAs) and diversified livelihood opportunities.</p>			
Project component 3	<i>Knowledge management and Monitoring and Evaluation (M&E).</i>			
Outcome 3 Effective knowledge management and M&E through awareness/advocacy and monitoring of climate change impacts and adaptation opportunities in target rural and urban communities.	Indicator 7: Level of knowledge and awareness on integrated catchment management and extreme climate events of men and women living in the project intervention sites	A baseline survey will be conducted shortly after project inception. This survey will use a scorecard to assess the current level of knowledge amongst local communities in the Xe Bang Hieng River Basin and Luang Prabang city	At least a 25% improvement in knowledge score of men and women living in the project intervention sites	At least a 50% improvement in knowledge score of men and women living in the project intervention sites
	Indicator 8: Number of communities operating and maintaining water resource and ecological monitoring systems	0 communities trained	8 communities from target villages in Savannakhet Province trained	15 communities from target villages in Savannakhet Province trained
Outputs to achieve Outcome 3	<p>Output 3.1: Training and awareness/advocacy campaigns conducted to enhance knowledge management, M&E and information exchange on climate change impacts on agricultural production and socioeconomic conditions and lessons disseminated on community-based adaptive solutions.</p> <p>Output 3.2: Community-based water resources and ecological monitoring systems established, and community members trained in their operations and maintenance.</p>			

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Secretariat Comment at PIF/Work Program Inclusion:

GEF Secretariat comment	Response
<p>How the various core indicators (beneficiaries, number of hectares) have been estimated relative to baseline initiatives</p>	<p>Number of beneficiaries was calculated as the total population of the 15 target villages in Savannakhet Province, as well as the population of the communities targeted in Luang Prabang city. The target villages in Savannakhet Province were selected to exclude villages that are a part of the SAFE Ecosystems project, also operating in Savannakhet Province. This number has been refined from PIF stage, where the beneficiaries were calculated based on the total population of Savannakhet Province, and the total population of Luang Prabang city. Selection of target districts and communities within the project areas during the PPG period has allowed for this refinement.</p> <p> </p> <p>The number of hectares (ha) under climate-resilient management was calculated based on the area of Nationally Protected Areas and irrigated agricultural land in the five target districts of Savannakhet Province, namely: i) Champhone; ii) Xonbuly; iii) Songkhone; iv) Sepone; and v) Nong. The figure was further refined based on the reforestation and conservation activities that will be implemented in the protected areas, as well as the areas of land in the target communities that will be impacted by Community Conservation Agreements and livelihood diversification.</p> <p> </p> <p>The number of ha under climate-resilient management has also been refined from PIF stage, at which it was based on the total area of Laving Laverne ? one of the National Protected Areas in the headwaters of the Xe Bang Hieng river basin. During PIF stage, this protected area was used as an estimation because it was projected that most of the restoration activities of the project would take place in the headwater areas of the Xe Bang Hieng River Basin. This number was refined based on the identification of specific areas within the headwater areas based on the target communities selected, as well as selection of other target areas throughout the Xe Bang Hieng River Basin.</p>

The various on-the-ground investments being supported by the project, with their climate change adaptation rationale explained

The on-the-ground investments supported by this project include:

- i) The construction of protective infrastructure such as cascading weirs will provide protection to communities from the impacts of floods, especially downstream communities, while the construction of strengthened reservoir networks will increase the resilience of communities to the impacts of droughts, especially headwater communities. Specific protective infrastructure options will be identified through a protective infrastructure optioneering process conducted under Activity 1.1.3.
- ii) The project will implement the conservation of protected forests, through improved conservation zone management and enhanced natural regeneration, and the restoration of degraded headwater conservation zones. The implementation of these activities in the headwater areas of the Xe Bang Hieng River Basin will increase the resilience of downstream communities to floods by, *inter alia*: i) decreasing surface run-off; ii) increasing infiltration of rainwater; and iii) increasing flood attenuation as a result of revegetating riverbanks. These interventions will also increase the resilience of headwater communities to droughts as a result of, *inter alia*: i) decreased evaporation of surface water; ii) decreased surface run-off; and iii) increased water retention.
- iii) The sustainability of conservation and restoration activities, as well as the protective infrastructure, will be enhanced by introducing incentives to communities through Community Conservation Agreements (CCAs) and diversified livelihood opportunities. The selection and application of these livelihood practices and diversified opportunities will be informed by market analysis to review existing barriers and opportunities to inform long-term climate-resilient strategies and contribute to promoting catchment integrity. Furthermore, investments into livelihood diversification will train communities on how to transition away from unsustainable practices, such as slash and burn agriculture. These activities and incentives for improving resilience will include promoting a shift towards more sustainable practices to support the adaptive capacity of the communities.

Additional investment mobilized in co-finance for the project	<p>The project has secured US\$27,212,585 in in-kind financing, an additional US\$7,212,585 from what was indicated at PIF stage. This co-financing has been secured from six related projects, specifically: i) US\$1,213,862 from the Wildlife Conservation Society led project ?Community-led initiatives conservation critical wetland biodiversity in four districts in Savannakhet?; ii) US\$864,000 from the United Nations Environment Programme led project ?Building resilience of urban populations with ecosystem-based solutions in Lao PDR?; iii) US\$1,072,267 from the Republic of Korea funded and UNDP led project ?Enhancing Integrated Water Management and Climate Resilience in Vulnerable Urban Areas of the Mekong River Basin?; iv) US\$13,030,740 from the Department of Planning and Finance led project ?Integrated Water Resources Management?; v) US\$5,258,716 from the Department of Irrigation led project ?Partnership for Irrigation and Commercialisation of Small Stakeholder Agriculture (PICSA)?; and vi) US\$5,773,000 from the Savannakhet Province Provincial Department of Agriculture and Forestry led project ?Climate-Friendly Agribusiness Value Chains Sector (CFAVC)?; and vii). In addition, US\$250,000 cash co-financing has been secured from UNDP TRAC Resources. Overall, the cash and in-kind co-financing adds up to US\$27,462,585.</p>
How the capacity of private sector entities will be built in terms of better understanding climate risks and adjusting construction/design standards and analytics to take climate change into account	<p>The proposed project will engage with the private sector through the implementation of Activity 3.1.3. This activity will involve the conducting of awareness raising campaigns, within the city of Luang Prabang, to inform both vulnerable communities and the private sector on the risks and impacts of climate change. These awareness raising campaigns will involve educating the private sector on urban EbA and flood management, specifically their relevance to the private sector and how the private sector can engage with the Government of Lao PDR on the implementation of urban EbA and flood management practices in Luang Prabang. In addition, the knowledge management hub, established under Activity 3.1.2, will engage with the private sector to adjust existing, and develop new, construction and design standards that are considerate of climate change and its impacts. This engagement will be supported by the development of an evidence base consisting of lessons learned from the implementation of project interventions and from South-South exchanges and cooperation with similar projects.</p>

Council Comments:

Council comment	Response
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<p>Beneficiaries: Germany appreciates the clear project description. Regarding the beneficiaries, the description provides information that is not linked with the theory of change. The proposal states that 2,100 people, including 1,058 women, will be trained on climate change impacts and adaptation opportunities. This number of direct beneficiaries is nevertheless not included in the theory of change. Germany highly recommends reviewing the theory of change at outcome and output level, and formulating concrete indicators focused on beneficiaries. Furthermore, Germany agrees with the PIF Review that clarification is needed on how beneficiaries and other core indicators (e.g. area of land restored) have been estimated in the context of larger baseline initiatives.</p>	<p>This feedback is well noted, and the number of direct beneficiaries has been more clearly incorporated into the Theory of Change discussion. Further to this, clarification of the core indicator figures have been calculated has also been incorporated into the baseline initiative narrative.</p>
<p>Alignment with policies: Germany appreciates the contribution to several of Laos' development and environmental priorities. However, Germany suggests that the project aligns better with upcoming strategies such as the Ninth Five-Year National Socio-Economic Development Plan (NSED), rather than its eighth iteration, which covers the period of 2016-2020 only</p>	<p>This feedback is well noted. Under Section 7: Consistency with National Priorities of the CEO Endorsement Request the discussion of alignment has been updated to discuss 9th Five-Year National Socio-Economic Development Plan (NSED), 2021-2025.</p>
<p>Project risks: Germany positively notes the coherence and integrated nature of the proposal. However, the complexity of the proposed approach raises concern on the project's feasibility within the given timeframe. The success of the implementation of the intervention in Luang Prabang depends on the completion and adoption of new strategies and the approval of updated, 9 EbA-mainstreamed policies and plans. Germany requests that the risks of delays and issues likely encountered in the implementation of Outcome 1.2 be better reflected in the risk section, including concrete mitigation measures.</p>	<p>The concerns highlighted by Germany regarding the risk of delays and issues possible during implementation have been well noted. Accordingly, this risk has been incorporated into the general risks assessment for the proposed project, which can be found in Table 5 of the CEO Endorsement Request document. More specifically, this has been incorporated as Risk 4: Slow implementation or progress because of required institutional arrangements. Management measures for this risk will include MOUs/Letter Agreements issued with RPs, as well as closely monitored MOUs.</p>
<p>Stakeholder engagement: Germany welcomes the development of an integrated approach to manage climate risk through cross-sectoral cooperation and informed planning processes. Germany encourages to clearly indicate the engagement of relevant stakeholders, with an emphasis on vulnerable community groups and gender, within the description of component 1 in order to reflect at the operational level what is described in the gender and stakeholder sections.</p>	<p>The description of Component 1 and Output 1 include an emphasis on engagement with vulnerable community groups and the need for the concerns and needs of vulnerable groups to be reflected at an operational level.</p>

<p>Private sector: Germany appreciates the reference to the private sector and the role of concession owners of agricultural land. Germany suggests emphasizing the importance of commercial agricultural concessions in the Xe Bang Hieng area in the context of land degradation and climate change risks and elaborating possible avenues of engagement with concession owners in the drafting and implementation of adaptation measures.</p>	<p>This is well noted and has been expanded upon in Section 4. Private Sector Engagement, specifically in the following paragraph: ?Activity 2.2.1 will involve the conducting of market analyses including, inter alia: i) analysing supply chains for climate-resilient crops, livestock, and farming inputs; ii) assessing economic impacts and market barriers; and iii) recommending mitigating strategies to address these barriers. While conducting these market analyses, the project will engage with private sector stakeholders, such as from the agriculture and forestry industries, to further identify how the private sector can be engaged in the development and implementation of alternative livelihood opportunities and Community Conservation Agreements (CCAs). These engagements will also involve discussing how commercial agricultural concession owners can implement climate change adaptation measures into their operations and how their activities can contribute to national climate change adaptation targets. Furthermore, the results of the market analyses will be provided to the private sector and commercial agricultural concession owners and engaged upon to facilitate the implementation of climate change and land degradation adaptation measures within their operations. Upon the successful implementation of CCAs after three years, the project will engage with financial sustainability mechanisms, such as payment for ecosystem service schemes, to ensure the continued successful implementation of CCAs in target communities and to facilitate the upscaling of CCAs to other local communities.?</p>
<p>Project Focus: Germany appreciates the project's regional focus. Given the complexity, Germany suggest considering downscaling the intervention measure to only one implementation site, with a focus on the Savannakhet project area.</p>	<p>The inclusion of Luang Prabang was a key government priority and its inclusion is essential to ensure government buy-in, the effective building of national hazard management capacity and engagement with private sector partners.</p>

STAP Comments:

STAP comments	Response
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<p>Is the baseline identified clearly?: The PIF includes a narrative baseline that lays out the challenges to be addressed. However, in noting that both climate change and forest degradation related to swidden farming are drivers of the challenge (vulnerability to draughts and floods), the baseline should establish the relative importance of these two drivers. Further, there are no citations to support the claims of swiddendriven degradation. As swidden agriculture is often misidentified as a source of new degradation, STAP suggests reviewing existing literature and data on the role of swidden agriculture in this degradation, establishing its importance, and including references to support the project's assessment.</p>	<p>Citations have been included, where relevant, to support the project's assessment that swidden agriculture is a driver of land degradation in Laos PDR.</p>
<p>Does it provide a feasible basis for quantifying the project's benefits?: STAP suggests adding indicators to quantify the baseline during the project design.</p>	<p>The project results framework developed during project development includes several baseline indicators, including beneficiary numbers, hectares of land under management, hectares of land restored, and numbers of communities participating in CCAs and training.</p>
<p>Are the mechanisms of change plausible, and is there a well-informed identification of the underlying assumptions?: Unsure as an explicit theory of change and assumptions appear to be lacking in the PIF. STAP suggests developing a theory of change, a figure and accompanying narrative, during the project development to describe the causal logic and assumptions. It also will be valuable to use systems analysis to identify the cross-scale linkages and connections between sectors as the theory of change is developed. Refer to STAP's theory of change primer: http://www.stapgef.org/theorychange-primer</p>	<p>An explicit theory of change narrative and figure have been developed, since PIF stage, and have been included under the Project Approach section.</p>
<p>Is there a recognition of what adaptations may be required during project implementation to respond to changing conditions in pursuit of the targeted outcomes?: It remains unclear how climate data, or an assessment of resilience, adaptation and, or, transformation needs will be used to design, implement, or evaluate interventions.</p>	<p>The description of Components and Outputs have been expanded on from the PIF stage to identify how the resilience, adaptation and transformation needs of the project's various beneficiaries will be addressed.</p>
<p>Is the scale of projected benefits both plausible and compelling in relation to the proposed investment?: Unclear. Suggest identifying the barriers and enablers to scaling in the theory of change.</p>	<p>The formulation of the theory of change has identified barriers to project implementation as well as a preferred solution to overcome these barriers and enable implementation of project interventions, and achievement of benefits, at various scales.</p>

<p>Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors?: On scaling EbA, it is unclear how the project will address the barrier of replicating, or scaling it as its effects tend to be localized. STAP recommends describing the limitations of EbA, and how its temporal and spatial barriers can be addressed. The project team may wish to consult the paper: Piggott-McKellar, A. et al. (2019).?What are the barriers to successful communitybased climate change adaptation? A review of grey literature? https://doi.org/10.1080/13549839.2019.1580688</p>	<p>Component 3: Knowledge management and Monitoring and Evaluation (M&E) has been expanded on from PIF stage and addresses the scaling up and replication of project interventions.</p>
<p>Will incremental adaptation be required, or more fundamental transformational change to achieve long term sustainability?: It is possible that both adaptation and transformational change will be required due to climate stressors. STAP encourages the project team to consider uncertainty to cope with the level of change that may take place; therefore, consider systematically different time scales, as well as spatial scales. The theory of change can do this if it is designed to assess how the targeted social-ecological system functions across scales. STAP recommends building systems analysis into the theory of change. This will facilitate an analysis of factors that inhibit, or facilitate, change. STAP's theory of change primer is a good resource for developing a theory of change based on systems analysis: http://www.stapgef.org/theory-change-primer</p>	<p>Uncertainty to cope with the level of change that may take place as a result of project activities and interventions has been taken into consideration and addressed through the design of capacity building activities for national decision makers, trainings and awareness raising campaigns for local communities as well as the inclusion of knowledge management activities which will seek to capture and disseminate project lessons.</p> <p>Uncertainty to cope with change has also been considered in the design of project activities. Project activities will be implemented and occur across various spatial and time scales; however the success of each Outcome will not be reliant on the success of each other Outcome but will still support each other.</p>
<p>Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers?: Some key stakeholders have been identified while others will be defined once a stakeholder mapping takes place. When a stakeholder mapping, and plan, are developed, STAP recommends describing the actors' roles in relation to how they will contribute (individually and collectively) to achieving the adaptation outcomes.</p>	<p>The project has developed a Stakeholder Engagement Plan (Annex 9) which includes a table detailing the responsibilities of the different project stakeholders.</p>
<p>What are the stakeholders' roles, and how will their combined roles contribute to robust project design, to achieving global environmental outcomes, and to lessons learned and knowledge?: See above.</p>	<p>See above.</p>

<p>Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences?: A gender assessment and action plan will be developed after the PIF is approved. During the process of assessing gender issues, STAP recommends considering whether the full participation of an important stakeholder group is hindered as a result, and describing how will the project address these obstacles.</p>	<p>A Gender Analysis (GA) was conducted and a Gender Action Plan (GAP) was developed for mainstreaming gender considerations into the project design, to ensure that the proposed project activities are both gender-responsive and designed in a gender-sensitive manner. Furthermore, training conducted under Activities 1.1.1 and 3.1.1 will include gender mainstreaming for government officials, to ensure gender is mainstreamed at the district level, and community leaders, to ensure gender is mainstreamed at the village level, respectively.</p> <p>The proposed project activities have been designed considering that in Lao PDR: i) women's household roles should be considered in any interventions concerning natural resource management, land-use planning and decision-making; ii) conservation incentives differ for men and women; iii) gendered division of labour needs to be understood prior to the introduction of any livelihood interventions; and iv) women need to have access to, and control over ecosystem goods and services. An understanding of gender mainstreaming in relevant sectors and associated ministries has been developed and gaps in gender equality were identified and addressed in all aspects of the project design. Women and other vulnerable groups have been actively involved in identifying environmentally sustainable activities and interventions that will support them in safeguarding natural resources and promoting their economic development, with specific strategies being developed to target and include female-headed households.</p>
<p>Do gender considerations hinder full participation of an important stakeholder group (or groups)? If so, how will these obstacles be addressed?: See above</p>	<p>See above.</p>

What overall approach will be taken, and what knowledge management indicators and metrics will be used?: The monitoring component will be used to generate knowledge. STAP recommends considering knowledge management metrics, and specifying how the knowledge generated will influence scaling of results. In addition, it would be valuable to link the knowledge strategy to the theory of change.

Component 3: Knowledge Management and Monitoring and Evaluation (M&E) has been expanded on from the PIF stage and includes specifics on how knowledge generated by the project will be collected, stored and disseminated to promote upscaling of project results. Additionally, the Component has been linked to the theory of change, specifically through knowledge management and M&E being used to ensure the effective achievement of the preferred solution.

What plans are proposed for sharing, disseminating and scaling-up results, lessons and experience?: The project describes several methods to disseminate results and lessons. Detailed plans will be described in the project document.

Output 3.1 of the proposed project will promote project sustainability and scalability by capturing and disseminating lessons learned. The collection and sharing of project lessons across Lao PDR, as well as internationally through South-South exchanges, will support the upscaling and replication of project interventions in baseline projects both nationally and regionally. The regular sharing of project lessons will also enable project staff to engage with similar projects to identify solutions to problems that may arise. Furthermore, the establishment of an online portal to function as a knowledge management hub will enable the PMU to collect and collate project lessons, as well as facilitate coordination and engagement with similar and relevant projects, both in Lao PDR and regionally. The design of project interventions will be accomplished in coordination with the knowledge management hub, to ensure all designs are collected in a centralised system and to ensure that project interventions are designed in consideration of each other, as appropriate. The knowledge management hub will also provide a centralised system through which the project will be able to coordinate with relevant stakeholders at different levels, such as Village Development Committees or PONRE representatives, and record feedback and monitoring reports from these stakeholders. Furthermore, the establishment of this knowledge hub will enable project staff to engage with the private sector and provide them with an evidence base that will support and contribute to adjusting construction and design standards, and analytics, in a manner that takes climate change and the impacts of climate change into consideration. The knowledge hub will also provide a platform for DWR to monitor the progress of projects and engage with local communities, post project completion.

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: US\$ 150,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date*</i>	<i>Amount Committed</i>
International Consultant	56,000	68,079.34	0
Local Consultants	63,000	51,191.23	0
Travel	14,000	21,629.27	0
Miscellaneous Expenses	2,000	139.73	0
Trainings, workshops	15,000	8,960.43	0
Total	150,000	150,000	0

*As of 5 April 2022

ANNEX D: Project Map(s) and Coordinates

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

Please kindly refer to the maps from 1b. Project Map and Coordinates. (Unable to save when pasting the maps here).

Below please find the GPS coordinates for each of the target villages.

District	Name	Longitude	Latitude
Sepone	Sopsalou	106.4475	16.9025
	Kenghuapa	106.1969	16.6719
	Thamae	106.1989	16.6432
Nong	Nongvilai	106.4958	16.3738
	Tungalai Nuea	106.5164	16.3218
	Saveu	106.4187	16.3115
Champhone	Dongmueang	105.2515	16.5437

	Sivilay	105.0295	16.5218
	Paika	105.2068	16.4990
Xonbuly	Nonsavang	105.3391	16.3867

ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency) [1]
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		

Equipment	IT Equipment for the Project management Unit: Laptop computers (USD2,000 x 9 [Y1] ? USD18,000)				0		18,000	18,000	UNDP
Equipment	Internet installation cost (USD5,400 x 1 [Y1] ? USD5,400)				0		5,400	5,400	DWR, MonRE

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Furniture/Equipment - Vehicle	Equipment for support to Component 3: (USD125,000)? Monitoring equipment for use in target districts including, for example: i) GPS; ii) water quality testing kits; iii) river gauges; iv) invasive plant management equipment; and v) biodiversity monitoring equipment (fish monitoring equipment, binoculars, camera traps, field guides etc.)			125,000	125000			125,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		<i>Component 1</i>	<i>Component 2</i>	<i>Component 3</i>	<i>Sub-Total</i>	<i>M&E</i>	<i>PMC</i>		(Executing Entity receiving funds from the GEF Agency) [1]
Furniture/Equipment - Vehicle	Office furniture, including 6 desks and chairs for project staff and 10 office cabinets (USD8,000 x 1 [Y1] ? USD8,000)				0		8,000	8,000	DWR, MonRE

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Grants	Grants to support Community Conservation Agreements under Component 2: ? Funding based on CCAs to Village Development Funds for small community enterprises for sustainable livelihood opportunities, such as agroforestry, small livestock, etc. ? including processing and marketing activities, sustainable ecological management (fodder production, water availability, etc.). The grants will be managed following UNDP micro-capital grants policies. (USD20,000 x 5 target		300,000		300,000			300,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Contractual Services ? Company	Contractual services for support to Component 1: -To map current and future risk zones of the Xe Bang Hieng River Basin (USD64,000 ? Y1); - For economic valuation of ecosystems. This cost includes integrating valuations into policy, ascertaining ecosystem services flow, promoting non-marketable ecosystem services as an income generator, enumerators and the collection of socio-economic data (USD64,000 ? Y1); - To update hydrological monitoring network based on the recommendations of the international consultant (USD65,000	257,000			257,000			257,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Contractual Services ? Company	Contractual services for support to Component 2:? DWR will drive the implementation of conservation and restoration in Xe Bang Hieng headwater conservation zones (USD1,000,000) ? including planting activities and natural regeneration , with procurement of seedlings, etc. by contractual services. Cost of restoration @ US\$ 1,000 per ha and cost for conservation @ US\$ 50 per ha. These costs will include, inter alia: i) growing of indigenous seedlings; ii) planting activities; iii) natural regeneration ; iv) installation		2,166,179		2,166,179			2,166,179	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Contractual Services ? Company	Contractual services for support to Component 3: To conduct awareness raising campaign among Xe Bang Hieng River Basin communities, on the impacts of climate change and adaptation opportunities (USD60,000)? To set up and establish knowledge management hub for the facilitate the sharing of lessons learned (USD80,000)? To design and implement awareness raising campaign in Luang Prabang (USD80,000). To design and implement community based-monitoring systems (USD20,000).			240,000	240,000			240,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Contractual services- Individual	Contractual services (individual - IP) to act as Project Coordinator Component 1 - Approx. 11% of USD3,400 x 12 months x 4 years [Y1,2,3,4] ? USD18,160 Component 2 - Approx. 16% ? USD3400 x 12 months x 4 years [Y1,2,3,4] USD26,320 Component 3 - Approx. 11% of USD3,400 x 12 months x 4 years [Y1,2,3,4] ? USD18,160) including provision of inputs into PIRs and monitoring of stakeholder engagement plan (Embedded M&E budget ? 2,500/year for 4 years ? \$10,000) PMU: 30% ? USD48,960 ? to be	18,160	26,320	8,160	52,640	10,000	48,960	111,600	DWR, MoNRE

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Contractual services- Individual	<p>Contractual services (individual) for support to the following Components :</p> <p><u>COMPONENT 1</u></p> <p>? To act as project Technical Specialist (33.33% of US10,000 x 12 months x 4 years [Y1,2,3,4] ? USD159,984)</p> <p>? To act as Project Gender Officer (33.33% of USD300 x 10 weeks x 4 years [Y1,2,3,4] - USD4,000)</p> <p>? To act as Project Safeguards Officer (20% of USD500 x 10 weeks x 4 years [Y1,2,3,4] USD4,000))</p> <p><u>COMPONENT 2</u></p> <p>? To act as project Technical Specialist (33.33% of US10,000 x 12 months x</p>	167,984	175,984	337,984	681,952	30,000	134,400	846,352	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
International Consultants	International Consultant (IC) for support to Component 1: To design six training programs (one program per target district, including Luang Prabang city) to enable climate risk-informed water management practices in urban and rural areas (USD700 x 30days [Y1] ? USD21,000) ? To conduct protective infrastructure optioneering based on identified risk zones (USD 700 x 30days [Y1] ? USD21,000) ? To conduct options analysis of protective infrastructure in Luang Prabang	147,000			147,000			147,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
International Consultants	<p>International Consultant for support to Component 2: To design training on the use of improved practices, tools and technologies to support headwater conservation zone management , with support from DWR (USD 700 x 30days [Y1] ? USD21,000) ? To conduct training on the use of improved practices, tools and technologies to support headwater conservation zone management (USD 700 x 10days x 3 years [Y2,3,4] ? USD21,000) ? To undertake the drafting and introduction of CCAs to target</p>		63,000		63,000			63,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
International Consultants	International Consultant for support to Component 3: To design training for Xe Bang Hieng River Basin communities, with support from DWR (USD700 x 30)			21,000	21,000			21,000	UNDP
International Consultants	To perform Independent Mid-term Review (USD40,000 ? Y2)? To perform Independent Terminal Evaluation (USD40,000 ? Y4)					80,000		80,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Local Consultants	Local Consultant to support Component 1: To conduct one week-long training program in each target district and Luang Prabang city (USD 300 x 30 days/year x 3 years [Y2,3,4] ? USD27,000) ? To assist the IC in designing the training programs (USD300 x 60 days [Y1] ? USD18,000) ? To assist the IC with protective infrastructure optioneering (USD300 x 60 days [Y1] ? USD18,000) ? To assist the IC in conducting the options analysis (USD300 x 60 days [Y1] ? USD18,000) ? To assist the IC	148,500			148,500			148,500	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Local Consultants	Local consultant for support to Component 2: To run community engagement workshop to engage on CCAs (USD300 x 25 days [Y1] ? USD7,500)? To introduce and train target communities on alternative and diversified livelihood activities and opportunities (USD300 x 25 days x 3 years [Y2,3,4] ? USD22,500) ? To assist the IC in conducting training and to act as translator (USD300 x 10 days x 3 years [Y2,3,4] ? USD9,000)? To assist the contractual services and		121,000		121,000			121,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		<i>Component 1</i>	<i>Component 2</i>	<i>Component 3</i>	<i>Sub-Total</i>	<i>M&E</i>	<i>PMC</i>		(Executing Entity receiving funds from the GEF Agency) [1]
Local Consultants	Local Consultant for support to Component 3: To conduct 1 week training program in each district (USD300 x 25 days x 3 years [Y2,3,4] ? USD22,500) To deliver training on community-based monitoring systems (USD300 x 25 days x 3 years [Y2,3,4] ? USD22,500) ?			45,000	45,000			45,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		<i>Component 1</i>	<i>Component 2</i>	<i>Component 3</i>	<i>Sub-Total</i>	<i>M&E</i>	<i>PMC</i>		(Executing Entity receiving funds from the GEF Agency) [1]
Local Consultants	? To act as support the International Consultant performing the Independent Mid-Term Review (USD12,000 ? Y3)? To act as support the International Consultant performing the Independent Terminal Evaluation (USD12,000 ? Y4)				-	24,000		24,000	UNDP

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Trainings, Workshops, Meetings	<p>Training workshops and meetings for Component 1:?</p> <p>Training workshop for decision-makers on climate risk-informed water management and gender mainstreaming, in target rural and urban areas - 1 week training program in each district + Luang Prabang (USD3,750 x 6 workshops/year x 3 years [Y2,3,4] ? USD67,500) ?</p> <p>Conduct 3-day validation workshop for fine-scale climate-resilient development and land use plans (1 in Savannakhet + 1 in Luang Prabang) (USD3,750 x 2</p>	131,250			131,250			131,250	DWR, MonRE

[illegible]

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
Trainings, Workshops, Meetings	Training workshops and meetings for Component 3:?			123,750	123,750			123,750	DWR, MonRE
	Training workshop for Xe Bang Hieng River Basin communities on: i) climate change impacts on agricultural production and socioeconomic conditions; ii) community-based adaptation opportunities and strategies (including water resources management, agroforestry, conservation agriculture, alternatives to swidden agriculture) and their benefits; and iii) gender mainstreaming at the village level ? 1 week training								

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency) [1]
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		
Trainings, Workshops, Meetings	Inception workshop (USD6,000 x 1 workshop ? Y1)				-	6,000		6,000	DWR, MonRE
Trainings, Workshops, Meetings	Meetings under the Project Management Unit: ? Project Board Meeting (USD3,750 x 1 meeting/year for 4 years [Y1,2,3,4] ?USD15,000)						15,000	15,000	DWR, MonRE
Travel	Travel budget for experts involved in Component 1 ? covering vehicle hire and local transport, DSA, travel to training events and international travel (USD35,704)	35,704			35,704			35,704	DWR, MonRE

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency) [1]
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		
Travel	Travel budget for experts involved in Component 2 ? covering vehicle hire and local transport, DSA, travel to training events and international travel (USD37,465)		37,465		37,465			37,465	DWR, MonRE
Travel	Travel budget for experts involved in Component 3 ? covering vehicle hire and local transport, DSA, travel to training events and international travel (USD40,230)			40,230	40,230			40,230	DWR, MonRE
Office Supplies	Office stationery (approx. USD 2,405.5 annually [Y1, 2, 3, 4] ? USD9,622)				-		9,622	9,622	DWR, MonRE

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency) [1]
		Component 1	Component 2	Component 3	Sub-Total	M&E	PMC		
Other Operating Costs	Audio-visual & print production expenses for consultations conducted by Project Safeguards Officer (USD4,000 x 1 [Y1] ? USD4,000)		4,000		4,000			4,000	UNDP
Other Operating Costs	Office electricity cost (USD1,200 annually [Y1, 2, 3, 4] ?USD4,800) ? Office water cost (USD600 annually [Y1, 2, 3, 4] ?2,400)? Office cleaning (USD 1,800 annually [Y1, 2, 3, 4] ? USD7,200)				-		14,400	14,400	DWR, MonRE
Grand Total		905,598	3,078,948	941,124	4,925,670	150,000	253,782	5,329,452	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template

provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

N/A

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

N/A

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

N/A