# 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**

**Project Type**
FSP

**Type of Trust Fund**
LDCF

**CBIT/NGI**
- ☐ CBIT
- ☐ NGI

**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)**
MONRE, Department of Water Resources (DWR)

**Executing Partner Type**
Government

**GEF Focal Area**

Climate Change

**Taxonomy**

Focal Areas, Climate Change, Climate Change Adaptation, Climate information, Ecosystem-based Adaptation, Complementarity, Mainstreaming adaptation, Community-based adaptation, Climate resilience, Innovation, Livelihoods, Least Developed Countries, Influencing models, Strengthen institutional capacity and decision-making, Demonstrate innovative approache, Stakeholders, Local Communities, Type of Engagement, Information Dissemination, Consultation, Participation, Communications, Behavior change, Awareness Raising, Beneficiaries, Civil Society, Non-Governmental Organization, Community Based Organization, Gender Equality, Gender results areas, Access to benefits and services, Knowledge Generation and Exchange, Capacity Development, Participation and leadership, Access and control over natural resources, Gender Mainstreaming, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Capacity, Knowledge and Research, Knowledge Exchange, Learning

**Rio Markers**

**Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 1

**Duration**

48 In Months

**Agency Fee($)**

506,298

**Submission Date**

3/17/2020

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

| Programming Directions | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|
| CCA-1 | LDCF | 2,878,000 | 11,000,000 |
| CCA-2 | LDCF | 2,451,452 | 9,000,000 |
| | **Total Project Cost ($)** | **5,329,452** | **20,000,000** |

**B. Indicative 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 | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| 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 1.1:<br>Enhanced capacity for climate risk modelling and integrated planning in the Xe Bang Hieng river basin and Luang Prabang urban area. | Output 1.1.1: Central and provincial training program implemented to enable climate risk-informed water management practices in target urban and rural areas<br>Output 1.1.2: Current and future zones of the Xe Bang Hieng River catchment at risk of climate change-induced flooding and drought mapped, based on hydrological models produced and protective infrastructure optioneering conducted<br>Output 1.1.3. Economic valuation conducted of urban ecosystem services and protective options in Luang Prabang. | LDCF | 500,000 | 2,600,000 |

| Project Component | Financing Type | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| 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 1.2: Alignment of policy frameworks and plans for land and risk management to support long-term climate resilience | Output 1.2.1: Fine-scale climate-resilient development and land-use plans drafted and validated for Luang Prabang and in the headwater and lowland areas of the Xe Bang Hieng and Xe Champone rivers.<br><br>Output 1.2.2: Current Xe Bang Hieng river basin hydrological monitoring network — including village weather stations — assessed and updated to improve efficiency.<br><br>Output 1.2.3: Early-warning systems and emergency procedures of vulnerable Xe Bang Hieng river basin communities (identified under Output 1.1.2) reviewed and revised. | LDCF | 700,000 | 3,700,000 |

| Project Component | Financing Type | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure , and livelihood enhancement | Investment | Outcome 2.1:<br><br>Ecosystems restored and protected to improve climate resilience in headwater areas through conservation zone management | Output 2.1.1: Xe Bang Hieng headwater conservation zones restored to ensure ecological integrity is improved for delivery of ecosystem services.<br><br>Output 2.1.2: Headwater conservation zone management supported to improve resilience to climate change | LDCF | 1,400,000 | 3,700,000 |

| Project Component | Financing Type | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure , and livelihood enhancement | Investment | Outcome 2.2: EbA interventions supported/complemented with innovative tools, technologies and protective infrastructure | Output 2.2.1: Protective infrastructure constructed to reduce flood risk (through cascading weirs and drainage channels) and drought risk (by means of reservoir networks and rainwater harvesting).<br><br>Output 2.2.2: Implementation and distribution of communication and knowledge management tools and technologies (e.g. mobile phone apps, community radio) to increase climate resilience of agricultural communities to floods and droughts | LDCF | 1,350,000 | 4,400,000 |

| Project Component | Financing Type | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure , and livelihood enhancement | Technical Assistance | Outcome 2.3: Climate-resilient and alternative livelihoods in headwater and lowland communities, supported through Community Conservation Agreements | Output 2.3.1: Market analysis conducted, 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.<br><br>Output 2.3.2: Community Conservation Agreement process undertaken to encourage climate-resilient agriculture, fisheries, and forestry/forest-driven livelihoods and practices<br><br>Output 2.3.3: Diversified activities and opportunities introduced through Community Conservation Agreements (developed under Output 2.3.3.) in agriculture (livestock and crops, including vegetable farming) as well as fisheries, non-timber forest products (NTFP), and other off-farm livelihoods. | LDCF | 750,000 | 2,800,000 |

| Project Component | Financing Type | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| Component 3: Knowledge management and Monitoring and Evaluation (M&E) | Technical Assistance | Outcome 3.1: Increased awareness of climate change impacts and adaptation opportunities in target rural and urban communities | Output 3.1.1: Training and awareness raising provided to Xe Bang Hieng and Xe Champone headwater and lowland communities on: i) climate change impacts on agricultural production and socio-economic conditions; and ii) community-based adaptation opportunities and strategies (e.g. water resources management, agroforestry, conservation agriculture, alternatives to swiddening ) and their benefits<br><br>Output 3.1.2<br><br>Project lessons shared within Lao PDR and via South-South exchanges on strengthening climate resilience with regards to: i) catchment management; ii) flash flood management; and iii) EbA.<br><br>Output 3.1.3 Awareness-raising campaign conducted in Luang Prabang for communities and the private sector on urban EbA and flood management. | LDCF | 205,670 | 700,000 |

| Project Component | Financing Type | Project Outcomes | Project Outputs | Trust Fund | GEF Amount($) | Co-Fin Amount($) |
|---|---|---|---|---|---|---|
| Component 3: Knowledge management and Monitoring and Evaluation (M&E) | Technical Assistance | Outcome 3.2: Community-based water resources and ecological monitoring systems in place | Output 3.2.1: Community-based monitoring systems developed and implemented to measure changes in key ecological determinants of ecosystem health and resilience in the Xe Bang Hieng river basin. | LDCF | 170,000 | 600,000 |
| | | | **Sub Total ($)** | | **5,075,670** | **18,500,000** |
| **Project Management Cost (PMC)** | | | | | | |
| | | | | LDCF | 253,782 | 1,500,000 |
| | | | **Sub Total($)** | | **253,782** | **1,500,000** |
| | | | **Total Project Cost($)** | | **5,329,452** | **20,000,000** |

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

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Investment Mobilized | Amount($) |
|---|---|---|---|---|
| Government | Government of Lao PDR (MONRE, MAF) | In-kind | Recurrent expenditures | 19,500,000 |
| GEF Agency | undp | Grant | Recurrent expenditures | 500,000 |
| | | | **Total Project Cost($)** | **20,000,000** |

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

n/a

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

| Agency | Trust Fund | Country | Focal Area | Programming of Funds | Amount($) | Fee($) | Total($) |
|---|---|---|---|---|---|---|---|
| UNDP | LDCF | Lao PDR | Climate Change | NA | 5,329,452 | 506,298 | 5,835,750 |
| | | | | **Total GEF Resources($)** | **5,329,452** | **506,298** | **5,835,750** |

**E. Project Preparation Grant (PPG)**

PPG Required

☐

**PPG Amount ($)**

150,000

**PPG Agency Fee ($)**

14,250

| Agency | Trust Fund | Country | Focal Area | Programming of Funds | Amount($) | Fee($) | Total($) |
|---|---|---|---|---|---|---|---|
| UNDP | LDCF | Lao PDR | Climate Change | NA | 150,000 | 14,250 | **164,250** |
| | | | | **Total Project Costs($)** | **150,000** | **14,250** | **164,250** |

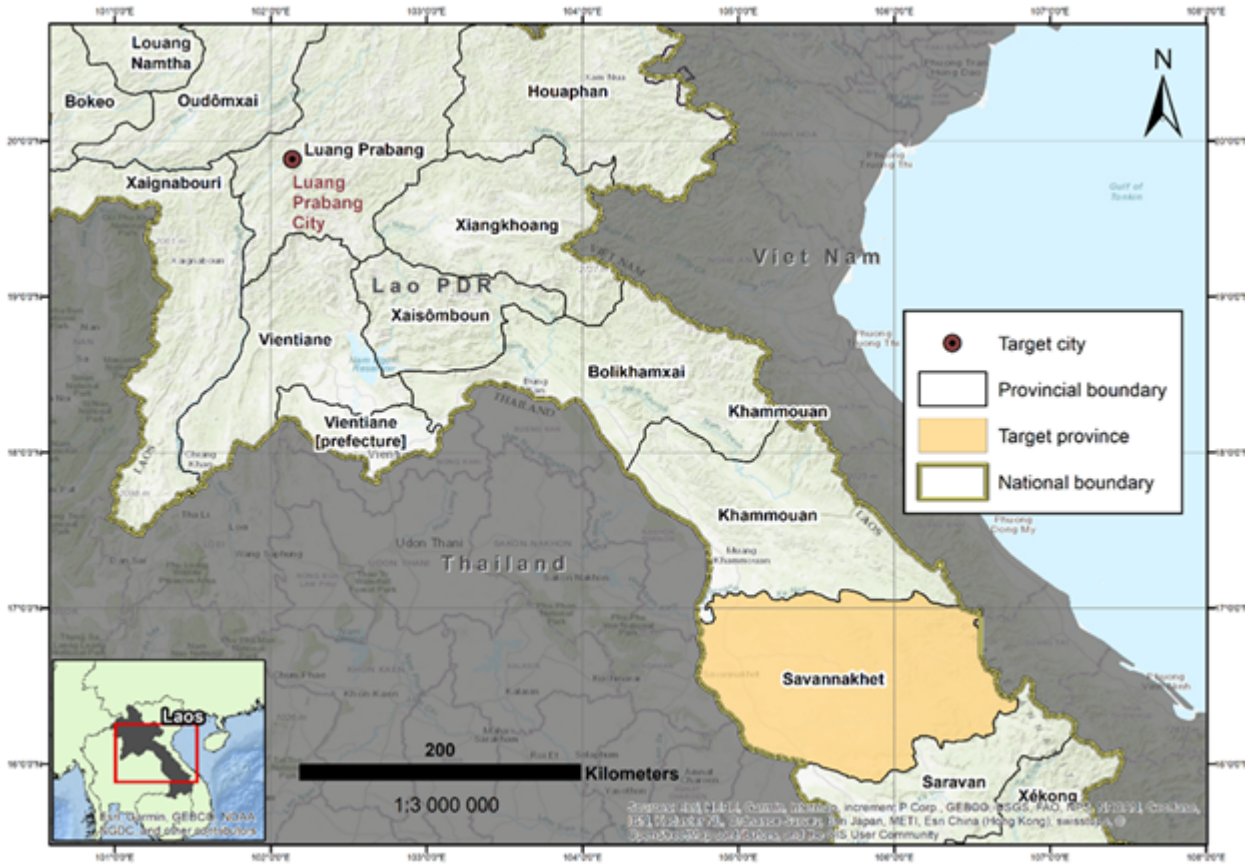
## Part II. Project Justification

### 1a. Project Description

1.a. Project Description.

1.a.1. Adaptation problem, root causes and barriers

The Lao People's Democratic Republic (hereafter Lao PDR) is a landlocked Least Developed Country (LDC) in Southeast Asia. It has a population of ~7.1 million people and lies in the lower basin of the Mekong River, which forms most of the country's western border with Thailand. The GDP of Lao PDR has grown at more than 6% per year for most of the last two decades and reached ~US$ 18 billion in 2018 (~US$ 2,500 per capita) . Much of this economic growth has been dependent on natural resources and has placed increasing pressure on the environment . Agriculture accounts for ~30% of the country's GDP and supports the livelihoods of 70–80% of the population.




Savannakhet Province is in the central region of Lao PDR (Figure 1) and is the country's largest and most populous province, with a population of ~1 million people . More than 75% of this population lives in rural areas, typically in small villages with livelihoods based on subsistence agriculture . Most of Savannakhet Province falls within the Xe Bang Hieng river basin . The headwaters of the Xe Bang Hieng River are in the mountains to the east and northeast of the province (near the borders with Vietnam and Salavan Province) and the river flows into the Mekong, ~70 km southeast of Savannakhet city, on the province's western border with Thailand. The Xe Champone river, that originates in the north of the province, is a major tributary to the Xe Bang Hieng River and experienced major flooding in 2019 in its lowland communities in Champone District. To the west of the province, the lowlands of the Xe Bang Hieng river basin are particularly important for agriculture as a result of their climate, fertility, and irrigation infrastructure linked to nearby water sources. Farms in this area supply ~25% of the rice consumed in Lao PDR and are therefore critical to the country's food security.

Approximately 75% of Savannakhet Province is forested, including the high-altitude areas where the headwaters of the Xe Bang Hieng River are located . Communities living in these areas depend on the forests for a range of ecosystem services including the provision of fodder and erosion prevention as well as for non-timber forest products (NTFPs) . However, low agricultural productivity and food insecurity as well as limited opportunities for alternative livelihoods have driven small-scale farmers in these areas to practise unsustainable farming techniques, including swidden agriculture . As a result, areas in the headwaters of the Xe Bang Hieng watershed have become deforested and degraded, reducing the capacity of the forest ecosystems to: i) facilitate infiltration and retain water; ii) support livestock grazing areas ; iii) supply NTFPs for food, resale/livelihoods, and household purposes; and iv) supply other ecosystem goods and services such as recreational and cultural benefits. In this way, deforestation and land degradation reduce water security and agricultural productivity, threatening the livelihoods of local communities and increasing the vulnerability of these communities to the impacts of climate change.

In Savannkhet Province, and elsewhere in Lao PDR, a large number of concessions have been granted for commercial agriculture and forestry . While these concessions play an important role in the provincial economy and provide jobs to local community members, they also lead to forest clearing and negatively affect the access of communities to forest and land resources. Land-use change, therefore, 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 .

Luang Prabang is a fast-growing city adjacent to the Mekong River, with a population of ~67,000 people . Situated at the confluence of the Mekong and Nam Khan Rivers, the city is surrounded by mountains associated with steep river valleys and limited floodplain areas. Its location leaves the city exposed to extreme climate events such as floods and landslides, which are of increasing concern given the increasing number of such incidents over the past decade.

Communities in the Xe Bang Hieng river basin, as well as other parts of the Mekong valley of Lao PDR such Luang Prabang, are vulnerable to climate hazards — particularly floods and droughts. In 2019, for example, severe flooding caused by two tropical cyclones affected several provinces in southern Lao PDR, including Savannakhet. Damage to infrastructure and reductions in agricultural productivity from these storms was estimated at US$164 million (0.3% of GDP) . Approximately ~85,000 people in Savannakhet Province were affected (8.5% of the province’s population), including ~24,000 people who were displaced by the floods . The most significantly affected area was in the lowlands of the Xe Bang Hieng river basin, which is also one of the major rice-growing areas in the province (Figure 2). These floods resulted in damage to crops and livestock, leading to food insecurity in this part of the province. Similarly, recent droughts in Lao PDR have resulted in reduced agricultural productivity. In 2019, droughts impacted water resources for both rainfed and irrigated areas, decreasing the area planted with rice by ~40% across the country compared with previous years .

Climate change projections show that the vulnerability to floods and droughts is likely to increase in the Xe Bang Hieng river basin and the city of Luang Prabang. Although annual rainfall in Lao PDR is likely to increase overall , changes in rainfall seasonality are projected to result in a longer dry season, increasing water stress in cultivated areas . Figure 4 indicates that the northeastern area of Savannakhet Province — the headwaters of the Xe Bang Hieng river basin — are particularly susceptible to dry season drought. By contrast, average rainfall during the wet season (May–September) is projected to increase. The intensity of extreme rainfall events is also projected to increase, amplifying the risk

of flooding, which will contribute to further damage to urban infrastructure and farmlands, soil erosion and runoff . More intense and frequent floods and droughts are expected to have worse impacts than those historically experienced. As a result, a reduction in agricultural productivity is expected through: i) damage crops and grazing lands; ii) death or injury to livestock; iii) the proliferation of pests and diseases; iv) reduced water security; and v) exacerbated land degradation through soil erosion. In addition, more unpredictable rainfall patterns will increase the risk of crop failure for farmers. Damage to urban infrastructure and dwellings in Luang Prabang are also likely to be negatively impacted by the increase in flooding.

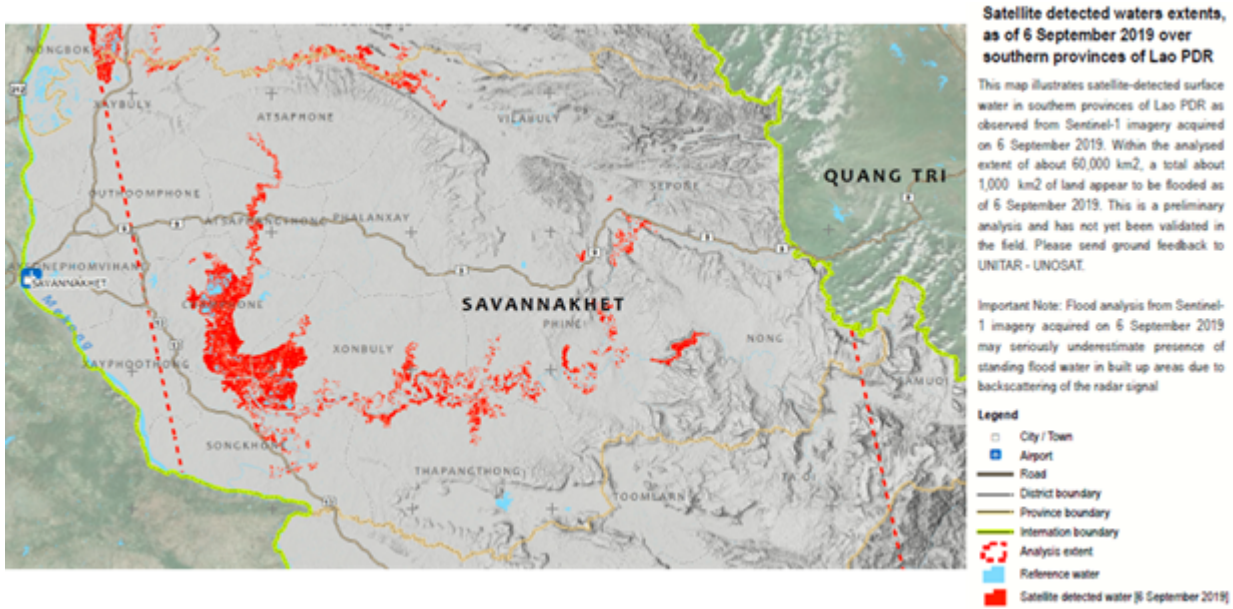



Figure 2. The extent of flooding in Savannakhet Province in August/September 2019. From United Nations Institute for Training and Research.

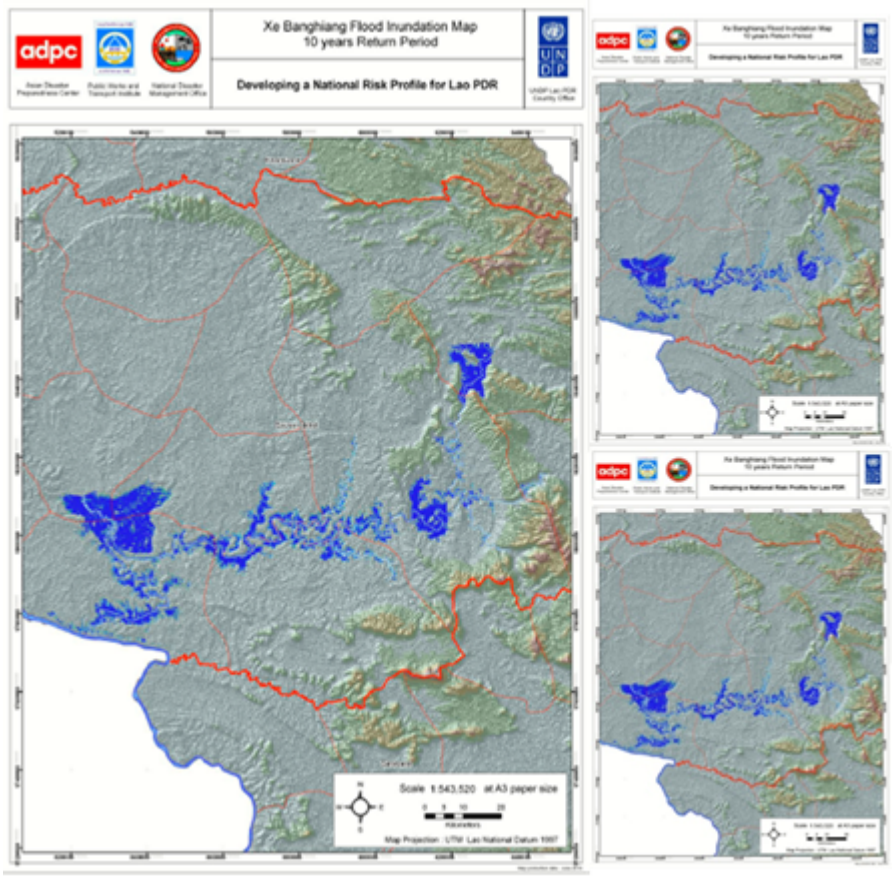



Figure 3. Map of projected flood inundation for 10 year return period in the Xe Bang Hieng watershed.

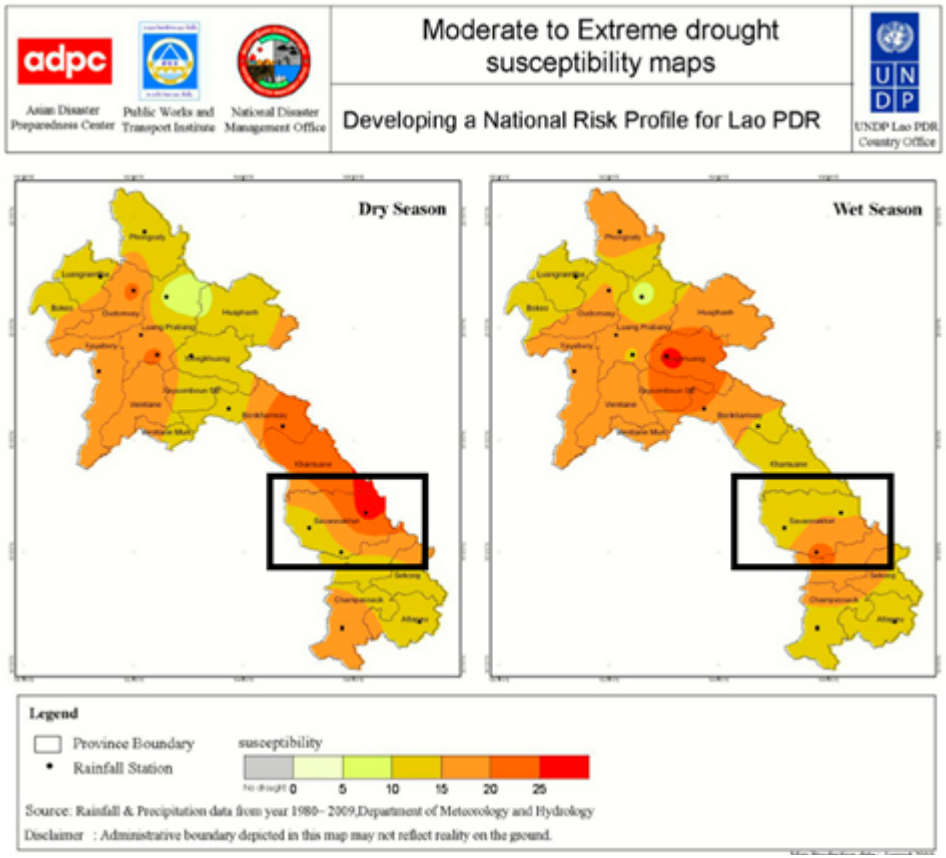



Figure 4. Map of areas susceptible to moderate to extreme drought in the wet and dry seasons. The black boxes show Savannakhet Province. From National Risk Profile of Lao PDR, 2010.

The problem that the proposed LDCF project seeks to address is the vulnerability of communities in Lao PDR to increases in the frequency and intensity of droughts and floods projected under future climate conditions. These changes are threatening assets and infrastructure of urban communities in Luang Prabang as well as putting livelihoods and water resources at risk in the lowland and headwater communities of the Xe Bang Hieng river basin. In addition, floods and droughts reduce the capacity of ecosystems to provide goods and services — which buffer the impacts of climate change on these communities. Urban and lowland communities are particularly vulnerable to floods which are exacerbated by the degradation and loss of riverine and forest ecosystems. Headwater communities are vulnerable to more intense droughts, which will be compounded by the impacts of climate

change in reducing the provision of ecosystem goods and services from the surrounding forests. While initiatives to protect forests and watersheds in parts of Savannakhet Province are ongoing (see Sections 1.a.2. and 6), there is a need to incorporate climate change considerations and accurate hydrological information into the planning and management of the river basin as a whole. In addition, there is a need to upscale urban flood management interventions being implemented in other Laotian cities to Luang Prabang to reduce the vulnerability of these urban communities to the impacts of climate change-induced flooding.

The proposed solution is to strengthen integrated catchment management (ICM) and integrated urban flood management within the Xe Bang Hieng river basin and the city of Luang Prabang, respectively, for increased climate resilience of rural and urban communities. This approach will ensure that water resources and flood risks are managed holistically, considering the spatial interlinkages and dependencies between land use, ecosystem health and underlying causes of vulnerability to climate change. The protection and restoration of important ecosystems will be undertaken to improve the provision of ecosystem goods and services and reduce the risk of droughts, floods and their impacts on local communities, thereby increasing their resilience to the impacts of climate change.

Improved hydrological and climate risk modelling and information systems will inform flood management as well as adaptation planning in the Xe Bang Hieng river basin and Luang Prabang. This information will be made accessible to national and provincial decision-makers as well as local stakeholders who will be capacitated to use this information. 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 ecosystem-based adaptation (EbA). 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-smart agricultural practices.

There are several barriers to this solution, which the proposed LDCF project will address. These are described below:
1. Limited availability of comprehensive ecosystem evaluations and hydrological data to inform ICM and urban flood managment decisions. Although other initiatives are improving the capacity for generating climatological information from hydro-met monitoring and trends, this information is not always adequate to support the development and implementation of activities to adapt to climate change. Similarly, the dearth of ecosystem evaluations compounds the systematic underappreciation and lack of consideration for these ecosystems in land-use and risk planning. Comprehensive ecosystem evaluations, as well as hydrological assessments based on quality spatial data and model calibration, are needed in order to support the planning of water resource, river basin and flood management solutions. Additionally, 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 have begun to address this barrier, their scope is limited at present and does not include the target areas of this project.

2. Limited institutional and technical capacity for implementing sustainable forest management and EbA within national and provincial governments. Although MAF has a long-term strategy on forestry (see Section 7 for details), there are notable capacity limitations for the enforcement of this policy, which are compounded by coordination issues between relevant sectors and ministries. Decision-makers, planners and contractors require technical capacity and knowledge to understand and effectively implement EbA for flood management. However, the GoL’s exposure to the adaptation benefits of EbA (particularly urban EbA) has historically been limited. Although the recently approved GCF

SAP project 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 (see Figure 2 and 3). In addition to having limited knowledge about the implementation of EbA, government decision-makers do not have sufficient access to resources and technical expertise to value ecosystem services.

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 (rather than proactive); ii) geographically or sectorally limited; iii) poorly coordinated between relevant ministries; iv) constrained by technical and capacity limitations; v) occasionally not implemented due to lack of financing, uncoordinated investments, and competing development pressures; and vi) has had limited consideration for climate change for future land use needs. This has led to significant loss and damage, maladaptation and negative externalities, particularly where competing interests or needs are not considered in risk planning.

4. Lack of incentives for communities to change farming and land management practices. Currently, communities' understanding and appreciation of the effects of climate change on the ecosystems they depend upon is limited, although they have experienced these impacts in their daily lives. Headwater communities prioritise the short-term false economies of selling land to concessions or engaging in forest degrading activities, underestimating or overly discounting the long-term impact of the loss of these ecosystems on their agricultural production and access to forest ecosystem goods and services. The loss of these goods and services, as well as the associated impacts on water resources and their primary agricultural livelihoods, compound the vulnerability of these communities to climate change and reduce their capacity to adapt. Furthermore, in lowland communities, certain conventionally-practiced agricultural techniques (such as swidden agriculture) can compound the impacts of flooding by promoting soil erosion and reducing infiltration. Greater quantification and appreciation of the ecosystem services, as well as the means and incentives to change farming and land management practices, is crucial to effect transformative change to protect these ecosystems, build climate resilience, and reverse the degradation that increases the vulnerability of these communities to floods and droughts.

1.a.2. Baseline scenario and associated baseline projects

Currently, the expansion of swidden agriculture into natural ecosystems  is causing the degradation of forests in the Xe Bang Hieng river basin. 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.

Under a 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 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.

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 . 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.

Externally funded baseline projects

The proposed project will build on baseline initiatives that address underlying causes of vulnerability to climate change in Lao PDR such as deforestation and sectoral water resource management. These baseline projects are listed in Table 1, representing potential baseline co-financing projects for the proposed LDCF project.

Table 1. Externally funded baseline projects.

| **Project title** | **Project site** | **Fund and EE** | **Date** |
|---|---|---|---|
| Mekong Integrated Water Resources Management Project | Lao PDR<br>(including the Xe Bang Hieng river basin) | World Bank | 2012–2021 |

| | | | |
|---|---|---|---|
| Sustainable forest and land management in the dry dipterocarp forest ecosystems of southern Lao PDR | Phin District, Thapangthong District, Songkhone District, Xonnabouly District, Phalansay District in Savannakhet Province | GEF<br>UNDP | 2016-2022 |
| Protection and sustainable use of forest ecosystems and biodiversity (ProFEB) | Southern Lao (including Khamoune) | GIZ | 2019-2021 |
| The Project for Participatory Agriculture Development in Savannakhet Province | Savannakhet Province | JICA | 2017 - 2022 |
| Building Capacities for Resilient Recovery | Bolikhamxay Province and Saravan Province | Luxembourg, UNDP | 2018–2021 |

The proposed project will specifically build on the two following baseline projects in the Xe Bang Hieng river basin and bring in additionality towards climate change risks:

• The ongoing GEF Trust Fund (TF) project Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR (2016–2022) (also referred to as the SAFE Ecosystems Project) is being implemented in an area covering much of the Xe Bang Hieng river basin. It 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 LDCF project will build on and complement the ongoing TF project by developing national and provincial capacity for integrated catchment management of the Xe Bang Hieng river basin, with a focus on reducing the vulnerability of communities to climate change. On-the-ground EbA interventions such as reforestation and alternative livelihoods development under the LDCF project will further expand the work being implemented under the TF project by targeting headwaters communities as well as lowland communities, with an integrated adaptation approach.

• The World Bank project Mekong Integrated Water Resources Management Project (2012–2021) focuses on the development of comprehensive water resources modelling packages and river basin management plans for the 10 priority river basins (including the Xe Bang Hiang river basin). Component 3.1.1 of the World Bank project is particularly relevant for Component 1 of the proposed project as it is preparing a flood management plan for the lower region of the Xe Bang Hieng river basin and supporting the development of a river basin organisation in the area. The proposed project will build upon this flood management plan and cooperate with the Xe Bang Hieng River Basin Coordinating Committee established under the World Bank project, with a focus on both projects' activities on river basin planning, water resources modelling and hydromet monitoring. Planning meetings between the ongoing World Bank and proposed LDCF project management teams in Savannakhet could also be envisaged.

1.a.3. Proposed alternative scenario

The alternative scenario will address the main barriers to climate resilience and the root causes of climate vulnerability, including degradation and land-use change, in Lao PDR. This will be done with investments and technical assistance to strengthen the climate resilience of communities and ecosystems through institutional reform, on-the-ground interventions and targeted knowledge management.

To deliver the alternative scenario, the project objective is to "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". This objective will be achieved through three inter-related components which will: i) develop national and provincial capacities for Integrated Catchment Management (ICM) and integrated urban Ecosystem-based Adaptation (EbA) for climate risk reduction ; ii) implement EbA interventions within this ICM framework, with supporting protective infrastructure and livelihood enhancement; and iii) promote 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.

Implementing the proposed interventions will contribute to several of Lao PDR's development and environmental priorities in water resources, forests, biodiversity, agriculture, and climate resilience. These include: i) the Eighth Five-Year National Socio Economic Development Plan (NSEDP) 2016-2020, which contains a number of indicators on forests and biodiversity that the project will contribute toward; ii) MONRE's Vision towards 2030, which provides direction for the management of natural resources and the environment, climate change adaptation and ensuring sustainable socio-economic development; iii) the Forestry Strategy 2020, which includes a number of targets including the improvement of national forest areas, providing sustainable access to forest products for domestic consumption and income generation, protecting threatened species and unique habitats, and conserving soil and watersheds; and iv) Lao PDR's Nationally Determined Contribution (NDC), which highlights the climate-associated risks of flooding, as well as identifying adaptation priorities in agriculture, forestry and land-use change, and water resources. Further detail on how this project aligns with national priorities is included in Section 7.

Component 1: Developing national and provincial capacities for Integrated Catchment Management and integrated urban Ecosystem-based Adaptation for climate risk reduction
Enhancing the climate resilience of communities and ecosystems in Lao PDR requires a comprehensive, integrated approach to water resource and land and water resource management that includes good planning and the use of innovative tools including EbA and hydrological modelling. 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. In this way, climate resilience will be strengthened through similar, but contextually relevant approaches in both urban and rural settings. These elements will complement the national capacity for urban flood management strengthened under the ongoing GCF SAP project "Building resilience of urban populations with ecosystem-based solutions in Lao PDR" that is being implemented at a city-scale in Vientiane, Paksan, Savannakhet and Pakse and complement capacity-building for climate change adaptation at the watershed level done under the GEF LDCF project "Climate Adaptation in Wetland Areas in Lao PDR ".

The interventions in Component 1 will be implemented at multiple levels and through different entry points to overcome the barriers to integrated climate resilient planning in rural and urban settings. Outcomes under Component 1 will be achieved through 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 early-warning systems in the Xe Bang Hieng river basin. These outputs will further be complemented by awareness raising conducted under Component 3.

The outcomes under Component 1 will contribute to the project objective and advance the alternative scenario by addressing several of the barriers described in Section 1.a.1. In addition to building national and provincial capacity, local interventions in Savannakhet Province will target both the lowland and headwater communities — who are most exposed to floods and droughts, respectively — of the Xe Bang Hieng river basin. The component will build the capacity of institutions and communities in Luang Prabang to adapt to flooding, which is projected to worsen under future climate change scenarios. As described in the GCF SAP project, urban development in Lao PDR is taking place without sufficient consideration of the increasing risks of climate change-induced floods. The interventions in the proposed project will address institutional capacity gaps in order to advance the evidence base and develop Integrated Climate-resilient Flood Management Strategies (ICFMS) and urban EbA guidelines for the city.

In order to better plan for climate resilience and risk management, training will be provided to increase the capacity of relevant national and provincial government officials, decision-makers and planners. This training will improve technical skills in producing downscaled climate risk information for the target rural and urban sites, and applying the geographic information system (GIS)-based integrated hydrological models developed under the complementary ongoing World Bank-funded “Mekong Integrated Water Resources Management Project” (2012–2021) (see Section 1.a.2 for details on how the projects align). This training programme will also enable the development of a database on water inventory, as well as supporting water user rights planning and implementation.

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. For this reason, the capacity development will be further supported through improved and/or updated mapping of at-risk zones within the Xe Bang Hieng river basin, as well as ecosystem valuations (determining the economic value of the ecosystem services provided by urban riparian areas, wetlands and streams) and hydrological assessments in Luang Prabang. Feasibility studies and option assessments of protective infrastructure and EbA alternatives will also inform improved planning. This evidence base will help decision-makers and planners to identify activities that maximise efficiency, respond to well-understood climate threats, and to develop interventions and risk-responses that are appropriate and timely. Additionally, improving knowledge of the benefits and successful examples of urban EbA in the public sector strengthens uptake and viability of incorporating urban EbA in planning frameworks, as well as supporting the sustainability of future investments themselves.

These advances will further support the alignment of policy frameworks and plans for water, land and risk management to support long-term climate resilience, the process for which will be conducted through consultative diaglogue with local government and communities. The evidence base from Output 1.1.1 will inform fine-scale climate-resilient development and land-use plans that are crucial to building the resilience of communities and ecosystems in the Xe Bang Hieng and Xe Champone rivers’ headwaters and

lowlands, by designating and protecting areas to prevent further degradation and loss of services, which would otherwise compound the impacts of climate change. These plans will work with an updated hydrological monitoring network and revised early-warning systems in the catchment, which will further strengthen the capacity of communities and officials to plans for, and respond to, flood and drought events. In Luang Prabang, the project will use the evidence base and risk mapping to develop city-level Integrated Climate-resilient Flood Management Strategies (ICFMS) and mainstream urban EbA into relevant policies and plans, which will be informed by the hydrological and ecosystem assessments from Output 1.1.

This component will support subsequent components by creating an enabling environment for: i) undertaking investments to further build the climate resilience of 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.

Outcomes and outputs within this component are listed below.

Outcome 1.1: Enhanced capacity for climate risk modelling and integrated planning in the Xe Bang Hieng river basin and Luang Prabang urban area

- Output 1.1.1: Central and Provincial training program implemented to enable climate risk-informed water management practices in target urban and rural areas
- Output 1.1.2: Current and future zones of the Xe Bang Hieng River catchment at risk of climate change-induced flooding and drought mapped, based on hydrological models produced and protective infrastructure optioneering conducted
- Output 1.1.3. Economic valuation of urban ecosystem services in Luang Prabang and protective options conducted.

Outcome 1.2: Alignment of policy frameworks and plans for land and risk management to support long-term climate resilience

- Output 1.2.1: Fine-scale climate-resilient development and land-use plans drafted and validated for Luang Prabang and in the headwater and lowland areas of the Xe Bang Hieng and Xe Champone rivers.
- Output 1.2.2: Current Xe Bang Hieng river basin hydrological monitoring network — including village weather stations — assessed and updated to improve efficiency.
- Output 1.2.3: Early-warning systems and emergency procedures of vulnerable Xe Bang Hieng catchment communities (identified under Output 1.1.2) reviewed and revised

Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure, and livelihood enhancement

This second component will build upon the enabling environment and ICM framework provided by Component 1, through the implementation of EbA interventions in Savannakhet Province, which will be supported and reinforced by protective infrastructure and climate-resilient livelihood enhancement. This component will strategically target

various interventions across the Xe Bang Hieng river basin, using a combination of approaches/activities to address the different dynamics of vulnerability to climate change. The EbA interventions in the headwater conservation zones will help manage water resources by restoring degraded forest ecosystems, while the protective infrastructure and livelihood outputs will help to reduce climate vulnerability and prevent further loss and degradation. This reduced vulnerability and avoided loss will be achieved through measures and investments to directly offset the impacts of extreme climate events on communities and ecosystems. These interventions will be supported by providing alternative activities and incentives to shift communities away from unsustainable practices and behaviours. This will help address the barrier of a lack of incentives for communities to change farming and land management practices (Barrier 4), in order to help protect and restore ecosystems.

The first outcome of Component 2 will include the restoration of degraded ecosystems in the headwater conservation zones of the Xe Bang Hieng River and Xe Champone tributary, complemented by improved headwater conservation zone management. Under the amended Law on Water and Water Resources, as ‘’areas at waterheads” and “areas at risk of flood and drought”, these headwater areas can be designated as “water resources reserved areas”, which have additional protections and regulation to protect Lao PDR’s water resources . The restoration activities will include reforestation through replanting ecologically appropriate species to restore ecosystem function, as well as other methods such as assisted natural regeneration and forest boundary management. These EbA interventions will help restore and protect critical ecosystem services and ecological functions for communities in the headwaters, including: i) livestock grazing areas ; ii) soil nutrient retention and reduced erosion; iii) infiltration; and iv) non-timber forest products (NTFPs) for food, resale/livelihoods, and household purposes, including mushrooms and wild vegetables, frogs, snails and insect products, bamboo and rattan, kisi damar resin and herbal medicines . The improved supply of ecosystem services resulting from restoration activities will help build the resilience of communities in the Xe Bang Hieng river basin to extreme weather events, particularly droughts and floods. The sustainability of this restoration will be enhanced through the improved conservation zone management and Outcome 2.2’s livelihood outputs (described below), which will improve the incentives of communities to maintain and expand the restored areas of the river basin.

Further protection from extreme climate events will be provided through 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 through the land-use planning and protective infrastructure optioneering conducted under Component 1. The ‘grey’ protective infrastructure will mimic the lost ecosystem services for flood management where forest ecosystems are irreparably degraded, non-existent or where EbA is inappropriate given landcover, human settlement or agricultural needs. Additionally, infrastructure to reduce drought risk will build 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. These interventions will be supported by tools and technologies for advancing communication and knowledge management at the community level to improve their response to — and handling of — these hazards. Furthermore, the project will enhance the livelihoods threatened by these climate hazards, through targeted interventions to shift behaviours and practices to improve climate resilience.

Activities and incentives to improve resilience will include promoting a shift towards current livelihoods in agriculture, fisheries, and forestry, and promoting context appropriate alternative products, methods and practices including: i) climate-smart agriculture (e.g. agroforestry, intercropping, minimum-tillage, integrated soil fertility management, water harvesting and management); ii) silvopasture; iii) cultivation and sale of NTFPs; iv) aquaculture; and v) other similar livelihood practices. The selection and application of these

livelihoods and practices will be informed by a robust, climate-sensitive market analysis which will review extant barriers and opportunities to make recommendations on climate-resilient strategies, and contribute to promoting catchment integrity and reducing deforestation/forest degradation. Lessons from the past GEF-LDCF project "Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts" will also be used to inform livelihood enhancement activities. The livelihood enhancement will be underscored by — and implemented through — Community Conservation Agreements (CCA). These agreements are based on the concept of conservation or stewardship agreements, where communities are incentivised to engage with climate change adaptation activities in return for benefits derived from project outputs. Similar agreements are already practiced in the Xe Bang Hieng river basin and elsewhere in Lao PDR, to conserve and restore ecosystems and promote biodiversity conservation. These agreements have also helped to overcome issues relating to insecure land tenure and promote community involvement in sustainable natural resource management. The ongoing GEF project in the Savannakhet Province is establishing CCAs with 16 villages to relieve pressures on forest resources from local communities in the region. Agricultural support, alternative livelihoods and direct payments to village trusts are provided to local villages on the basis of the implementation of forest conservation strategies. These are mutually agreed between DONRE and the communities and stipulated in signed CCAs between the parties.

The application of the protective infrastructure and livelihood enhancements will be responsive to the respective threats, geographical context (i.e. topography) and demographics of the different river basin zones. In the headwaters, the EbA interventions will be supported by investments in drought management protective infrastructure (particularly reservoir networks, rainwater harvesting, and associated irrigation), communication tools and technologies to further strengthen early-warning networks, and livelihood enhancement through climate resilient practices. Additionally, these upstream interventions provide environmental co-benefits to downstream (lowland) communities by decreasing the risk of flash floods, which will further be addressed through the construction of flood protective infrastructure (cascading weirs and drainage channels). The lowland communities will also receive communication tools and technologies as well as livelihood enhancement (as in the headwaters), that are appropriate to their risk and vulnerability context.

Outcomes and outputs within this component are described below.

Outcome 2.1: Ecosystems restored and protected to improve climate resilience in headwater areas through conservation zone management

- Output 2.1.1: Xe Bang Hieng headwater conservation zones restored to ensure ecological integrity is improved for delivery of ecosystem services
- Output 2.1.2: Headwater conservation zone management supported to improve resilience to climate change

Outcome 2.2: EbA interventions supported/complemented with innovative tools, technologies and protective infrastructure

- Output 2.2.1: Protective infrastructure constructed to reduce flood (cascading weirs and drainage channels) and drought (reservoir networks and rainwater harvesting) risk

- Output 2.2.2: Implementation and distribution of communication and knowledge management tools and technologies (e.g. mobile phone apps, community radio) to increase climate resilience of agricultural communities to floods and droughts

Outcome 2.3: Climate-resilient and alternative livelihoods in headwater and lowland communities, supported through Community Conservation Agreements

- Output 2.3.1: Market analysis conducted, including; i) analysing supply chains for climate-resilient crops, livestock, and farming inputs; ii) assessing economic impacts and market barriers; and iii) drafting mitigating strategies to address these barriers.
- Output 2.3.2: Community Conservation Agreements process undertaken to encourage climate-resilient agriculture, fisheries, and forestry/forest-driven livelihoods and practices
- Output 2.3.3: Diversified activities and opportunities introduced through Community Conservation Agreements (developed under Output 2.3.2) in agriculture (livestock and crops, including vegetable farming) as well as fisheries, non-timber forest products (NTFP), and other off-farm livelihoods.

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

The third component will contribute to capturing the lessons learned from the project implementation and outcomes, to promote the sustainability and scalability of the project. This will include conducting knowledge management and awareness raising in the main areas identified for intervention to build these communities appreciation and understanding of climate change risks, impacts and adaptation options. Project lessons will also be shared within Lao PDR and via South-South exchanges to support upscaling and replication. To further promote local ownership and contribute to shifting attitudes towards restoration and conservation, a community-based water resources and ecological monitoring system will also be developed, to contribute to understanding the baseline condition and project outcomes for these valuable ecosystems. The ecological monitoring system will 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 policy-makers to make informed decisions about planning, land-use management and services. This will improve the responsivity of communities to climate changes, as well as their reducing their exposure to extreme climate events while providing for sustainable offtake of timber, wood fuel, and NTFPs that can promote development and enhance livelihoods.

Outcomes and outputs within this component are described below.

Outcome 3.1: Increased awareness of climate change impacts and adaptation opportunities in target rural and urban communities
- Output 3.1.1: Training and awareness raising provided to Xe Bang Hieng and Xe Champone headwater and lowland communities on: i) climate change impacts on agricultural production and socio-economic conditions; and ii) community-based adaptation opportunities and strategies (e.g. water resources management, agroforestry, conservation agriculture, alternatives to swiddening ) and their benefits

• Output 3.1.2: Project lessons shared within Lao PDR and via South-South exchanges on strengthening climate resilience with regards to: i) catchment management; ii) flash flood management; and iii) EbA.
• Output 3.1.2: Awareness-raising campaign conducted in Luang Prabang for communities and the private sector on urban EbA and flood management.

Outcome 3.2: Community-based water resource and ecological monitoring systems in place

• Output 3.2.1: Community-based monitoring systems developed and implemented to measure changes in key ecological determinants of ecosystem health and resilience in the Xe Bang Hieng river basin

1.a.4. Alignment with GEF focal area and/or Impact Program strategies

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 technologies for enhancing climate-resilience of at-risk communities in Lao PDR and subsequently beyond in other river basins and cities. These approaches provide innovative strategies for considering and incorporating various stakeholders, interests and priorities for increased drought and flood resilience. Based on the ICM framework, a range of adaptation and climate-risk reduction measures will be deployed in a coordinated manner at the river basin level in Savannakhet Province. These measures will include EbA interventions (Outcome 2.1), complemented by flood protection measures and communication systems (Outcome 2.2). Community Conservation Agreements (CCAs, Outcome 2.3) will support communities to deploy new and enhanced livelihood strategies to increase their climate resilience. The use of innovative and accessible communication technologies — for example, mobile phone applications — will maximise the benefit of the CCAs and on-the-ground interventions by promoting local awareness of climate risks and adaptation opportunities.

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

Under Outcome 1.1 of the proposed project, the capacity of national and provincial governments for climate risk modelling will be improved, in cooperation with the ongoing World Bank project Mekong Integrated Water Resources Management Project focusing on the development of comprehensive water resources modelling packages and river basin management plans. This will be done through targeted training for technical staff and coordination with 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 information generated as a result of this intervention will be used under Outcome 1.2. to inform fine-scale development and land-use planning in the Xe Bang Hieng river basin and to inform 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, improving the climate resilience of target communities. The continued updating and improvement of the hydrological observation system will also be supported under Outcome 1.2, facilitating continued

improvements in the availability of hydrological information to support climate-resilient planning. Through a community-based monitoring system (Outcome 3.2), 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 to facilitate the upscaling of effective adaptation measures. Lessons learned through this process will also inform adaptation planning across Lao PDR.

CCA 3.2: Institutional and human capacities strengthened to identify and implement adaptation measures

The proposed LDCF project will develop technical and institutional capacity for effective climate change adaptation at national-, river basin- and community-level. Based on improved climate risk modelling resulting from technical capacity development (Outcome 1.1), context-specific adaptation opportunities for the Xe Bang Hieng river basin and Luang Prabang city will be identified and integrated into development plans or ICFMS (Outcome 1.2). Community-level training to develop the capacity for identifying and implementing adaptation opportunities and urban EbA measures will be undertaken under Outcome 3.1 of the proposed LDCF project. 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 2.3). Findings from this assessment will inform the development of Community Conservation Agreements and interventions to support the adoption of climate-resilient livelihood strategies and farming methods in the Xe Bang Hieng river basin, so facilitating long-term climate change adaptation in these vulnerable communities.

1.a.5. Incremental/additional cost reasoning and expected contributions from the baseline the GEFT, LDCF, SCCF, and 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

There has been limited application of an integrated and climate-resilient approach to river basin and land-use management as well as integrated urban EbA in Lao PDR. As a result, national priorities for climate change adaptation have not been well integrated into plans for all relevant sectors. Existing plans are also constrained in their ability to address climate change risks and land degradation, because of the limited availability of high-resolution information about these risks and vulnerability. In addition, coordination between the ministries governing water resources, forests, agriculture and land-use planning has been limited.

Through funding from LDCF/co-finance (US$7,500,000), the proposed project will build capacity for ICM and EbA in Lao PDR by: i) enhancing technical capacity for climate risk modelling and integrated planning in the Xe Bang Hieng river basin and Luang Prabang city; and ii) aligning policy frameworks and plans for land and risk management to support long-term climate resilience. This approach will ensure that national and provincial efforts to facilitate rural and urban development can address river basins degradation in an integrated manner and can use EbA to build the resilience of vulnerable communities to the impacts of climate change .

Component 2: Ecosystem-based Adaptation (EbA) interventions, with supporting protective infrastructure, and livelihood enhancement

EbA measures and protective infrastructure for floods and droughts are limited in rural Savannakhet Province, which contributed to high levels of loss and damage during the 2019 floods in the province (see Figure 2). Combined with continuing land degradation, the impacts of more frequent and intense floods and droughts on rural communities are likely to increase in a business as usual scenario.

Using LDCF/co-finance (US$14,400,000), the proposed project will increase the resilience of rural communities in the Xe Bang Hieng river basin to climate change hazards by implementing EbA measures as well as complementary protective measures — such as cascading weirs, drainage channels, reservoir networks and rainwater harvesting — to reduce flood and drought risks. Additionally, 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.

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

Adaptation and restoration initiatives have been — and are currently being — implemented, including in Laotian cities and in the Savannakhet Province (see Sections 1.a.2 and 6 for further information on these complementary projects). Upscaling of these initiatives across districts has been limited, however, and lessons learned from these projects have not been systematically collated and disseminated to support their replication.

The proposed project will use LDCF/co-finance (US$1,675,670) to increase the awareness of climate change impacts and adaptation opportunities in target rural and urban communities and develop a system to monitor the impact of project interventions and share lessons learned on ICM and EbA across Lao PDR. 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 the interventions through training for community awareness of climate change risks and adaptation opportunities as well as the implementation of a community monitoring system which can be replicated in other river basins, provinces and cities in Lao PDR and the region.

1.a.6. Adaptation benefits (LDCF)

Climate change is expected to increase the frequency and intensity of floods and droughts in much of Lao PDR. As a result, the damage caused by these hazards to ecosystems and livelihoods is likely to increase, particularly in vulnerable communities in the Xe Bang Hieng river basin and Luang Prabang. In the absence of adaptation measures, water security and agricultural productivity are likely to decline further, threatening the income and food security of communities in the Xe Bang Hieng river basin. In Luang Prabang city, there is a need for adaptation measures to protect urban infrastructure and livelihoods as well as the city’s important cultural assets. The proposed LDCF project will increase the climate resilience of these communities by facilitating the adoption of ICM at the provincial and national level and urban EbA at the local level. This will ensure that fine-

scale, climate-responsive planning is undertaken and that context appropriate measures to reduce the vulnerability ¬— and increase the adaptive capacity — of urban and rural communities are implemented.

The planning and implementation of EbA measures will provide adaptation benefits to communities by: i) decreasing urban flood risks; ii) increasing the capacity of the forests to buffer communities against the impacts of floods and droughts; and ii) increasing the delivery of ecosystem goods and services — including clean water, soil stabilisation and NTFPs — on which the livelihoods of rural communities depend, therefore increasing their adaptive capacity. Complementary protective measures (e.g. cascading weirs, drainage channels, reservoir networks and rainwater harvesting) will be implemented under the project to reduce the impact of floods and droughts on communities and ecosystems in the Xe Bang Hieng river basin.

Additional adaptation benefits for communities will be provided through awareness-raising activities and the Community Conservation Agreements developed under the project. Specifically, these agreements will ensure community ownership of project interventions related to water resources management, rural livelihoods and farming practices, thereby enhancing their climate resilience. The provision of training and implementation of communication tools and technologies will also improve the capacity of communities and individuals to identify, plan and implement locally-appropriate adaptation measures. At the national and provincial level, capacity for implementing ICM and urban EbA as well as for developing high-resolution risk maps to inform adaption planning and risk reduction strategies will be developed.

The project is also expected to generate global environmental benefits through the restoration and protection of forest ecosystems. This will: i) enhance the biodiversity of these ecosystems; ii) reduce and reverse land degradation; and iii) enhance the provision of ecosystem goods and services – such as clean water, soil stabilisation and NTFPs — as a basis for long-term resilience.

1.a.7. Innovation, sustainability and potential for scaling up

Innovation: An integrated approach to river basin/catchment management is well recognised as an international best practice. ICM allows for balancing the occasionally competing priorities and interests of various sectors (including water, agriculture, land), in pursuing economic development, social equity, environmental sustainability, and climate resilience. Similarly, the integrated urban flood management approach with the GCF SAP project will support the coordination of efforts in addressing flood risk in Luang Prabang city. These approaches require an enabling environment, that is supported by an appropriate institutional framework, capacity-building and knowledge management instruments. The proposed project will deliver an innovative approach to coordinate resilience to floods and droughts at river basin-wide and city level, considering and incorporating the various stakeholders, interests and climate factors applicable. This will be conducted in a manner that promotes sustainability, and that is scalable within Lao PDR, as well as neighbouring countries, as described below.

Sustainability: To promote sustainability by ensuring country and beneficiary ownership, the project is well aligned with national, provincial and district development and adaptation priorities. This ownership and buy-in will further be promoted throughout project development and implementation, through ongoing participatory consultations and stakeholder engagement. The project also builds upon previous and ongoing projects in the area/sector, working with stakeholders and partners to address gaps, avoid redundancy and promote complementarity. Furthermore, project sustainability will be enhanced through the activities in Component 1, which will build institutional and technical capacity; facilitate development and land-use planning, as well as the creation of flood management strategies; update the knowledge base; and revise or update current hydrological networks and early-warning systems to improve resilience after project completion. The sustainability of investments into EbA and protective infrastructure in Component 2 will also be supported by 'soft' technical assistance in strengthening headwater conservation zone management; providing communication and knowledge management tools and technologies; and developing Community Conservation Agreements. 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.

Scalability: Whilst the project responds to context-specific baseline conditions and threats, the ICM and ICFMS approaches include easily scalable methodologies and activities that are transferable to other river basins and cities in Lao PDR, as well as in neighbouring countries. National capacity-building for hydrological modelling will also contribute to the scalability of evidence-based adaptation planning to other provinces in Lao PDR. Additionally, 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 scalability, by capturing, packaging and sharing the project's lessons to support the replication of ICM, ICFMS and contextually appropriate adaptation actions (including EbA) across Lao PDR and neighbouring countries.

**1b. Project Map and Coordinates**

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

Figure 4. Map of Savannakhet Province with target areas.

Figure 5. Map of the city of Luang Prabang as a target area.

**2. Stakeholders**

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

**Indigenous Peoples and Local Communities** Yes

**Civil Society Organizations** Yes

**Private Sector Entities** Yes

**If none of the above,please explain why:**

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

The "Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR" project — which had 9 out of 16 target project village sites affected during the September 2019 floods — collected testimonies from local communities, who expressed the atypical extent of this flooding as being much worse than any in recent memory. The project also consulted with the Wildlife Conservation Association (a local Laotian Non-Profit Association) regarding issues in Laving-Lavern National Protected Area. These consultations have helped inform the development of this PIF document and project concept.

The proposed project will use a participatory approach and conduct ongoing stakeholder consultations throughout the project design and implementation periods. These consultations will include community surveys, regular meetings, focus group discussions, and training and validation workshops. An indicative list of stakeholders — and the roles that they will play in project design — is provided in Table 2 below. The stakeholders and their respective contributions and roles in the project will be confirmed during the PPG phase. During the PPG and implementation phases, the project will also ensure that representatives of relevant ongoing initiatives and projects are regularly consulted to enhance effective and informed collaboration and complementarity. An indicative list of these complementary initiatives and projects is provided in Section 1.a.2.

Table 2. List of potential stakeholders and their possible contributions and roles in the proposed project.

| Stakeholder type | Stakeholder list | Possible contributions and roles in the project |
|---|---|---|

| | | |
|---|---|---|
| Government ministries (at central and provincial levels) | · Ministry of Natural Resources and Environment (MONRE)<br>· Ministry of Finance (MOF)<br>· Ministry of Agriculture and Forestry (MAF)<br>· Ministry of Planning and Investment (MPI)<br>· Ministry of Civil Works and Transportation<br>· Ministry of Information, Culture and Tourism (MICT)<br>· Ministry of Labour and Social Welfare | Beneficiaries of capacity-building; development of relevant plans; delivery of technical components of programmes according to sectoral expertise; coordination with local authorities; mobilisation of human and financial resources |
| National organisations | · Deptartment of Water Resources (DWR) in MONRE<br>· Department of Meteorology and Hydrology (DMH) in MONRE<br>· Department of Environmental Quality Promotion (DEQP) in MONRE<br>· Department of Climate Change (DCC) in MONRE<br>· Department of Environmental and Social Impact Assessment in MONRE<br>· Department of Forestry (DOF) in MAF<br>· Department of Planning and Cooperation in MAF<br>· Department of Agriculture Land Management (DALaM) in DAF<br>· Department of Planning (DOP) in MPI<br>· Department of International Coordination (DIC) in MPI<br>· Department of Agricultural Extension and Cooperatives (DAEC), (MAF)<br>· Department of Social Welfare, (MLSW)<br>· National Women's Union (NWU)<br>· Mekong River Commission (MRC) | Provision of technical advice; provision of specialist services |

| | | |
|---|---|---|
| Regional and local administrations | · Savnnakhet Department of Planning and Investment<br>· Provincial Office of Natural Resources and Environment (PONRE)<br>· District Offices of Natural Resources and Environment (DONREs)<br>· Provincial Agriculture and Forest Office (PAFO)<br>· District Agriculture and Forest Offices (DAFOs)<br>· Provincial Labour and Social Welfare Department<br>· Provincial Department of Planning and Investment | Beneficiaries of capacity-building; local coordination of activities; issuance of any relevant authorisations and permits |
| Community-level stakeholders | · Village Development Committees<br>· Village leaders<br>· Natural resource user groups<br>· Women's groups<br>· Other vulnerable or marginalised groups<br>· CBOs | Community mobilisation; selection of appropriate interventions; delivery of programme components; beneficiaries of capacity-building and on-the-ground interventions |
| NGOs/CSOs | · Wildlife Conservation Society (WCS)<br>· International Union for the Conservation of Nature (IUCN)<br>· Lao Wildlife Conservation Association (LWCA)<br>· World Wide Fund for Nature (WWF) | Provision of technical advice; delivery of training and assets; social mobilisation; monitoring of ecological conditions |
| Research institutions | · National University of Lao PDR (NUoL)<br>· National Agriculture and Forestry Research Institute (NAFRI)<br>· National Economic Research Institute in the Prime Minister's Office (NERI)<br>· Center for Statistics and Information in MAF<br>· Lao Statistics Bureau (MPI) | Provision of scientific support; the undertaking of research activities |

| | | |
|---|---|---|
| Private sector | · Chifeng Jilong mine<br>· Land concession owners related to agricluture and tree plantations | Provision of goods and services; consultation for market information |

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

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

Lao PDR had an overall Global Gender Gap Index (GGGI) rank of 43rd of 153 countries in 2020 (down from 26th in 2018), although this relatively high rank hides variability within the index. The country scored 2nd on the sub-index of Economic Participation and Opportunity, but 98th for both the Health and Survival, and Political Empowerment sub-indexes and 110th for the Education Attainment sub-index. In the 2018 Gender Development Index (GDI) — which measures the ratio of female to male HDI values — Lao PDR had a score of 0.929 which placed them in the group of countries with “medium equality in HDI achievements between women and men (absolute deviation of 5–7.5% from gender parity in HDI values)” . The Global Inequality Index (GII) — a composite measure reflecting inequality in achievement between women and men in the dimensions of reproductive health, empowerment and the labour market — ranked the country 110th of 162 evaluated . Lao PDR received a ‘low’ catergorisation and a score of 26% in the Social Institutions and Gender Index in 2019 .

Despite some advances made in recent years and generally non-discriminatory formal regulations, women in Lao PDR usually (compared to men): i) receive lower incomes and have fewer formal livelihood opportunities; ii) experience constraints on their mobility; iii) are unrepresented in local, provincial and national political and decision-making structures; iv) have lower educational attainment and literacy rates; and v) carry a greater burden of unpaid household and care work, including being mainly responsible for household food and water security , . Notably, although women have traditionally played a key role in the agriculture sector, they are being adversely affected by trends towards increased mechanisation and shifts from subsistence to commercial agriculture, as men have tended to assume control of these new livelihood activities. These factors interact with women’s environmental and ecological exposure to the anticipated threats of climate change on their lives and livelihoods. Owing to the gendered roles, responsibilities and inequalities described above, women may be more vulnerable to climate hazards such as floods and droughts as well as having lower adaptive capacity and less opportunity to increase their climate resilience or ability to recover from such events.

Considering the points above, the proposed project will promote gender equality, women’s rights and the empowerment of women in several ways. First, the proposed activities have been designed taking into account 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. Second, an understanding of gender mainstreaming in relevant sectors and associated ministries will be developed, and gaps in gender equality will be identified and addressed in all aspects of project design. Third, women (and other vulnerable groups) will be 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. To ensure that the project activities are both gender-responsive and designed in a gender-sensitive manner, a gender action plan will be developed during the project preparation phase. This analysis and action plan will be used to further refine the activities and to develop gender-sensitive indicators and targets for the proposed project. In addition, national experts on gender will be included in stakeholder consultations and form part of ongoing project management to ensure that context-specific gender considerations are mainstreamed throughout the project. The GEF policies, standards and guidelines on gender equality will be applied throughout development and implementation of the proposed project.

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

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

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

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

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

Yes

**4. Private sector engagement**

**Will there be private sector engagement in the project?**

Yes

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

The project will seek to engage private sector partners as much as possible, to support the implementation and construction of the protective infrastructure. Other partners will be consulted and involved in inter alia: i) the drafting of development plans and revision of EWS systems; ii) the activities of the market analysis into climate resilient agriculture, fisheries and forestry; and iii) the distribution of communication and knowledge management tools and technologies. The project will also aim to strengthen local entrepreneurship in the Xe Bang Hieng river basin and Luang Prabang city by partnering with local community aggregations, associations and groups during consultations and implementation. This would be particularly relevant during the market analysis and livelihood enhancement interventions under Outcome 2.2 in the Xe Bang Hieng river basin, and the awareness raising and community M&E system in Component 3. When appropriate, experts for specified activities would be contracted as consultants to provide capacity-building and awareness raising to government and communities.

**5. Risks**

**Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)**

Table 3. List of risks to the project.

| # | Risk | Potential consequence | Mitigation measure | Probability (P) & Impact (I) (1–5) | Risk rating (R) & Category (C) |
|---|---|---|---|---|---|
| 1 | Extreme climate events (e.g. landslides, flooding) at project sites during project implementation damage or destroy EbA and protective infratructure implemented through the project. | EbA and protective infrastructure are delayed or project sites need to change. | Current climatic variability and flood risks will 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 = 2<br>I = 3 | R = Modest<br>C = Environmental |

| | | | | | |
|---|---|---|---|---|---|
| 2 | EbA and protective infrastructure implemented under the project are not maintained by communities and are degraded after the project lifespan. | Project interventions such as reforestation and protective infrastructure constructed to manage flood and drought risk are not maintained by the communities which increase their vulnerability to climate change impacts. | Training will be provided to headwater and lowland communities on climate change impacts on agricultural production and socio-economic conditions which will increase incentives to maintain the infrastructure after the project lifespan. Community-based monitoring systems will also be developed and implemented to measure changes in key determinants of ecosystem health and resilience, which will build the communities' ownership of the interventions. | P = 2<br>I = 3 | R = Modest<br>C = Social |
| 3 | Conflict among stakeholders regarding land-use arises, as<br>agricultural land concessions in Savannakhet have often taken place without required land surveys, leading to conflicts between local communities and investors. | Project interventions are delayed because of unclear land use and ownership. | Mechanisms for conflict resolution will be integrated into the sustainability strategy of the project, as well as detailed land surveys at the site selection stage of the project. | P = 2<br>I = 3 | R = Modest<br>C = Social |
| 4 | There is a lack of community buy-in for alternatives to swidden agriculture. | Project interventions are delayed as a result of a failure of communities to implement Community Conservation Agreements to effectively adopt climate-resilient agriculture and forestry/forest-driven livelihoods and practices. | Training will be provided to headwater and lowland communities on climate change impacts on agricultural production and socio-economic conditions which will increase incentives to adopt alternatives to swidden agriculture practices.<br>Community Conservation Agreement process will also be undertaken to encourage climate-resilient agriculture, fisheries, and forestry/forest-driven livelihoods and practices. | P = 2<br>I = 2 | R = Modest<br>C = Social |

| | | | | | |
|---|---|---|---|---|---|
| 5 | Conflicts and misunderstanding among public institutions, private sector partners, NGOs and resource users undermine partnership approaches and implementation of cooperative governance arrangements. | Project interventions are delayed as a result of a lack of cooperation and coordination between responsible government agencies and other stakeholders. | Starting during the project inception phase, the project will seek to establish formal agreements/MOUs with these and/or other partners that clearly define roles and responsibilities for implementation of the project. The project will also support collaboration between key partners (e.g. MONRE and MAF) and with other government agencies and stakeholders. | P = 2<br>I = 2 | R = Modest<br>C = Social |

**6. Coordination**

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

Institutional structure and M&E

The Ministry of Natural Resources and Environment (MONRE) is the primary ministry responsible for the management, protection, rehabilitation and use of natural resources and the environment including land, water, air, biodiversity, and minerals. Within MONRE, the Department of Water Resources will be responsible for activities developing national and provincial capacity for ICM under Component 1 and developing flood protection infrastructure under Component 2 of the proposed LDCF project. The Department of Meteorology and Hydrology will be in charge of the hydrological monitoring activities under Component 1. The Department of Disaster Management and Climate Change will be responsible for activities to develop knowledge management and community-based ecological monitoring systems under Component 3, as well as urban EbA mainstreaming under Component 1.

The Ministry of Agriculture and Forestry (MAF) executes all land-use decisions in the sector of agriculture, fisheries, irrigation, production and conservation forests as well as National Protected Areas. Within MAF, the Department of Forestry (DOF) is responsible for forest management planning, land-use planning and land cover assessments. The DOF will be the key department responsible for the execution of EbA ¬activities – mostly reforestation – under Component 2 of the proposed project, in coordination with the target communities. The Department of Agricultural Extension and Cooperatives will be in charge of the activities enhancing climate-resilient livelihoods under Component 2.

The overall monitoring and evaluation (M&E) of the proposed LDCF project will be overseen by the Department of Planning under the Ministry of Planning and Investments, which carries out M&E for all planning processes in the country. Please refer to Table 2 in Section 2 (Stakeholders) for further details on the role of each ministry, department and provincial office in the proposed project.

Coordination with other climate change projects

Several projects have been designed to address land degradation and climate change adaptation in Lao PDR. The proposed project will coordinate with these GEF and non-GEF initiatives to: i) facilitate the incorporation of lessons learned into project design; ii) promote synergies between projects' activities; and iii) prevent duplication of effort and resources. Details of relevant projects are given below.

The ongoing GCF–UNEP project Building resilience of urban populations with ecosystem-based solutions in Lao PDR (2020–2025) is incorporating integrated flood management strategies into planning frameworks and mainstreaming urban EbA to decrease climate change-induced flooding in four cities, including Savannakhet. The proposed LDCF project will build on the GCF project interventions by strengthening technical capacity, knowledge and management to reduce flood impacts and to implement EbA at river basin level and in rural areas of the Xe Bang Hieng river basin as well as urban EbA in Luang Prabang. The project could conduct joint capacity-building activities with the GCF project. Joint annual review and planning meetings between the ongoing GEF TF and GCF projects could also be envisaged.

The GEF LDCF FAO supported initiative Climate Adaptation in Wetland Areas in Lao PDR (2016–2020) implemented ecosystem restoration interventions in rural Lao PDR, including the Xe Champone wetland in Savannakhet Province. The main project components included: i) improvement of knowledge and understanding of climate change impacts and risks; ii) implementation of appropriate climate change adaptation and risk reduction measures; and iii) integration of tested and cost-effective climate change adaptation and disaster management measures into critical planning processes at local and national levels. The proposed LDCF project will build on this recent initiative's interventions in Savannakhet Province, especially on the capacity-building at the provincial government level.

The completed GEF LDCF project Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts (2011–2014) included the Outhumphone and Champone Districts as target sites in Savannakhet Province. The project aimed at reducing the vulnerability of farmers to extreme flooding and drought events through: i) strengthening the knowledge base on climate change impacts on agricultural production and food security; ii) strengthening capacities of sectoral planners and agricultural producers to understand and address climate change; iii) demonstrating and promoting community-based adaptive agricultural practices within suitable agro-ecological systems; and iv) facilitating adaptation learning as a long-term process. The proposed LDCF project will build on recommendations from the terminal evaluation of this completed LDCF project to improve the resilience of neighboring farming communities to floods and droughts in Savannakhet Province, especially by using the community-based adaptive agricultural practices developed under the completed LDCF project.

**7. Consistency with National Priorities**

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

Yes

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

The proposed project is aligned with the national policies, strategies and plans described in the table below.

Table 4. List of national policies, strategies and plans.

| National Strategies/Plans | Alignment |
|---|---|
| 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 for flood-prone areas and improve existing flood protection systems; iv) initiate in-depth studies of 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 through improving early-warning systems (Output 1.2.3), on-the-ground protection measures (Outcomes 2.1 and 2.2) and enhancing climate-resilient livelihoods (Outcome 2.3). The project will also contribute to building national and province capacity for adaptation planning and building the climate resilience of water resources. |
| National Strategy on Climate Change (NSCC), 2010 | The NCCS highlights integrated solutions, awareness, education, community participation, innovative financial instruments, and the integration of climate and disease-resilient crops and farming patterns into landscapes. It 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 agriculture sector; ii) improving forest management systems; and iii) developing reliable early-warning systems to reduce the impacts of disasters such as floods and droughts. |
| 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; ii) build climate resilience for urban communities, farming systems and rural economies; iii) improve resilience of forest ecosystem goods and services; iv) improve the management of agricultural lands; and v) strengthen education and public awareness in media. |
| Agricultural Development Strategy (ADS), 2011-2020 | The ADS highlights the threat of land degradation, lower productivity and desertification from shifting cultivation. Of particular relevance 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 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 undertaken 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 socio-economic 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 agriculture 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. |
| 8th Five-Year National Socio-Economic Development Plan (NSEDP), 2016-2020 | The 8th National Socio-Economic Development Plan (NSEDP) 2016-2020 highlights (among other priorities) the need to: i) halt swidden agriculture and increase forest cover to 70% by 2020; ii) protect and sustain the environment and plan for climate change mitigation, especially to preserve and enhance forest cover and conserve water; iii) identify development zones and land-use areas, especially areas with forest cover, including conservation areas, production forests, protected forests, and watersheds; and iv) ensure resources are available to reduce vulnerability to natural disasters, particularly forest fires, droughts, floods, as well as river bank and mountain erosion. The proposed project's outcomes of reducing flood risk, protecting and restoring watersheds and promoting climate resilient alternative livelihoods will contribute to the goals of the NSEDP. |
| Second National Communication (SNC), 2013 | The SNC highlights Lao PDR's commitments to addressing climate change and contains *inter alia*: 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 to floods and droughts, as identified in the SNC. |
| 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 socio-economic development and environmental protection. |
| Lao PDR Nationally Determined Contribution (NDC), 2015 | The NDC outlines Lao PDR's climate change-related actions to date, including the development of strategies and laws relating to climate change, and identifies the country's mitigation and adaptation contributions. 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, as well as contributing to the implementation of adaptation priorities relating to water resources, agriculture, forestry and land-use change. |
| National Environment Strategy to the year 2020 | The National Environment Strategy was formulated to provide the general direction, targets and programmes for ensuring environmental protection up to the year 2020. This strategy aims to: i) implement policies that ensure valuable environmental resources are conserved; ii) manage water and water resources; iii) develop and promote the use of land to ensure rich biodiversity; iv) develop and promote environmental and social assessment in rural and urban development projects; v) protect historical and cultural heritage; and vii) develop and promote environmental and education awareness. The proposed project is aligned with this strategy as it focuses on prioritising sustainable management and utilisation of land, water and forest resources to enhance the climate resilience of communities as well as increasing environmental awareness. |
| MoNRE Vision towards 2030 | The proposed project is aligned with the Vision, 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 socio-economic 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 proposed project is in line with the National Biodiversity Strategy and Action Plan 2016 – 2025 that seeks to establish direct interventions and capacitate the GoL and partners to address the underlying issues affecting biodiversity loss, including in the forestry or agricultural sectors. |

**8. Knowledge Management**

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

Knowledge management will be an important consideration under all components of the proposed project, but will be specifically addressed through Component 3: "Knowledge management and Monitoring and Evaluation (M&E)". This will include conducting knowledge management and awareness raising in target rural and urban communities to build their appreciation and understanding of climate change risks, impacts and adaptation options (Outcome 3.1). To further promote local ownership and contribute to shifting attitudes towards restoration and conservation, a community-based monitoring system to measure changes in key ecological determinants of ecosystem health and resilience in the Xe Bang Hieng river basin will also be developed (Output 3.2.1).

Lessons learned during project implementation, in addition to those from past and current aligned initiatives, will be collated and considered in the further development and implementation of this project. Results and lessons learned from M&E will be made accessible to stakeholders and decision-makers to facilitate replication and upscaling across Lao PDR, as well as other countries in the region through South-South exchanges (Output 3.1.2).

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

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

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

| Name | Position | Ministry | Date |
|---|---|---|---|
| Phouvong Luangxaysana | Director General, Department of Planning and Cooperation, GEF OFP | inistry of Natural Resources and Environment | 3/3/2020 |

**ANNEX A: Project Map and Geographic Coordinates**

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