GEF-8 REQUEST FOR CEO ENDORSEMENT/APPROVAL

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General Project Information

Project Title Climate Adaptive River Basins in Sayaboury	
Region Asia	GEF Project ID 11573
Country(ies) Lao PDR	Type of Project FSP
GEF Agency(ies): WWF-US	GEF Agency Project ID G0052
Project Executing Entity(s) Department of Water Resources (DWR), Lao PDR WWF Laos	Project Executing Type Government GEF Agency
GEF Focal Area (s) Climate Change	Submission Date 6/17/2025
Type of Trust Fund LDCF	Project Duration (Months) 72
GEF Project Grant: (a) 0.00	GEF Project Non-Grant: (b) 6,772,477.00
Agency Fee(s) Grant: (c) 0.00	Agency Fee(s) Non-Grant (d) 609,523.00
Total GEF Financing: (a+b+c+d) 7,382,000.00	Total Co-financing 36,345,937.00
PPG Amount: (e) 200,000.00	PPG Agency Fee(s): (f) 18,000.00
Total GEF Resources: (a+b+c+d+e+f) 7,600,000.00	
Project Tags CBIT: No NGI: No SGP: No Innovation: No Competitive Window: No	
Project Sector (CCM Only) Climate Change Adaptation Sector	

Taxonomy

Climate Change, Focal Areas, Climate Change Adaptation, Ecosystem-based Adaptation, Livelihoods, Community-based adaptation, Climate resilience, Mainstreaming adaptation, National Adaptation Plan, Least Developed Countries, Climate

information, Disaster risk management, National Adaptation Programme of Action, Climate Change Mitigation, Agriculture, Forestry, and Other Land Use, Land Degradation, Sustainable Land Management, Income Generating Activities, Drought Mitigation, Community-Based Natural Resource Management, Ecosystem Approach, Improved Soil and Water Management Techniques, Sustainable Agriculture, Restoration and Rehabilitation of Degraded Lands, Sustainable Livelihoods, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Demonstrate innovative approache, Stakeholders, Communications, Awareness Raising, Education, Behavior change, Beneficiaries, Indigenous Peoples, Type of Engagement, Partnership, Information Dissemination, Consultation, Private Sector, SMEs, Individuals/Entrepreneurs, Civil Society, Non-Governmental Organization, Local Communities, Gender Equality, Gender Mainstreaming, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Capacity Development, Access and control over natural resources, Access to benefits and services, Participation and leadership, Knowledge Generation and Exchange, Capacity, Knowledge and Research, Knowledge Generation, Workshop, Training, Knowledge Exchange, Peer-to-Peer, Field Visit, Conference, South-South, Enabling Activities, Learning, Adaptive management, Theory of change, Indicators to measure change

Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
No Contribution 0	Principal Objective 2	No Contribution 0	No Contribution 0

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. (max. 250 words, approximately 1/2 page)

The proposed project will build climate adaptation and climate resilience capabilities of vulnerable communities and local government in the “at risk” and nationally prioritized basins of the Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng Rivers in Sayaboury. This will additionally contribute to national efforts (and priorities) of the National Water Resources Policy and National Green Growth Strategy. The key climate-related problem is the growing vulnerability of farming communities to more intense droughts and floods, driven by shifting rainfall patterns and watershed degradation, compounded by limited local capacity for effective water and river basin management. The project target these communities who rely on natural resources for their livelihoods, with the objective **to enhance climate change adaptation (CCA) and resilience of upstream and downstream communities in Sayaboury**. This will be achieved by working at national, provincial, and local (District and Village) scales, demonstrating how integrated water resources management (IWRM) and CCA planning (**Component 1**) can enable locally-informed nature-based solutions (NbS) and small-scale grey infrastructure (**Component 2**). The project will also enhance the resilience of local livelihoods by promoting climate-smart agriculture and livelihood diversification (**Component 3**). On-the-ground efforts and activities within these components will provide critical proof of effectiveness, which can then be scaled with facilitation through **Component 4**: Knowledge Management and Communications.

Adaptation Benefits for the project are projected to include 19,000 project beneficiaries, 15,000 hectares of land managed for climate resilience, at least 30 policies/plans/Institutional Frameworks to strengthen climate adaptation, and 3,390 (1,620 female) people trained or with awareness raised.

Project Description Overview

Project Objective

To enhance climate change adaptation and resilience of upstream and downstream communities in Sayaboury, through IWRM, NbS, small-scale grey infrastructure and local livelihood

Project Components

Component 1: Mainstreaming climate change adaptation (CCA) into planning and policy: integrating CCA into provincial WRM and river basin management plans

Component Type	Trust Fund
Technical Assistance	LDCF
GEF Project Financing ($)	Co-financing ($)
807,810.00	4,335,284.00

Outcome:

1.1 Policy, planning and technical capacities for CCA improved in 6 districts, 4 river basins and 1 province

Output:

1.1.1. Analysis of CCA integration in Water Resource Management in 4 river basins

1.1.2. Surface and Ground Water Resource inventory in 4 river basins

1.1.3. Training, workshops and consultations to integrate CCA, NbS and small-scale grey infrastructure into river basin plans and provincial adaptation plans

1.1.4. District level IWRM/river basin policies and plans developed

Component 2: Community-driven interventions to improve climate resilience: NbS and small-scale grey infrastructure interventions on the ground

Component Type	Trust Fund
Investment	LDCF
GEF Project Financing ($)	Co-financing ($)
2,384,534.00	12,797,108.00

Outcome:

2.1. Water security improved in 18 communities through gender-responsive and locally informed WRM interventions

Output:

2.1.1 Local government and community-identified water-related NbS interventions implemented

2.1.2. Small-scale grey infrastructure interventions for climate resilience implemented

Component 3: Enhancing Resilience: Promoting climate-smart agriculture and diversifying livelihoods

Component Type	Trust Fund
Investment	LDCF

GEF Project Financing ($)	Co-financing ($)
2,359,174.00	12,661,009.00

Outcome:

3.1 Resilience to climate change strengthened in 18 communities through climate-adapted agriculture, livelihood diversification, and CBNRM

Output:

3.1.1 Assessment of gender responsive climate-adapted agriculture, livestock, and other livelihood practices

3.1.2 Equipment, materials, and trainings for communities for livelihood enhancement and diversification

3.1.3 Climate information and early warning systems developed in target communities

Component 4: Knowledge management and communications: Disseminating lessons and practices and experiences from the project to foster adaptive learning

Component Type	Trust Fund
Technical Assistance	LDCF
GEF Project Financing ($)	Co-financing ($)
562,567.00	3,019,135.00

Outcome:

4.1 Increased dissemination of knowledge, including lessons learned and good practices on integrating CCA in WRM

Output:

4.1.1. Gender responsive knowledge management, communications, visibility and outreach products delivered to key audiences through appropriate and effective channels

M&E

Component Type	Trust Fund
Technical Assistance	LDCF
GEF Project Financing ($)	Co-financing ($)
325,072.00	1,744,568.00

Outcome:

Project implemented according to results-based management principles

Output:

ME1: Project M&E operational and capacity to collect and curate lessons learned from project activities.

ME2: Monitoring Reports submitted on time to the GEF Agency and GEFSEC

ME3: Project implementation coordinated and measured through a proactive steering committee and governance, inclusive monitoring and evaluation, and an operational environmental and social management mechanism.

ME4: Monitoring of Gender Action Plan and Environmental and Social Safeguards Plan(s)

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
Component 1: Mainstreaming climate change adaptation (CCA) into planning and policy: integrating CCA into provincial WRM and river basin management plans	807,810.00	4,335,284.00
Component 2: Community-driven interventions to improve climate resilience: NbS and small-scale grey infrastructure interventions on the ground	2,384,534.00	12,797,108.00
Component 3: Enhancing Resilience: Promoting climate-smart agriculture and diversifying livelihoods	2,359,174.00	12,661,009.00
Component 4: Knowledge management and communications: Disseminating lessons and practices and experiences from the project to foster adaptive learning	562,567.00	3,019,135.00
M&E	325,072.00	1,744,568.00
Subtotal	**6,439,157.00**	**34,557,104.00**
Project Management Cost	333,320.00	1,788,833.00
Total Project Cost ($)	**6,772,477.00**	**36,345,937.00**

Please provide Justification

The project management cost has slightly exceeded the standard 5% threshold due to specific government requirements and the unique scale of this project. To effectively host the Project Management Unit (PMU), the government requested adequate funding to maintain core office operations over the full six-year implementation period. Additionally, the administrative and fiduciary responsibilities are higher than usual, given that the total funding amount is larger than other projects typically implemented in the country. This includes the added complexity of managing and distributing funds to multiple sub-executing partners. As such, the modest increase in project management costs is necessary for strong oversight, accountability, and efficient project execution for the full 6 years of implementation.

PROJECT OUTLINE

A. PROJECT RATIONALE

Describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Lao PDR is a landlocked Least Developed Country with an area of 23.68 million ha, has a population 7,664,993 and an average per capita income of 2,066.9 in 2023[1][1]. The country's economy is dependent on

natural resources, especially forestry, agriculture, electricity generation (especially hydropower) and mining. Agriculture, forestry and fisheries account for 16% of GDP and employ 64% of the Lao workforce. Lao PDR ranks among the most climate-vulnerable countries in the world due to its heavy reliance on agriculture, exposure to extreme weather events, and limited adaptive capacity. Based on the ND-GAIN Vulnerability Index (Notre Dame Global Adaptation Initiative) Lao PDR ranks 133rd out of 182 countries (2025), (lower = more vulnerable) indicating high vulnerability[2][2]. It is exposed to multiple climate-related natural hazards, including floods, droughts, wildfires, cyclones, and landslides. During the period from 1966-2009, flooding was the most frequent hazard with an occurrence of 50% of all climate-related hazard in the country; followed by storms and droughts[3][3].

Northern Lao PDR is particularly at risk of adverse impacts from climate change due to its high exposure, low capacities, and high sensitivity. This region is among the poorest in the country, and villagers in the region are largely dependent on rainfed upland agriculture to maintain their livelihoods. The mountainous terrain is highly sensitive to climate change due to its sloped terrain, which is naturally prone to erosion events and landslides. At the same time, high rates of deforestation and forest degradation further exacerbate the northern regions' vulnerability to climate change. Sayaboury together with five other provinces of northern Lao PDE (Bokeo, Houaphan, Luang Prabang, Luang Namtha, and Oudomxay) experienced more than 40% of the country's deforestation and forest degradation during the period from 2005-2015[4][4]. Deforestation and forest degradation exacerbate the risk of climate-related natural hazards (drought, flooding, forest-fires), and reduce the provision of key ecosystem services that could otherwise strengthen the coping capacity of local ecosystems and the persons who depend on them. Deforestation and forest degradation impact the hydrological cycle, and limit water recharge and storage, affecting both water quality and quantity for both local and downstream communities. This not only exacerbates the risk and vulnerability to flooding, but also droughts and forest fires.

The project will build climate adaptation and climate resilience capabilities of vulnerable communities and local government in the "at risk" and nationally prioritized basins of the Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng Rivers in Sayaboury Province. The project will particularly target marginalized and rural agriculture-dependent communities who rely on natural resources for their livelihoods, while also being highly exposed to flood, drought and landslides with limited capacity to adapt to these climate hazards without external support.

The key climate related problem that the project will address is the vulnerability of farming communities that results from 1) increased number of dry and high temperature days in the dry season leading to higher frequency, duration and intensity of agricultural drought; 2) number of days with very heavy rainfall in the wet season and more rainfall concentrated later in the year, resulting in extended periods of waterlogging as well as increased frequency, duration and severity of floods. These problems are compounded by the degradation of watersheds and riparian zones through expansion of unsustainable farming practices, together with the limited adaptive capacities of local government and communities to address these challenges through more effective water resource and river basin management which would reduce impacts of droughts and floods**.**

The project will enhance climate change adaptation and resilience of upstream and downstream communities in Sayaboury, through mainstreaming of climate change adaptation in local government policy and planning; implementation of NbS (e.g., riparian restoration, reforestation, wetland protection) and small-scale grey infrastructure water management interventions to reduce impacts of climate hazards

and increase water security; and development of climate smart agriculture and other resilient livelihoods. On-the-ground efforts and activities within these components will provide critical proof of effectiveness, which can then be scaled across Lao PDR and beyond with facilitation through knowledge management and communications.

The Current Situation: Climate Vulnerabilities that the project will address:

The proposed project is focused on a climate vulnerable, naturally flood-prone, mountainous area of Lao PDR, namely the Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng basins in Sayaboury Province, selected due to its high vulnerability to climate change impacts based on a combination of factors: a highly rural and agriculture-dependent population and economy; including multiple upland ethnic groups, many of whom are dependent on subsistence and shifting agriculture; higher than national average poverty levels; susceptibility to, and high risk of floods in the lower-lying areas of the basins, as well as both droughts and shifts in the timing of monsoon rains; and limited resources and infrastructure to adapt to and recover from climate risks.

Climate trends over the past 30 years in Sayaboury have included increasing incidences and severity of drought and storms along with increasing maximum temperatures. These trends are supported by *community observations,* with community respondents to WWF Climate Crowd surveys (Annex 2: Climate Crowd Summary Report for Laos) noting changes in the timing of seasons, increased occurrences of floods, and rises in rainfall and storms during the rainy season. Many reported increased droughts during the dry season, attributed to heat waves, hotter days, and decreased or delayed rainfall. In terms of *impacts on livelihoods*, the most frequent response was reductions in crop yields due to a late onset of the monsoon rains, limited availability of supplemental water for irrigation, as well as destruction of crop fields due to floods at the end of the monsoon season, leading to income shortages for some community members. Crop pest outbreaks were also mentioned as an important problem. Current community responses to perceived climate change impacts include changing agricultural practices, especially crop types. In recent years there has been a massive increase in cassava growing in the project target area. Cassava is perceived as a hardy crop suitable for drought conditions, and it does not require intensive year-round care, so farmers have time to engage in other additional income-generating activities such as wage labor while they are growing cassava. Though this may be an effective short-term coping strategy, over the longer-term it may lead to increased vulnerability, as cassava growing depletes the soil and disease outbreaks may become more common. Communities suggested a need for more external assistance to increase adaptation capacity, especially water availability for agriculture. Improved understanding of NbS solutions for water management, and climate-smart agriculture techniques would also increase adaptive capacity, together with access to appropriate technologies, and availability of flood and drought resistant strains of crops.

Key Elements of the System: Geographic, Economic and Cultural factor

Sayaboury province is situated in northwestern Lao PDR. It has an area of 1,553,800 ha divided into 11 districts, and a total population of 426,439 people. The province is characterized by mountainous terrain and significant elevation variations[5][5]. It is part of the Luang Prabang Range montane rainforest ecoregion

straddling northwestern Lao PDR and Northern Thailand, of which over 50% of the ecoregion's natural forests remain unprotected [6][6],[7][7].

The Nam Phoun River Basin has an area of 196,969 hectares, covering 78,565 hectares of Phiang District, 45,964 hectares of Pak Lay District and 72,440 hectares of Thongmixay District. There are several streams, including Nam Hoy, Nam Yam, and other small river tributaries in the basin. Most of the basin area is located within the Nam Phoui National Protected Area (NPA).

The Nam Houng basin has a total area of 290,993 hectares, covering 88,058 hectares of Saisathan District; 22,562 hectares of Hongsa District; 137,200 hectares of Sayaboury District and 43,148 hectares of Phiang District. Main tributaries of Nam Houng include Nam Tian, Nam Khan, Nam Met, Houay Chuang, and Houay Sa. The basin is largely mountainous topography.

The Nam Phoui River Basin covers an area of 169,080 hectares, distributed in three districts: Phiang, Pak Lay and Sayaboury. Main tributaries of Nam Phoui are Nam Phoi, Nam Pone, Nam Moun and Nam Phiang. About 25% of the basin is located in the Nam Phoui NPA.

The Nam Lay River Basin has an area of 65,900 hectares, covering two districts—Pak Lay (23 villages) and Thongmixay (1 village). Approximately 58.5 kilometers in length, the basin encompasses several protected areas, including a Provincial Protected Area of 86.41 hectares, the Nam Phouy National Protected Area covering 17,635.22 hectares, and a National Protected Forest of 2,857.47 hectares. The basin is fed by several primary streams such as Nam Nyang, Nam Pon, and Huay Nyang Noi, among others.

This geography and mountainous topography play a crucial role in the province's climatic conditions. The climate of Sayaboury province is predominantly tropical, influenced by the monsoon season and prone to severe mountain rain shadow effects. The region experiences a clear division between the rainy and dry seasons. The rainy season, lasting from May to October, but with a trend towards later onset in more recent years, brings substantial precipitation, crucial for the agricultural practices in the area. The dry season, from November to April, is marked by lower precipitation with lower temperatures during November- February and higher temperatures in March-April. The average temperatures in Sayaboury varies, with the cooler months seeing average lows around 14.8°C and the warmer months reaching average highs of up to 33.9°C[8][8], with temperatures on the hottest days of the year sometimes exceeding 40°C. Situated along the Mekong River and its subtitles, the lowland areas of Sayaboury are inherently susceptible to flooding. This geographic reality makes the province already prone to the impacts of extreme weather events, which are now increasingly exacerbated by climate change.

There are diverse ethnic groups in Sayaboury. Lao Loum are the dominant ethnic group and typically reside in the lowland areas and are primarily engaged in commercial agriculture, including rice farming. The Lao Theung are a significant ethnic group in Sayaboury and live in upland areas, and many practice subsistence farming and rely on forest resources for their livelihoods. Lao Soung are ethnic minority groups that live in higher upland areas, and include groups like Hmong, Yao, and Akha. These communities often practice shifting cultivation. The reliance on agriculture and natural resources, and the small scale, subsistence or shifting agriculture practices in Sayaboury intersects with climate vulnerability in the area.

The economy of Sayaboury is primarily based on agriculture, with rice farming until recently being the dominant activity. Other agricultural products include cassava, maize, and other vegetables, and livestock farming, including cattle, pigs, and poultry. In 2023 Per capita GDP for the 426,439 people of Sayaboury was 46.3 million kip or USD2,490 (at an exchange rate of 18,592 kip/dollar)[9][9]. From 2012 – 2019

Sayaboury experienced annual average growth of 6.3% but in 2021-201 this slowed to 2.8% and 3.6% respectively, mainly because of COVID19, after which growth started to climb again to 4.3% in 2022 and 5.1% in 2023.

The agriculture sector has grown significantly from 41.8% of the economy in 2012 to 56.1% in 2023, while the industrial sector has also grown somewhat from 19.3% in 2012 to 22.1% in 2023[10][10]. On the other hand, the services sector (which includes tourism, financial services, etc.) has declined significantly from 38.1% of the economy to only 21.2% in the same period. It is not clear what exactly accounts for this big reduction in the services sector. Overall, the economy of Sayaboury still faces challenges such as limited investment, infrastructure development and access to markets, which impact its overall growth potential and risk profile.

Between 2012 and 2023, crops increased from 25.3 to 36.8% of the total economy of Sayaboury, and livestock increased from 13.6% to 16.6% in the same period. The biggest proportion of the increase in crop production in Sayaboury comes from cassava growing. The scale of this growth is reflected in the example from Phiang District of Sayaboury Province. There has been exponential growth in cassava output in recent years, growing from 5,556 tons in 2015 to 362,257 tons in 2020 (See Table 1 as example). Similar trends are also seen in the other districts of Sayaboury province.

Table 1: Crop Production in Phiang District

Crop	2015 tons	2020 tons
Rice	33,758	40,608
Cassava	5,556	362,257
Banana	10,681	14,600
Other fruits	6,835	13,507

Source: Phiang District Five Year Development Plan 2021-2025

Cassava has become one of the most profitable crops in the Mekong region, triggered by an increasing demand from export markets, mainly from China and Thailand. Cassava has many advantages for farmers compared to other crops: it requires minimal labor and financial investment, it promises quick/high income, it has easy market access, often with buyers stationed in the village. Cassava has been expanding through many upland areas and has led to encroachment in protected areas.

Basic information on each district is provided below:

Phiang District

Phiang District covers an area of 282,600 hectares, consisting of 51 villages with 11,896 families and 65,208 people (31,709 female) composed of 8 ethnic groups. The district has an altitude range of 340-1,400 m asl. The per capita GDP is USD 1,318/person/year and rice production is 40,608 tons. Other major agriculture crops of the district are cassava, bananas, and other fruits. There has been exponential growth in cassava output in recent years, growing from 5,556 tons in 2015 to 362,257 tons in 2020. Three target communities were selected in Phiang District.

Thongmixay District

Thongmixay District is located in the southwest of Sayaboury Province and covers a total area of 884 square kilometers (88,400 hectares). Of this, approximately 61,880 hectares—or 70% of the district—lies within the Nam Pui National Park. The district's terrain consists of 18% plains and 82% mountainous areas. Situated at an elevation of 500 to 1,300 meters above sea level, Thongmixay experiences a humid and cool climate, with an average temperature of 26°C (ranging from a minimum of 11°C to a maximum of 41°C). The district comprises 13 villages with a total of 2,070 families and a population of 10,080 people, including 4,979 women. The population density is approximately 11 people per square kilometer. Thongmixay District has a per capita GDP of USD 1,250 per person per year, with the majority of household income derived from agriculture. Rice production in the district totals 8,705 tons. In addition, a variety of crops are cultivated to support local food consumption, yielding around 416 tons annually. Cassava is the primary economic crop, accounting for 96.18% of the total cultivated area. Two target communities have been selected in Thongmixay District.

Pak Lay District

Pak Lay District covers an area of 219,648 hectares and is rich in natural resources, including extensive forests, a high diversity of species, and several rivers. The district spans a length of 34 km and is situated at an elevation ranging from 243 to 700 meters above sea level. The average annual temperature is between 17.8°C and 23.9°C. The population density is 34 people per square kilometer, with an estimated total population of approximately 74,737 people. Pak Lay District has a vast area of land suitable for farming and animal husbandry. The per capita GDP is USD 2,766 per person per year. The primary occupation of the local population is agriculture, which accounts for 76.11% of the workforce. The district's main crops include 31,430 tons of rice; 98,037.02 tons of corn; 421,889 tons of cassava, and 3,609 tons of peanuts and beans. Other crops include bananas and eucalyptus, Four target communities have been selected in Pak Lay District for further development initiatives.

Sayaboury District

This district serves as the provincial capital and is the most developed in the province in terms of infrastructure, electricity, water supply, and transportation. It is also home to the largest Mekong hydroelectric power plant in Southeast Asia. In addition, it functions as the administrative and economic center of the province. The district lies at approximately 19°–21.7° latitude and 102° longitude. It has an average temperature of 26.7°C, with an average annual rainfall of 1,699.8 mm. Situated at an elevation of 655 meters above sea level, the district spans a total area of 3,010 square kilometers, of which 60% is mountainous and 40% is plains. The per capita GDP is USD 1,594 per year, with 56.12% of the economic output derived from the agriculture and forestry sectors. Annual rice production amounts to 26,087.90 tons. Some areas previously used for rice cultivation have been converted to other crops such as cassava, maize, millet, sesame, and others, with a combined total production of 352,812.18 tons.

Saysathan District

Saysathan District is located in the west of Sayaboury Province and covers a total area of 896 square kilometers. The district comprises 21 villages, home to 3,144 families and a total population of 16,652 people, including 8,383 women. The population consists of eight ethnic groups living together in the district. Saysathan's landscape is predominantly mountainous, with 95% of the land being hilly terrain and only 5% plains. The district is situated at an elevation of approximately 1,300 meters above sea level. The per capita GDP is USD 922 per person per year, indicating a relatively low-income level compared to other districts in the province. Agriculture remains the main economic activity in the district. Rice is the dominant crop, with an annual production of 26,960 tons. Other crops contribute an additional 8,463 tons to the district's agricultural output. These include taro, cabbage, coffee, tea, and other locally important crops. Four target communities have been selected in Saysathan District for further development initiatives.

Hongsa District

Hongsa District is located in the southwest of Sayaboury Province, approximately 90 kilometers from the provincial capital. The district has seen significant infrastructure development, including electricity, water supply, and public transportation systems. It is rich in natural resources and is home to a highly active population engaged in farming and animal husbandry. A prominent feature of the district is the Hongsa coal-fired power plant, which plays a central role in the region's energy supply. The district has an average temperature of 26°C, annual rainfall of up to 1,300 mm, and lies at an average elevation of 800 meters above sea level. Hongsa covers a total area of 1,626 square kilometers, with 90% mountainous terrain and 10% flatlands. The district comprises 33 villages with 5,900 families and a total population of 29,337 people, including 14,436 women. Eight ethnic groups reside in the district, contributing to its cultural diversity. Hongsa's per capita GDP is USD 2,745 per person per year, with approximately 28% of household income derived from natural resource-related activities such as collection of NTFPs. The district's total labor force consists of 16,514 men and 8,274 women. Of the workforce, 46% are employed in agriculture. Agricultural production includes rice (9,390.38 tons), fruits (895.4 tons), and other crops, such as millet, maize, and sesame (4,742 tons).

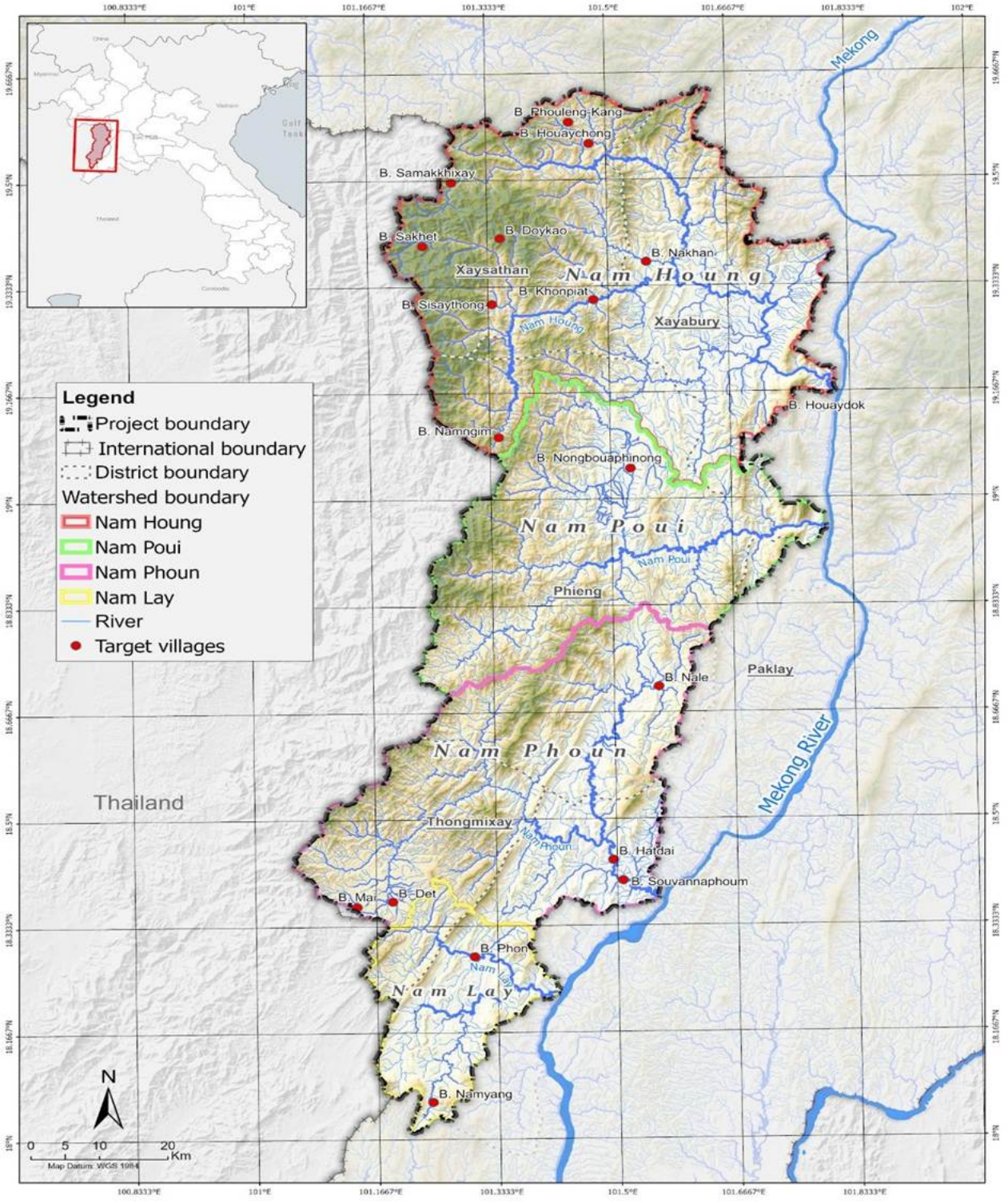
Within each district, target communities were selected based on their past experience and expected future occurrence of natural disasters such as floods and droughts as evidenced by loss of crops and property; the size and level of risk of the exposed population; economic vulnerability (as evidenced by subsistence agricultural livelihoods); and the extent to which they would benefit from the project interventions. In addition, their location within the watersheds of the 4 rivers was considered to include communities living in upper watershed areas and tributaries to the main rivers. Location with respect to protected areas was also considered. For each district, the selection of target villages was discussed and agreed with the district authorities, taking into account the district's priorities and development plans, as well as local government and community interest, areas with unique local heritage and national priorities (Refer to Annex 3 for more details). Stakeholders at the village level include village heads, and the village level representatives of the Lao Women's Union; the Lao Youth Union; the Lao Front for Construction; and Labor and Social Welfare. Women, ethnic minorities and other disadvantaged groups are also important stakeholders. Basic information on each target village is summarized in Table 2 and Figure 1 displays their locations.

Table 2: Target Villages for the project

District	Village	# of households	# of people	# of women	Key Issues identified by communities in consultations
Pak Lay	Nam Phoun	550	2.895	1.505	Limited water supply, lack of proper land-use planning
	Had Dai	236	1.175	571	Limited water supply, lack of proper land-use planning
	Nam Yang	260	1.391	683	Lack of proper land-use planning and irrigation system
	Phonngam	168	946	736	Lack of proper land-use planning
Thongmixai	Mai	304	1.496	736	Limited water supply
	Det	224	1.079	530	Limited water supply, lack of proper land-use planning
Phiang	Nongbuaphinong	172	1.015	479	Flooding, poor irrigation system

	Ban Nale	261	1.383	680	Poor irrigation, lack of proper land-use planning
	Namngim	168	946	453	Lack of proper land-use planning, electricity supply, and road access
Sayaboury	Khon Piat	123	757	354	Livestock diseases and crop pests
	Nakouang	92	536	270	Soil erosion, lack of proper land-use planning
	Houay Dok	102	578	300	Limited water supply
Saysathan	Samakkhi	72	455	244	Limited water supply
	Doykao	138	724	359	Limited water supply
	Sisaythong	85	577	299	Limited water supply
	Sakhet	133	810	425	Limited water supply
Hongsa	Houay Jong	194	1.489	733	Limited water supply
	Phou Laeng-Tai	136	934	452	Limited water supply

Figure 1. Map of project target areas



Climate Rationale

(i) <u>Climate Change – ongoing trends and future projections</u>

<u>*Temperature:*</u> In Sayaboury province, four of the hottest months on record since 2010 have occurred in the past two years (2023 and 2024), and there is an apparent increasing trend in average maximum temperatures over that same period (Figure 2).

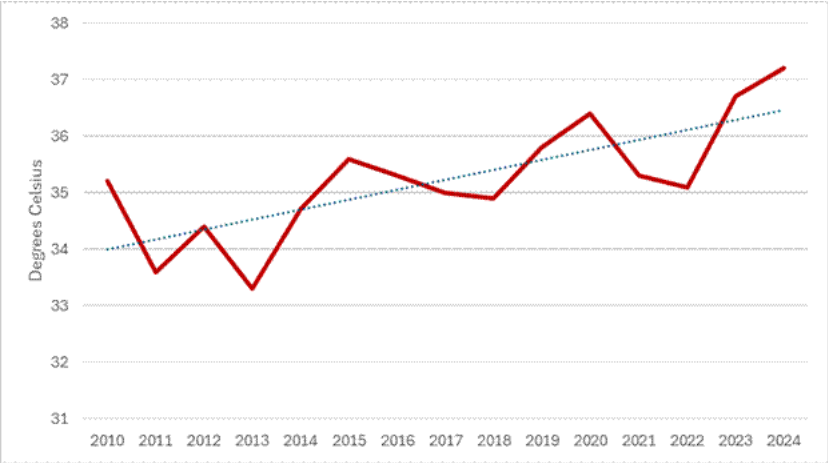


Figure 2. Average Annual Maximum Temperature in Sayaboury Province (2010-2024). Data source: PONRE Sayaboury

Climate assessments for the country indicate that both short-term (2021-2050) and long-term (2070-2099) temperature increases are expected, under both RCP 4.5 and RCP 8.5 scenarios[11][11]. In the short term, average maximum temperatures are projected to increase by 0.98 to 1.35 °C under RCP 4.5 and 1.2 to 1.6 °C under RCP 8.5, with greater increases in the northern regions like Sayaboury, compared to the south. Minimum temperatures are also expected to rise, with projections indicating increases ranging from 1.05 °C to 2.5 °C for the short-term, depending on the region and emission scenario. Additionally, it is forecasted that the number of days with ambient temperatures exceeding 35°C will increase, potentially leading to a rise in heat-related deaths without adequate adaptation measures.

Rainfall: The picture for trends in rainfall is not as clear as that for temperature. Overall, there has been an increase in seasonal and annual rainfall, with higher intensity rainfall events becoming more frequent. Sayaboury and neighboring northern provinces in Laos have historically received much less rainfall than the southern part of the country, and this trend is unlikely to change. Sayaboury's annual rainfall totals have fluctuated with no discernible trend since 2010, but the two rainiest months of the past 15 years occurred in 2020 and 2024 in August and September respectively, towards the end of monsoon season, which led to increased flooding and waterlogging of agricultural fields (PONRE Sayaboury).

While national projections under RCP 4.5 and 8.5 suggest an overall increase in precipitation across the country, it is still likely to be a modest increase in Sayaboury province. The timing (seasonality and intensity) of precipitation in the future is more likely to present challenges in Sayaboury. According to Lao PDR's Third National Communication on Climate Change, delayed monsoon onset, or "false starts" with rain in April followed by little to no rain in May, could become more likely, with more rainfall concentrated in the end of the wet season (October). Under both climate scenarios, the number of days with rainfall greater than 2.5cm/day are projected to increase, nearly doubling under RCP 4.5 and more than 5x under RCP 8.5. These projected changes to precipitation timing will create challenges in managing storm runoff, erosion, and flood mitigation. Changes in the onset of seasons have been observed, including delayed monsoon onset dates in 13 out of the 18 provinces in Laos.

(ii) *Community reported changes in weather and climate*

Consultations were undertaken in early 2024 and then again in early 2025 with communities from both the upland and lowland areas of the project area to understand their perception of climate change impacts and strategies for adaptation. Following WWF's Climate Crowd methodology[12][12], semi-structured interviews (*n* = 305) were conducted suggesting that climate change is already negatively impacting local communities in Sayaboury province who are currently ill-equipped to address the disruption to their livelihoods. Villagers observed that the monsoon (rainy) season seemed to be starting later than usual (May), effectively extending the dry season and leading to drought conditions in the March-June timeframe. Similarly, the monsoon season would sometimes last beyond early October and with heavier storms, leading to increased flooding conditions. On top of these seasonal shifts, villagers reported an increase in heatwaves.

(iii) Climate hazards:

One of the main impacts of changes in rainfall patterns is the increasing risk of both drought and waterlogged soils, both of which adversely affect farming communities. Comparing the two thirty-year periods of 1961-1990 and 1986-2015, the number of months of drought experienced has increased by about 25% while the number of months of waterlogging has more than doubled (Table 3). Under future warming scenarios the number of months of drought is forecast to increase dramatically with temperature increase – roughly doubling for a 2C rise in temperature and tripling for a 3C rise in temperature, while the number of months waterlogged will also increase but less rapidly – only doubling with a 3.5 rise in temperature. The maximum number of consecutive months in drought, and consecutive months in waterlogged condition will both also increase, but more slowly (Table 4).

Table 3: Droughts and Waterlogging experienced in Sayaboury 1961-2015

Number of Months	**1961-1990**	**1986-2015**	**Difference**
Months In drought	21.0	26.7	5.7
Months Waterlogged	16.5	37.3	20.8
Maximum consecutive months in drought	9.5	8	-1.5
Maximum consecutive months waterlogged	10.5	14	3.5

Source: Price, J., Forstenhäusler, N., Graham, E., Osborn, T.J., and Warren, R. (2024) Report on the observed climate, projected climate, and projected biodiversity changes for Nam Poui under differing levels of warming. Report of the Wallace Initiative.

Table 4: Predicted changes for drought and waterlogging under different average temperature increase scenarios

Temperature increase (degrees Celsius)	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**
Forecast increase in months in drought	18.8	27.3	37.5	47.6	56.7	65.3
Forecast increase in months waterlogged	10.8	18.5	24.6	30.5	35.9	40.7
Forecast change in maximum number of months in consecutive drought	3.2	4.5	6.9	9.0	10.5	13.5
Forecast change in maximum number of consecutive months waterlogged	0.3	0.4	0.6	1.1	1.9	2.5

Source: Price, J., Forstenhäusler, N., Graham, E., Osborn, T.J., and Warren, R. (2024) Report on the observed climate, projected climate, and projected biodiversity changes for Nam Poui under differing levels of warming. Report of the Wallace Initiative.

(iv) Exposure to Climate Hazards and Impacts on community livelihoods

Overall, the WHO anticipates that due to heavy reliance on agriculture services in rural areas of Laos, the increase in extreme weather events will increase child malnutrition rates (currently 33% of children under five years old) as well as other protracted health risks. A 2024 study conducted by WWF and CARE International in Sayaboury province found that 85% of respondents (primarily women), indicated that there had been a reduction in availability of cultivable land and reduced water accessibility due to cassava farming, a shift from traditional agriculture towards commercial farming, and climate shocks in their communities[13].

Flood damage

Data from The Provincial Agriculture and Forestry Office (PAFO Sayaboury Province shows the impact of flood damage on agricultural production in 2024, which had the highest amount of recorded rainfall over the past 15 years. Floods affected rice fields and rice production in all districts except Paklay and Botene. In total 3,965 families in 81 villages were affected, with 615 hectares of rice fields affected (out of a total 1,500 hectares planted), and damages estimated at 17,777 million kip. Floods also affected other crops with the biggest financial impacts being for damages to cassava (4,000 million kip), and Maize (1,397 million kip), followed by Job's tears (486 million kip) and rubber seedlings (411 million kip) with 527 families affected by damages to these crops (Table 5).

Table 5: Cassava and Maize production affected by floods in Sayaboury Province, 2024

District	Cassava production affected by floods in 2024			Maize production affected by floods in 2024		
	# Families affected	Hectares damaged	Cost of damage (million kip)	# Families affected	Hectares damaged	Cost of damage (million kip)
Xayabouly	55	29	156	-	-	-
Khop	21	84	378	32	29.0	550.0
Hongsa	2	0.1	4	4	0.3	15.0
Ngeun	36	61.3	2,718	45	58.0	565.0
Xienghone	104	14.6	153.6	2	0.3	3.3
Kenethao	16	13.8	591.2	15	15.0	139.0
TOTAL	**234**	**202.8**	**4,000.8**	**98**	**102.6**	**1,271.3**

Source: PAFO Sayaboury

These figures show that flood damage is a much bigger issue for rice farmers (almost 4,000 families affected in 2024) than it is for farmers of cassava and maize (only 332 families affected in 2024). This is understandable considering that cassava and maize are grown on upland sloping land while paddy rice is grown in flatter valley bottom land. The priority climate concerns of villagers therefore differ in relation to

their location in the basin and the type of agriculture they are carrying out. Project target communities include those in both the upper watershed areas and the lower-lying valley bottom areas.

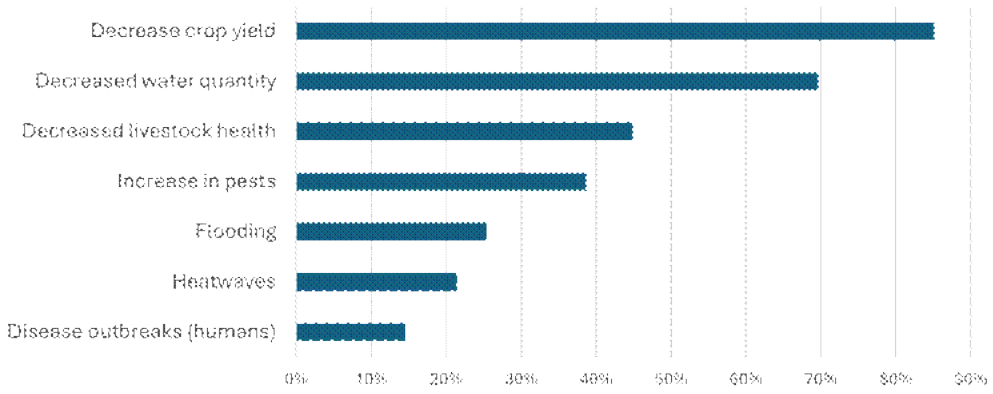
Crop pests

Another major source of impact on communities' livelihoods is through pest damage to crops. For example, in 2024, PAFO Sayaboury reported pest damage to crops in 3 villages of Botene District with 180 hectares affected, incurring losses of 43,000 million kip. While the link between each pest outbreak and climate change may not be entirely clear, it is assumed that pest damage to crops will likely increase with changing rainfall and temperature patterns.

Community Reported Impacts

Nearly 85% of the households surveyed across the 17 target villages reported experiencing a decrease in crop yields that they attribute to the effects of climate change, namely droughts, floods, and pests (Figure 3). Reduced crop yields have resulted in shortages in income for some community members as agricultural production is one of the main livelihoods in the area. Most respondents also reported a decreased availability of freshwater (68%), which has contributed to declining crop yields and puts added stress on livestock.

FIGURE 3: Percentage of households reporting climate change impacts observed



Water Resources:

Laos is endowed with abundant water resources, with around 80% of the country situated within the Mekong Basin, and a total annual flow estimated at 270,000 million cubic meters, which represents 35% of the average annual flow of the entire Mekong Basin[14][14]. However, the marked seasonality of the monsoon climate with distinct wet and dry seasons often creates periods with acute water scarcity, especially during the hot and dry months of March and April. Around 70% of the population is engaged in agriculture, but most agriculture in Sayaboury Province, as in the rest of Laos, is rain-fed, relying on the seasonal rains as the only water source for agriculture. Irrigation development is minimal and restricted to a few low-lying areas near rivers, while large areas of hilly uplands are growing cassava, maize, hill rice, and other annual crops. According to the Comprehensive Food Security and Vulnerability Analysis (CFSVA), about 46% of people in

Laos are vulnerable to drought.[15] The need for improved water management, together with climate-resilient agriculture, is a major challenge for food security and economic growth

Water scarcity impacts not only the agriculture sector but also the daily lives of rural communities, especially those of women and young girls primarily responsible for household water collection and use. Gender mainstreaming in water resource management leads to systems that are inclusive of the diverse roles people play in water usage, whether for domestic, agricultural, or economic purposes. It also helps prevent unintended consequences, such as overburdening women with additional responsibilities or excluding them from benefiting from water infrastructure projects.

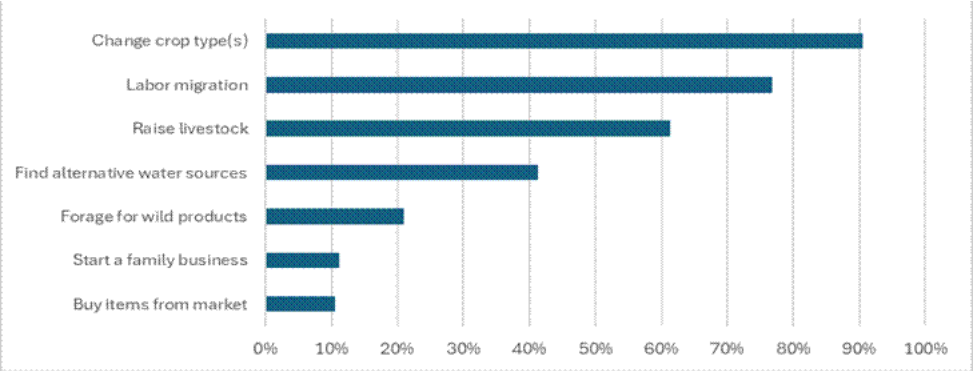
Many communities in Sayaboury Province use shallow wells for domestic needs, but deeper groundwater remains largely untapped. Regions like Sayaboury have significant aquifer systems suitable for development, with the potential to provide water to grow high-value crops in the dry season in the uplands and villages further from rivers, although water quality (salinity content) varies, so it is important to identify saline zones. While hydrogeological understanding is still rudimentary, with few maps, uneven well monitoring, and limited community-driven data collection, there has been progress in recent years.

In rural Laos, women are primarily responsible for household water collection and use. In times of conflict, climate change, or disasters, women are profoundly affected by water insecurity, with higher rates of gender-based violence resulting from water scarcity, and girls having a higher rate of school withdrawal than boys to support in water collection duties. Gender mainstreaming in water resource management leads to systems which are inclusive to the diverse roles people play in water usage, whether for domestic, agricultural, or economic purposes. It also helps prevent unintended consequences, such as overburdening women with additional responsibilities or excluding them from benefiting from water infrastructure projects.

(v) Adaptive Capacity and Community responses to climate change

In response to failing agriculture, 90% of respondents reported changing the types of crops they plant to species that are more drought resistant, like cassava (Figure 4). Households have also frequently relied on labor migration (77%), whether it be to neighboring villages, major cities or even abroad. More than 60% of those interviewed reported that they have either begun rearing livestock such as cattle, buffalo and goats or increased their reliance on livestock, while noting that seasonal droughts do still provide a threat to livestock as well. Interviewees noted that they have had to seek access to alternate water sources (41%), whether by traveling further to a surface water source or investing in pumping groundwater. There was a call for more assistance, with 46% of those interviewed making suggestions for future projects, half of which suggested projects surrounding water availability like new boreholes and improved irrigation systems for agriculture.

Figure 4. Community responses to climate change by percentage of households surveyed (*n* = 305)



(VI) Key Climate Problem

The key climate related problem that the project will address is the vulnerability of farming communities in 4 river basins in Sayaboury Province. This vulnerability results from 1) increased number of dry and high temperature days in the dry season leading to higher frequency, duration and intensity of agricultural drought; 2) number of days with very heavy rainfall in the wet season and more rainfall concentrated later in the year, resulting in extended periods of waterlogging as well as increased frequency, duration and severity of floods. These problems are compounded by the degradation of watersheds and riparian zones through expansion of unsustainable farming practices, together with the limited adaptive capacities of local government and communities to address these challenges through more effective water resource and river basin management which would reduce impacts of droughts and floods.

Barriers to action

Realizing the government of Lao PDR's vision for strengthening climate adaptation measures and resilient agricultural livelihoods nationally and in the northwestern part of the country, Sayaboury province faces a number of interconnected barriers.

- *Barrier 1: Limited institutional capacity at the provincial, river basin and local level to integrate climate adaptation into river basin management and development plans and translate them into actionable measures in Sayaboury province.* While Lao PDR has placed a high priority on ensuring climate change adaptation actions flow down from national plans and are reflected and implemented within river basin management plans, there are capacity constraints in Sayaboury that limit the development of evidence-based approaches to planning and mainstreaming climate change into policies and plans at the provincial and local district levels. Particularly, a lack of standardized information or holistic data, including the absence of Climate Change Vulnerability Assessments and water resource inventories. Additionally, detailed community consultations at the local level are absent, limiting the integration of local knowledge and understanding into national adaptation and management plans. There is still a need to enhance cross-sector coordination at the provincial and district level to facilitate a coherent and comprehensive CCA approach. Without an increased institutional capacity, it will be difficult to thoroughly assess and prioritize trade-offs in climate risks and vulnerabilities and move forward with the most effective climate change adaptation measures in Sayaboury province. The Nam-Poun basin already has a River Basin Management Plan (RBMP) plan incorporating climate change adaptation measures, such as promoting community livelihoods through climate-resilient agricultural activities and enhancing knowledge and awareness of climate adaptation. However, there is weak capacity and insufficient resources (including financial) to implement it. For the other river basins Nam-Houng, Nam-Poui, and Nam-Lay, management plans have recently been finalized. Implementation of the plans is

under the jurisdiction of the provincial government, primarily through PONRE offices. At the provincial and district-level, bottom-up river basin planning, and management is critical, requiring the above-mentioned cross-sectoral provincial steering committee and district level committees to collect on-the-ground information, relay community needs, views, and expectations, and integrate these insights into the broader river basin management planning process. This bottom-up aspect of planning not only captures the nuances of local needs and challenges but also aims for strategies to be locally relevant, community-driven and effective. Furthermore, this approach fosters community engagement and ownership, leading to more sustainable and effective management of water resources. These bottom-up mechanisms are not mature in the Nam-Poun basin and do not exist within the Nam-Poui, Nam-Lay and Nam-Houng basins.

- *Barrier 2: Insufficient support for implementation of NbS and small-scale water infrastructure*, NbS solutions and small-scale water infrastructure development have not yet been applied as solutions to help address the issues of drought and floods in the 4 river basins in Sayaboury. These potential solutions are not identified in existing plans and are not budgeted for in existing government budget allocations. Presently, communities and local government are not working together to co-identify the specific localized problems and solutions, develop pilots, and scale up what is working, in this vulnerable area of Sayaboury. Knowledge and capacity of local government staff to assist local communities in understanding the range of possible NbS options available to address some of the key climate change challenges and related disaster risk management is limited. In the absence of tried and tested adaptation measures, water security and therefore agricultural productivity are likely to decline further, threatening the income and food security of these already vulnerable communities. Without a community-driven bottom-up needs-based process for RBMP; and without greater awareness of the suitability and cost-effectiveness of NbS approaches within local government, the vulnerability of these communities to climate change will increase due to insufficient ownership of solutions if these are designed in a top-down manner by government agencies and will reduce their capacity to adapt in the future.

- *Barrier 3: Limited experience, models and access to appropriate technologies and approaches to promote climate-smart agriculture and alternative livelihood opportunities.* Laos has some experience supporting climate change adaptation in farming systems and livelihoods at the community level, however this is still limited, while the experience and expertise to test different approaches and scale up the most promising actions to river basin levels is lacking. A desktop analysis revealed that previous projects did not focus on integrating adaptation measures with the agricultural practices of local communities. Villages require technical assistance and lack access to appropriate supplies, technologies and equipment to promote effective adaptation measures. There is also limited learning and sharing of know-how amongst communities and limited experience to absorb and act on meteorological and hydrological advisories, forecasting and early warning related to possible hazards.

- *Barrier 4: Limited dissemination of knowledge around climate change and water resource management.* Without effective knowledge management, decisions on farming activities for climate change adaptation and disaster risk management are impaired, which results in ineffective planning and coordination as well as suboptimal and unsustainable solutions and the inefficient use of limited capital and resources. Furthermore, the unavailability of timely, accurate and integrated information on water resource management hinders effective and efficient decision making on adapting farming activities. Increased national and global knowledge on likely impacts of climate change to both upstream and downstream communities and infrastructure have not been appropriately democratized and used to inform on climate change related impacts such as increased flood risks, or severe droughts, nor to implement nature based and climate risk informed land-use development planning at the basin level.

Local communities do not have sufficient access to the knowledge, tools and information required to adopt climate resilient practices and technologies to agricultural systems. Such knowledge gaps will impede the implementation of climate change adaptation and resilience in Sayaboury province and more broadly in Lao PDR.

Underlying Drivers of Change

Climate change is driving changes in the incidence, spatial extent, severity and duration of both floods and droughts, impacting the livelihoods, well-being and safety of communities. At the same time, **Market forces** including the availability of relatively cheap and large quantities of cassava cuttings (stakes) for planting – initially imported from Thailand; the ready export market for cassava to Thailand, and the current high market price for cassava, are driving the conversion of forest and planting of large area of monoculture cassava. Poverty including both food insecurity and water insecurity necessitates farmers to try to maximize short-term income, which increases the impact of this driver. The resulting **unsustainable agricultural practices** lead to long-term changes in **forest cover, hydrology** and **soil fertility**, which combine with the climate impacts to drive a negative feedback loop on **agricultural productivity** and **climate resilience** as well as the **loss of traditional ecological knowledge and management practices**. Additionally, information from the World Resources Institute (WRI) shows an average of 60,000 hectares/year of primary forest was lost in Lao PDR from 2015 to 2019 (Figure 5). After 2019 the rates continued to increase. **Limited public or private sector investment** in agriculture and water resource management infrastructure also drives the continuing status quo for water management and agricultural practices. **Population growth** is increasing demand for access to land and resources, although this may be offset to a certain extent by **significant migration** of young adults to work in neighboring Thailand.

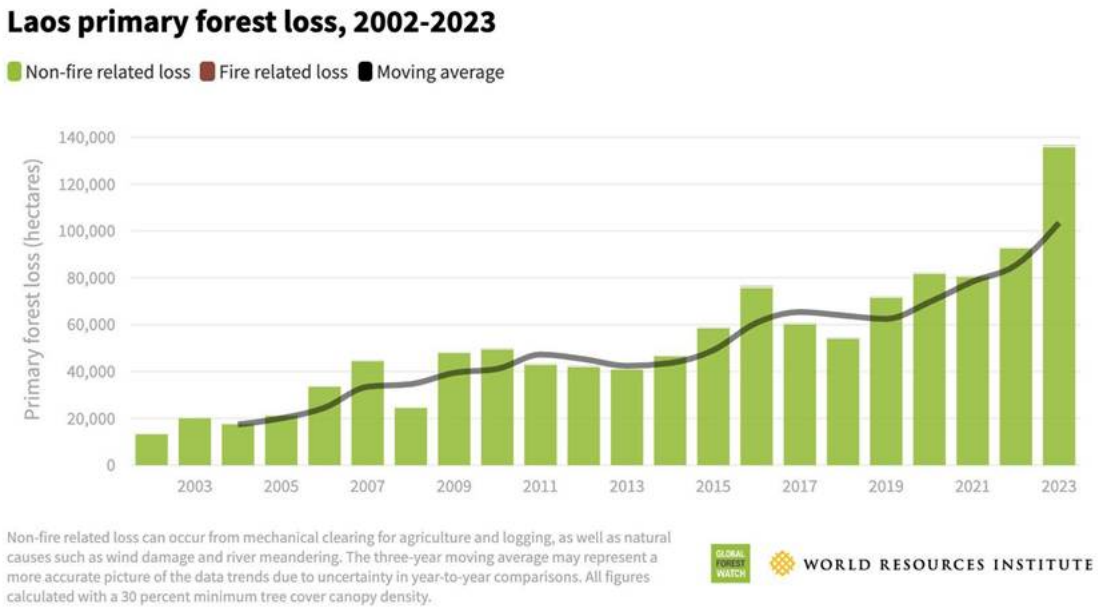


Figure 5: Loss of primary forest in Laos, 2002-2023

Alternate Future Scenarios:

From the discussion above, the two most important drivers for system change are climate change and market forces in agricultural commodities, leading to the possibility of the four alternate future scenarios described below.

Demand for agricultural exports decreases; Climate change slows;

While the ongoing large-scale shift to cassava growing in Sayaboury province may be an effective short-term strategy for local farmers, the longer-term picture is much more uncertain. Even if climate change impacts do not increase beyond their current level, over time continuous growing of cassava will deplete soil condition and yields will decrease. The annual income of farmers will increasingly be linked to global commodity prices for a single crop, reducing their resilience to price shocks. If regional market demand for cassava from Sayaboury decreases due to, e.g., saturation of the market, expansion of more cost-effective cassava production in other areas, or development of alternative feedstocks for ethanol and animal feed, then farmers will be left with degraded soils unsuitable for many other crops without larger fertilizer inputs which they cannot afford, and reduced income from sale of crops, challenging their ability to adapt to current climate variability. This will, however, increase farmers' receptivity to alternative crops and/or livelihood options, creating a window of opportunity to promote more resilient practices.

Without further assistance, the communities living in the four river basins in Sayaboury Province will continue to have limited resilience to the impacts of climate change they are presently facing. This includes inadequate adaptive capacity to implement alternative farming systems and improve local water resource management. Knowledge of climate-smart agricultural techniques, access to appropriate technology, availability of flood and drought tolerant strains of crops, and financial support for transition of agricultural systems will continue to be limited or completely lacking. If the rate of climate change slows, the national and provincial governments may put less emphasis on investments to adapt water systems, leading to less implementation of NbS interventions and less funding for small-scale water infrastructure. Communities will continue to lack appropriate local climate information and critical capacity to manage risks to productive activities and extreme events. Finally, good practices will remain undocumented and will not inform improved management and investment in adaptation. The well-being of local people – especially women and children will be increasingly impacted, as crop production and household income decline.

Demand for agricultural exports decreases, climate change accelerates:

Under this scenario, increasing temperatures and more intensive drought will speed up the degradation of soils, and productivity of cassava in Sayaboury is likely to decrease, compounding the pressures from a softening marketing described above. Farmers will clear more forested land to put into production in an attempt to compensate for the decreasing productivity and lower prices, which would exacerbate problems with runoff and flooding but also decrease the availability of NTFPs that many households rely on for supplemental food and income. Others may increase their investment in livestock, or revert to rice cultivation, but more prevalent droughts and floods will challenge production unless villages are supported to manage water variability. Villagers with the means to may invest in pumping groundwater to irrigate, but this will be uncoordinated and unregulated and could result in local over-exploitation and pollution (of water and soil). Migration would likely accelerate as more residents seek more stable income opportunities outside of their villages.

Recognizing the need to adapt water resource systems, the provincial government may prioritize investments in conventional grey infrastructure. But it will be difficult to also manage the quantity and quality of water coming from upstream, due to the combined pressures of increased deforestation and more erratic rainfall.

Demand for agricultural exports increases; Climate change slows;

With increasing demand and the perceived potential to increase income, the natural response of farmers will be to continue the ongoing attempts to open up new farming areas where soils are still in good condition to increase their yields – thereby creating pressure to convert more forest to farmland. This will further reduce the area of natural forest in the watersheds, creating impacts to the watershed and hydrological functions including reduced infiltration and ground water recharge, and increased run-off and sedimentation downstream. This will, in turn, further exacerbate the intensifying cycle of floods and droughts locally, even if climate change impacts themselves do not increase. Increasingly large areas growing only cassava are likely to facilitate more rapid spread of disease outbreaks, causing significant osses to farmers.

Demand for agricultural exports increases, climate change accelerates:

As with the scenario above, if there is increasing demand for agricultural products like cassava, and the perceived potential to increase income, the natural response of farmers will be to continue the ongoing attempts to open up new farming areas. And although this may provide additional income and possibly incentive for some farmers to invest in improving water reliability through, e.g., small-scale irrigation, it will also increase the negative downstream impacts of forest loss. By focusing ever more on commodities like cassava, farmers will become more vulnerable to climate shocks like drought and disease which are expected to be more prevalent if climate change accelerates. Further losses will also be caused by more frequent waterlogging and flooding of agricultural fields in the low-lying areas, putting subsistence crops like rice at risk.

Without action, northwestern Lao PDR and the target priority districts of Sayaboury province will continue to be subject to increasing and unmitigated impacts from climate change including changes to growing season conditions due to climate-induced disruption to seasonal variation and larger scale extreme climate events such as floods and droughts. Communities will continue to be ill-equipped and suffer because of limited capacity to anticipate and adapt to extremes, particularly floods, and manage water resources to maintain ecosystem services. In agriculture-dependent and poor communities, the impacts of climate change can threaten food security and livelihoods, particularly if demand for cash crops leads to decreased rice production. Including climate adaptation in river basin management can reduce these risks by promoting climate-adaptive agricultural practices, diversifying income sources, and improving resilience to extreme weather events. In the absence of technical assistance, it is also likely that domestic and external investment priorities will favor climate change infrastructure that may not reflect diverse bottom-up community needs and may still be susceptible to climate extremes and risk of displacement of communities to more ecologically fragile and disaster-prone areas.

Conclusion and Project Approach Justification:

These possible future scenarios reinforce the business case to invest in climate resilience through the LDCF window in northwestern Lao PDR in Sayaboury province at key watersheds to demonstrate and scale adaptation approaches that will support progress toward achieving Lao PDR's NDCs and climate change policy targets related to the agriculture and water sectors. These investments need to prioritize upstream and downstream communities alike, that are subject to regular inundation, precipitation anomalies and seasonal disruption. It is time to adapt land use, development, and agricultural systems in the vulnerable mountainous watersheds of Sayaboury province to work in concert with nature, leverage traditional ecological knowledge where appropriate and maximize the benefits of floodwaters and forested landscapes. Building Climate Change Adaptation (CCA) into IWRM/RBM will be critical for the safety and economic stability of agriculture-dependent communities, which needs to be implemented together with a shift to Climate Smart Agriculture (CSA) and more diversified livelihood options. This approach would allow

expenditures related to engineered flood control to be reduced, and its negative impacts on ecosystem services and associated water resources, food systems, and ecosystems minimized.

Based on the above situation, the project has been developed with the objective "To enhance climate change adaptation and resilience of upstream and downstream communities in Sayaboury, through IWRM, NbS, small-scale grey infrastructure and local livelihood diversification".

To do so, the project will deliver 4 key outcomes that will change the baseline and lead to an improved future scenario by enhancing capacities of local communities and local government agencies; implementing water resource management interventions on the ground, strengthening climate resilience of local communities, establishing effective early warning systems, and increasing availability and accessibility of lessons learned, as follows:

1. Policy, planning and capacities for CCA improved in 6 districts, 4 river basins and one province
2. Water security improved in 18 communities through gender-responsive and locally informed water resource management interventions on the ground
3. Resilience to climate change strengthened in 18 communities through climate adapted agriculture, livelihood diversification, and CBNRM
4. Increased availability and accessibility of knowledge and lessons learned to support further integration of CCA in IWRM

Investments to date have stopped short of addressing climate change adaptation and built-in resilience livelihood options within Integrated Water Resource Management (IWRM) and River Basin Management (RBM) policies, plans and processes in Sayaboury province. Compared with other potential initiatives, this project will deliver cost-effective solutions that are community-led and ultimately more sustainable. The project will be robust for future climate change, as it addresses the climate impacts that are anticipated to increase, namely floods and drought causing loss of and/or reduced yield of crops. The project will integrate climate change adaptation into IWRM processes and plans at the provincial level, and filter this down to ground level IWRM interventions and interventions with communities to mitigate the impacts of climate change on crops. An underlying principle of the project is to enable local communities to transition from the current reactive approach to a more proactive approach that anticipates and accelerates the implementation of future climate change adaptation measures.

Key Baseline Initiatives and Investments

(i) Baseline for Component 1 - mainstreaming CCA in water resource and river basin management

National IWRM Baseline

Integrated Water Resource Management (IWRM) in Lao PDR is overseen by the Department of Water Resources under the Ministry of Natural Resources and Environment (MoNRE), with a mandate to "*ensure nationwide coordinated, optimized and sustainable development and use of water resources, protection of the environment and improvement of social well-being*" at priority basin and sub-basins. This national entity operates under a legislative framework established by the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (1995) and the Water & Water Resources Law (1996, revised in 2017). Nationally, IWRM is also guided by the National Water Resources Strategy 2020, along with additional policies such as Decree No. 20 on Reservoir and Reservoir Management, National Water Resources Strategy 2025, and the Action Plan 2016-2020. Collectively, these laws and strategies form the backbone of water resource management in the country.

The IWRM framework is intersectoral, requiring coordination across various ministries and departments. The Ministry of Natural Resources and Environment (MoNRE) primarily coordinates with the Ministry of Agriculture and Forestry (MAF), among others. Derivative initiatives and projects may also involve collaboration with the Ministry of Energy and Mines, especially for those related to infrastructure or hydropower. This collaboration also extends from the central government to local and basin levels, ensuring the inclusion of comprehensive and integrated management of the country's water resources. This project deliberately adopts a multi-scale approach, ensuring that bottom-up village and district-level interventions are guided by provincial and basin plans for enhanced climate resilience, while engaging relevant Departments of MoNRE and MAF.

Provincial and district-level IWRM Baseline

At the provincial, district, and basin-level, River Basin Management Plans (RBMP) are developed and implemented through a structured governance mechanism. A provincial steering committee, led by the deputy governor and comprising representatives from various provincial offices, is responsible for disseminating and overseeing the plan at the district level. In turn, district-level committees, chaired by the Provincial office of Natural Resource and Environment (PoNRE), lead on-the-ground implementation with local stakeholders, including the Provincial office of Agriculture and forestry (PAFO), Provincial office of Planning and Investment (PPI), relevant mass organizations (e.g., Lao Women Union), Provincial office of Public Work and Transportation (PPWT), and district governors.

The Nam-Poun basin already has a RBMP plan incorporating climate change adaptation measures, such as promoting community livelihoods through climate-resilient agricultural activities and enhancing knowledge and awareness of climate adaptation. This project will review and support the refinement of RBMPs in four basins to strengthen their consideration of possible climate change scenarios, and will develop an initial assessment of groundwater resources for the province to facilitate its inclusion in planning for climate resilience.

National Climate Change Adaptation Baseline

Lao PDR has put in place several key strategies to support action to address the risks outlined above to livelihoods in the target areas. The Nationally Determined Contributions (NDC) outline long-term agricultural adaptation targets including the promotion of climate resilient farming systems, agriculture infrastructure and technology as well as targets to manage surface water, groundwater, and wetlands for climate change resilience. The NDCs also highlight priorities to increase water resource infrastructure resilience to climate change through nature-based solutions and strengthen early warning systems[16][16].The National Strategy on Climate Change (2010) and National Climate Change Action Plan (2013-2020) prioritize sector-specific projects on agriculture and water.

The proposed project will coordinate with other ongoing relevant initiatives and projects in the landscape. Nam Poui NPA has been a priority WWF-Laos site since 2010, and WWF-Laos has a team of 4 staff working from the Nam Poui NPA office under an annual Memorandum of Agreement (MOA) concluded with the Ministry of Forestry and Agriculture. This support includes PA management, community engagement, and institutional capacity strengthening with NPA staff, the Province and District Agriculture and Forestry Office (PAFO/DAFO) and local communities. WWF-Laos has previously collaborated with CARE International Laos

and the Gender Development Association (GDA) to conduct research on the nexus between gender-based violence and climate change in Sayaboury and Phongsali provinces[17].

Recently, WWF-Laos has supported the GoL in mainstreaming nature-based solutions, including ecosystem-based adaptation in WWF-GoL priority landscapes, to increase the resilience of those most vulnerable to climate change, while maintaining or enhancing the ecosystem services which they and the country's economy depend on, including through a site-based project in the Siphandone wetland in Champasak province. This LDCF project will build off the WWF-GoL collaboration in Sayaboury and will also draw on the experience and lessons learned from the Siphandone wetland project

(ii) Component 2- baseline regarding on the ground water management interventions

The International Water Management Institute (IWMI), through the CGIAR Initiative on Agroecology and the CGIAR Initiative on National Policies and Strategies, is helping to generate evidence-based research to support policy formulation in the water sector in Lao PDR. This includes the formulation of the national groundwater management action plan and developing community groundwater use management plans endorsed by the respective district authorities. These plans could facilitate equal access to water for crop cultivation and domestic use, in addition to addressing challenges in water governance and utilization. IWMI's recent work in Attapeu province has demonstrated that solar-powered and farmer-led groundwater irrigation can be an effective means of irrigation during dry-season agriculture in off-grid and non-irrigated areas in Lao PDR. However, their deployment requires support such as training before handover, the development of user manuals, institutional support such as regular extension services, and community mobilization. Implementation is already underway with the first dry season crop cultivation after the formal handing over of the groundwater irrigation system to the beneficiary community in 2024. Strengthening community ownership in the operation and maintenance of irrigation systems is an ongoing effort[18]. This LDCF project will continue to evaluate the results of the IWMI-led work to determine the most effective way to facilitate community-managed groundwater-fed irrigation in target villages in Sayaboury.

Partnerships with international agencies are an important part of DWR's approach to water management in Lao PDR. In April 2025, DWR signed an MoU with the International Water Management Institute (IWMI) to continue their collaboration in various areas of water resources monitoring, planning, and management, such as groundwater management, integrated water resources management, and water security and climate change. The Mekong-US Partnership has also built capacity in groundwater monitoring, safe yield estimation, mapping, and drilling supervision[19]. Regional training programs now equip officials and technicians across provinces, including Sayaboury, while the National Action Plan and basin management frameworks provide institutional momentum to embed groundwater in provincial planning. In addition, ADB is in the process of implementing a Regional TA on "Climate Adaptation Investment Planning (CAIP)" in Laos with MPI, MOF, and MONRE. Based on the consultation so far, they will prioritize one or two river basins and support the development of investment plans for the basins through a programmatic approach, along with a resource mobilization strategy. This project will collaborate with the CAIP program, particularly in relation to identifying options to magnify investment in appropriate water management, village forest management and resilient livelihood development, to scale the investments across the four river basins and support the replication of similar approaches in other basins across the country.

Nature-based Solutions (NbS) in the water sector involve utilizing natural ecosystems to provide water-related benefits, moving away from a reliance on solely traditional hard (grey) infrastructure. NbS helps build the overall resilience of hydrological systems, making them more adaptable to changing climate

conditions and increasing water security. In Laos, the benefits of NbS are starting to be understood, and there is some ongoing use of NbS approaches, but so far this is mainly in urban flood management in Central and Southern Laos.

In a GCF-funded project implemented by the Department of Climate Change, over 1,500 hectares of wetlands are being restored to regulate water flow and reduce flood risk in four cities lying on the Mekong mainstream – Vientiane, Paksan, Savannakhet, and Pak Se[20][20]. **The World Bank funded project Scoping Nature-based Solutions for Enhanced Dam Safety in Lao PDR implemented by ICEM includes** a climate change assessment to understand the impacts of climate change on potential flooding issues that can affect the safety and operation of the dams; recommendations for potential NbS for protection of water resources, prevention of sediment build-up and improvement of the operation of the irrigation dams and flood hazard mitigation; and advice on key considerations on potential environmental and social impacts, the monitoring, operation and maintenance, and the costing of the recommended NbS options[21][21]. This LDCF project will consider the methods the GCF and World Bank projects are using to evaluate the effectiveness of NbS, helping to establish consistent criteria for the Lao PDR government.

(iii) Component 3 - baseline regarding building Livelihood resilience

Financing gaps, particularly for smallholder farmers and local agribusinesses, further constrain the adoption of modern inputs, irrigation systems, and climate-smart technologies. Development partners such as the ADB, IFAD [22][22], World Bank[23][23], GIZ[24][24], and various NGOs are increasingly investing in sustainable agriculture initiatives. Programs focus on improving irrigation infrastructure, promoting organic and agroforestry farming systems, and encouraging responsible contract farming arrangements. Efforts are also being made to promote inclusive value chains and support small and medium-sized agribusinesses through technical assistance and financing schemes. There is a growing recognition of the need for blended finance and green finance tools to support agricultural transformation. Financial products targeting climate-smart agriculture, carbon-positive land use, and smallholder inclusion are being explored. In parallel, eco-tourism and agro-tourism present untapped potential. This LDCF project will build on the knowledge developed under such initiatives, but will make a stronger link between climate-smart agriculture (and related livelihood diversification) and provincial water resource management and river basin planning for climate resilience.

Sustainable agricultural models in Northern Lao PDR have demonstrated the potential to enhance crop yields, improve food security, and diversify household incomes, particularly for low-income, subsistence farmers. Key approaches include investments in improved upland rice cultivation systems that incorporate soil conservation, crop diversification, and rotations with legumes, sesame, and ginger to enhance soil fertility and reduce erosion. Similarly, sustainable cassava and maize production can be achieved through climate-smart practices, including intercropping and diverse rotation cycles that maintain soil health and reduce reliance on monocultures. Investments in livestock and fodder production—especially when integrated with agroforestry or fallow land use—also provide important livelihood benefits and help break cycles of rural poverty.

Enhancing irrigation systems is another priority, as reliable water access is critical for improving both wet and dry season yields and increasing resilience in rain-fed agricultural landscapes.

Complementary to these on-farm improvements, a broader strategy to support alternative and sustainable livelihoods is needed to ensure long-term resilience and forest protection. This includes promoting labor-intensive alternative crops such as agroforestry coffee, cardamom, and forest tea, which can coexist with tree cover and reduce pressure to clear forests. Crop diversification, such as household vegetable gardens and higher-value crops, along with better soil management using compost, manure, and green manure, can further enhance household income and sustainability. Non-timber forest products (NTFPs), including bamboo, rattan, and medicinal plants, play a vital role in the rural economy, particularly in upland communities, and show potential for expanded market development. Green finance mechanisms—such as conservation partnerships, green bonds, and carbon-based financing—offer additional support for ecosystem services. Finally, with its proximity to urban centers, the region has strong potential for nature-based tourism, which could become a viable livelihood option if supported by appropriate infrastructure development. For further details on Lessons Learned from Baseline investments on the ground, please refer to Annex 4: Lessons Learned.

The 40 million Euro GIZ project "Implementation of Governance, Forest Landscapes and Livelihoods Program (I-GFLL) 2" co-financed by the ADB, kfw, IBRD and IFAD aims to scale up the implementation of the Lao PDR Emission Reductions Programme in the 6 Northern provinces of Lao PDR, including Sayaboury, through improved governance and sustainable forest landscape management, including outcomes that Vulnerabilities of villagers are reduced and their livelihoods are improved by engaging in climate resilient, deforestation free value chains and access to markets; while Sustainable management, protection and rehabilitation of forest ecosystems is improved. While the project will not necessarily directly support the same target villages as this initiative, it will have activities within the target river basins.

Project Stakeholders

Primary stakeholders from the government offices at the central, provincial, and local levels as well as rights holders at the community levels have been identified for the analysis of their meaningful participation in the project design, implementation and monitoring and evaluation of the project.

At the national level, in addition to the executing agency the Department of Water Resources (DWR), other government stakeholders include the Department of Meteorology and Hydrology (DMH), the Department of Climate Change Management (DCCM), and the Department of Social Welfare (DSW). These departments will support the project through provision of relevant technical information and advice on activities of the project, as well as guidance on policy and regulatory aspects of the different interventions. At the same time, they can benefit from the experiences and lessons learned from the project and integrate these into their own activities. The key provincial stakeholders include the Provincial Governor's Office, the Provincial Office of Natural Resources and Environment (PONRE), Provincial Agriculture and Forestry Office (PAFO), Provincial Department of Labour and Social Welfare (PDLSW), Provincial Lao Women's Union (PLWU), Provincial Department of Public Works and Transport, and the Lao Front for National Construction (LFNC). These agencies will support the project through provision of relevant technical information and advice on activities of the project, and at the same time they will be involved in delivery of some of the project activities (particularly those at the provincial and river basin levels) and will be recipients of some of the project's capacity development efforts. In addition, they can benefit from the experiences and lessons learned from the project and integrate these into their own activities.

The key local stakeholders are the district authorities in 6 target districts of Sayaboury Province, and community leaders and members in 18 villages (see Table 6). In each of the 6 target districts the following district level stakeholders have been identified: District Governor's Office; District Office of Natural Resources and Environment (DONRE); District Agriculture and Forestry Office (DAFO), District Office of Labour and Social Welfare (DOLSW); District Lao Women's Union; District Office of the Lao Front for National Construction; District Public Works and Transport (DPWT). Similar to the situation with the provincial stakeholders, these district level agencies will support the project through provision of relevant technical information and advice on activities of the project, and at the same time they will be involved in delivery of some of the project activities (particularly those at the district and village levels), and will be recipients of some of the project's capacity development efforts. In addition, they can benefit from the experiences and lessons learned from the project and integrate these into their own activities.

At the regional/inter-governmental level the Mekong River Commission (MRC) is an important stakeholder. The inter-governmental organisation is working for sustainable development of the Mekong River Basin and is a platform for regional cooperation and transboundary water management. Additionally, MRC is working to address flood and drought risks, early warning systems and nature-based solutions in the region. Approaches, methodologies and lessons learned can be shared to benefit the implementation of specific activities of the project – especially related to water resource inventory, hydrological monitoring, and early warning systems.

The private sector will play a minor role in the project, but there are several private sector companies considered as stakeholders. Xayaburi Power Company Limited (XPCL) is a company registered in Lao PDR (but with 80% of shares held by Thai companies) which holds the concession for the operation of the 1,285 MW Xayaburi hydropower plant on the Mekong mainstream in Sayaboury Province from October 2019 to October 2048. The project may request information about the Mekong River Hydrological conditions from the company, but the company will not be directly involved in any project activities.

Pak Lay Power Company Limited (PLPC) is also a company registered in Lao PDR (with 60% of shares held by the Chinese company Synohydro and 40% by Gulf Energy Development) which has signed a concession agreement with the government of Lao PDR to construct and operate for 29 years the 770MW Pak Lay Hydropower project on the Mekong mainstream in Sayaboury Province, scheduled for commercial operation in 2032. The company will not play any direct role in project activities, but the company may be interested in the work of the project which will affect the hydrology of 4 tributaries entering the Mekong.

The project may need to discuss with both XPLC and PLPC about the operating regimes of the two dams (and whether they will be operated in isolation from each other or in a more coordinated manner). The timing and quantity of water releases from the dams will influence the volume of water in the section of Mekong mainstream between the two dams at any given time (e.g. if the upstream XPLC decides to release more water to generate more electricity in a period when their clients have a higher electricity demand but PLPC does not do the same thing, then the water level in the stretch of the river between the dams will be higher). If the rainy season water level in the Mekong is too high this will restrict the ability of the tributary rivers to discharge water into the Mekong and may cause back up water in the tributaries leading to overflow and flooding in the tributaries.

In addition, small private companies may be involved as service providers through procurement processes for the development of small-scale grey infrastructure, particularly ground water wells.

TABLE 6: LIST OF POTENTIAL KEY STAKEHOLDERS AND ROLES IN THE PROPOSED PROJECT

Stakeholder type	Stakeholder list	Possible contributions and roles in the project

Government ministries (at central and provincial levels)	1. MoNRE 2. MOF 3. MAF 4. MoLSW 5. MCWT 6. MoFA	Beneficiary of capacity-building; development of project relevant plans; delivery of technical components of the programs according to sectoral expertise; coordination with local authorities; mobilization of human and financial resources; the capacity building trainer could be the technical experts from International or local consultants.
Intergovernmental	Mekong River Commission	Sharing of information, methodologies and lessons learned regarding water resource inventories; hydrological monitoring; early warning systems and NbS.

National Organizations	1. Department of Water Resources (DWR) in MONRE 2.Department of Meteorology and Hydrology (DMH) in MONRE 3. Department of Climate Change (DCC) in MONRE 4. Department of Forestry (DOF) in MAF 5. Department of Planning and Cooperation in MAF 6. Department of Agriculture Land Management (DALaM) in DAF 7. Department of Agricultural Extension and Cooperatives (DAEC), (MAF) 8. Department of Social Welfare, (MLSW)	Provision of technical advice; provision of specialist service, project delivery.

	9. National Women's Union (NWU) 10. Department of International Organization (DIO)	

Regional and local administration	1. Sayaboury Department of Planning and Investment 2. Provincial Office of Natural Resources and Environment (PONRE) 3. District Offices of Natural Resources and Environment (DONREs) 4. Provincial Agriculture and Forest Office (PAFO) 5. District Agriculture and Forest Offices (DAFOs) 6. Provincial Labour and Social Welfare Department 7. Provincial Department of International organization	Beneficiaries of capacity-building; local coordination of activities; issuance of any relevant authorizations and permits

Community-level stakeholders	1. Village Development Committees 2. Village leaders 3. Natural resource user groups 4. Women's groups 5. Other vulnerable or marginalized groups 6. CBOs	Community mobilization; selection of appropriate interventions; delivery of program components; beneficiaries of capacity-building and on-the-ground interventions
NGO/CSO	1. GIZ 2. IUCN 3. WCS 4. WCA (Lao Wildlife Conservation Association) 5. Private Company (Firm) 6. Internatio nal 7. National 8. Others	Provision of technical advice; delivery of training and assets; social mobilization; monitoring of ecological conditions
Research Institutes	1. National University of Laos (NUoL) 2. National Agriculture and Forestry Research Institute (NAFRI)	Provision of scientific support and evaluating lessons learned

	3. Center for Statistics and Information in MAF	
Private Sectors	1. Xayaburi Power Company Limited 2. Pak Lay Power Company Limited	Water resource management data

[1] https://data.worldbank.org/country/lao-pdr?view=chart

[2] https://gain.nd.edu/our-work/country-index/rankings/

[3] Government of Lao PDR. 2012. Second National Communication to the United Nations Framework Convention on Climate Change. Vientiane, Lao PDR.

[4] EPF(2023) Implementation of Governance, Forest Landscapes and Livelihoods Program (I-GFLL) 2. A Proposal Submitted to GIZ on 03.05.2023

[5] Jean-Richard Laffort et Marc Dufumier, "From Slash-and-burn to Disk Ploughing: The Land Policy and Tractors Behind Erosion and Forest Pioneer Farming in Southern Sayaboury Province (Laos)", Moussons, 9-10 | 2006, 109-130.

[6] Greater Mekong Subregion Atlas of the Environment. 2nd ed. Asian Development Bank. 2012. https://www.adb.org/sites/default/files/publication/30074/gms-atlas-environment-2nd-edition.pdf.

[7] https://www.oneearth.org/ecoregions/luang-prabang-montane-rainforests/

[8] Ibid.

[9] Lao Statistics Bureau (2024) Results of new standards for GDP Calculation (2012) and Changes in GDP of Sayaboury province from 2012 to 2023. Sayabouli Province

[10] Lao Statistics Bureau (2024) Results of new standards for GDP Calculation (2012) and Changes in GDP of Sayaboury province from 2012 to 2023. Sayabouli Province

[11] Third National Communication on Climate Change - https://unfccc.int/sites/default/files/resource/Laos%20NC3_%20EngV.pdf

[12] https://wwfclimatecrowd.org/

[13] https://wwfasia.awsassets.panda.org/downloads/climate-change-and-gender-based-violence-in-laos_1.pdf

[14] State of Water: Laos

[15] https://www.droughtmanagement.info/literature/UNW-DPC_NDMP_Country_Report_Laos_2014.pdf

[16] https://unfccc.int/sites/default/files/NDC/2022-06/NDC%202020%20of%20Lao%20PDR%20%28English%29%2C%2009%20April%202021%20%281%29.pdf

[17] https://wwfasia.awsassets.panda.org/downloads/climate-change-and-gender-based-violence-in-laos_1.pdf

[18] Douangsavanh, Somphasith; Viossanges, Mathieu; Xaydala, Viengxay; Dubois, Mark. 2024. Sustainable water management: community-managed solar groundwater in Laos. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Initiative on Agroecology. 4p. https://hdl.handle.net/10568/159567

[19] mekongpartnership.org

[20] Nature-based solutions are at the heart of a major new project helping four cities in Laos - Global Center on Adaptation https://share.google/oMroqH9KgDkkfUKDQ

[21] Scoping Nature-based Solutions for Enhanced Dam Safety in Lao PDR - ICEM https://share.google/US7XBe8vvWti3y0EB

[22] https://webapps.ifad.org/members/lapse-of-time/docs/english/EB-2019-LOT-P-2-Project-Design-Report.pdf

[23] https://projects.worldbank.org/en/projects-operations/project-detail/P161473

[24] https://www.giz.de/en/downloads_els/Annual-Performance-Report-FP117.pdf

B. PROJECT DESCRIPTION

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the guidance document. (Approximately 3-5 pages) see guidance here

Based on the climate rationale outlined in the sections above, the project will specifically target six districts (Thongmixai, Paklay, Phiang, Saysathan, Sayabuli, Sayaboury, and Hongsa districts) in the in the Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng River Basins in Sayaboury province that are most susceptible and vulnerable to climate change. The project's long-term goal is to support the adaptation targets outlined by the government of Lao PDR in its most recent NDC to promote (i) climate resilience in farming systems and agriculture infrastructure; and ii) appropriate technologies for climate change adaptation, including nature-based and circular economy solutions. Water-related adaptation targets include i) managing surface water and groundwater for climate change resilience; ii) increasing water resource infrastructure resilience to climate change, including through nature-based solutions; and iii) strengthening early warning systems.

The project will take a systems-based approach, including aspects of governance (policies and plans); innovation and learning; and multi-stakeholder dialogue and collaboration; to co-design appropriate solutions grounded in community needs at the local level. When underpinned by knowledge and learning, an approach built on these pillars will facilitate the appropriate enabling environment created for lasting and scalable impact. With the objective of improving livelihoods in communities and increasing community resilience to the impacts of climate change, restoration of important upstream ecosystems will have co-benefits for people and the ecosystems they rely on. It is imperative that during the design of the prioritized interventions, the project management unit engages local communities in the planning and management of all infrastructure interventions, including assessing impacts on livelihoods and applying FPIC processes.

Gender in Climate Adaptation; Deploying Nature-Based Solutions and Climate Smart Agricultural Practices:

Throughout the project, wherever plans or policies are being rewritten or drafted, the PMU will Conduct participatory planning to promote clear land/resource use rights and equitable benefit-sharing are considered in the plan.

Women and ethnic communities, particularly in rural and remote areas, often have intergenerational knowledge of local ecosystems through their roles in managing natural resources. However, barriers in accessing formal decision-making spaces, land titling and acquisition, financial resources, and education, can limit their potential to benefit from NbS. The project will work so that NbS are designed to be gender-responsive, empowering women and marginalized groups by enhancing their roles in environmental stewardship and increasing resilience to climate change. In designing NbS the project will also consider that the time burden of implementing NbS, and the benefits derived from NbS opportunities may not be equitably shared amongst different stakeholders and can potentially disrupt social dynamics. NbS therefore need to be integrated through culturally and context informed measures to promote safe and sustainable benefits.

Relevant barriers to gender responsive Climate Smart Agriculture include limited access to land, financial institutions, climate information, and agricultural training. Gender mainstreaming ensures that these disparities are addressed by actively involving women and marginalized groups in the design, implementation, and evaluation of CSA interventions. It also promotes equitable access to climate-resilient technologies, such as drought-resistant seeds, irrigation tools, and early warning systems, promoting food security, economic empowerment and climate resilience.

For all training and capacity building efforts, the project will apply inclusive targeting, tailor support, and build capacity for vulnerable groups, especially women and ethnic communities. This will be achieved through dedicated, gender-sensitive training spaces and monitoring of inclusive participation and feedback.

Theory of Change:

The project's Theory of Change (ToC) and transformation logic articulated in Figure 1, is grounded on the premise that: **if** the project can support effective inclusive processes to identify community needs and leverage these to mainstream climate change adaptation and climate-informed disaster risk reduction into local IWRM and river basin management plans and policies; together with building the requisite institutional and professional capacity (**Outcome 1.1**) uniformly across all six districts in Sayaboury province, and; **if** community-identified and implemented upstream and downstream IWRM and RBMP actions including both NbS and small-scale. Grey infrastructure interventions are informed by further climate crowd consultations and widely tested and collectively endorsed **Outcome 2.1**) at the watershed level, and; **if** the project can set up the conditions for the uptake of diversified climate-proof and gender-informed livelihood opportunities and locally-appropriate climate information in all target communities (**Outcome 3.1**), and; **if** knowledge and

lessons in IWRM and RBMP, along with decision support tools and climate information are disseminated widely through gender-responsive communications, visibility and outreach products (**Outcome 4.1**); **then** the project will be able to overcome the barriers preventing local climate adaptation and resilience, and the threats to agricultural livelihoods and those particularly faced by local and highly vulnerable ethnic populations will be reduced to enable sustainable economic benefits and the lasting well-being of communities in the project area.

The LDCF project will build climate adaptation and climate resilience capabilities of vulnerable communities and local government in the "at risk" and nationally prioritized watersheds of the Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng Basins in Sayaboury. The project will particularly target marginalized and rural agriculture-dependent communities who rely on natural resources (including water, land and forests) for their livelihoods, while also being highly exposed to flood, drought and landslides with limited capacity to adapt to these climate hazards. The project will support resilient livelihoods together with NbS and small-scale grey infrastructure interventions on the ground that improve water security and help reduce the impacts of floods and droughts. Communications and knowledge management will then support the scaling of this approach across Lao PDR.

This integrated approach aims to reduce the risk of climate change impacts over time by addressing the exposure, and sensitivity of agricultural livelihoods to climate hazards in vulnerable districts and increasing the adaptive capacity of communities. Each output addresses one or more barriers to the further promotion of climate change adaptation. Opportunities to promote gender equality within the project context will be primarily facilitated through GESI responsive technical support, ensuring equitable access to resources and trainings, and inclusive consultation spaces. Lao PDR has a high overall representation of women in political spheres, with further assessment of Sayaboury Province demonstrating women across Provincial and District level leadership spaces. The project can benefit from this entry point by ensuring GESI inclusive data related to the project objective is integrated into relevant plans and policies, reflecting the needs and realities of concerned communities.

Ultimate achievement of the project's objective is influenced by a number of assumptions regarding the willingness and capacity of government at different levels to engage in integrated planning exercises addressing flood and other climate-risks as part of a landscape or watershed level approach, the capacity of key sector and value chain actors to invest in climate-smart agricultural practices and nature-based solutions and the continuing access to climate information services and decision support tools.

The ToC assumes the following:

Component 1:

- **Assumption No. 1:** Local stakeholders are willing to work cooperatively and engage in integrated watershed management and climate change adaptation in Sayaboury Province;
- **Assumption No. 2:** Local government agency partners commit to working together across silos in an integrated approach to mainstream climate adaptation into IWRM and RBMP;

Component 2:

- **Assumption No. 3:** Department of Water Resources recognizes NbS and small-scale grey infrastructure as cost-effective alternatives for watershed investment

- **Assumption No. 4:** Communities and farmers are receptive to alternative models of water resource management and how to apply them.

Component 3:

- **Assumption No. 5:** Farmers are receptive to climate adaptive agriculture approaches and diversified livelihood strategies to adapt to climate change risks.
- **Assumption 6:** Local communities make use of climate information, forecasts and early warning systems;

Component 4:

- **Assumption 7:** Communications internalize experiences and lessons learned from the project to sustain and replicate interventions
- **Assumption 8:** National audiences and external actors use knowledge products to help scale approaches across other river basins

Across all components, the project will leverage the transformational levers of (i) innovation and learning; (ii) multi-stakeholder collaboration; (iii) financial leverage; and (iv) governance and policies. It will also consider as well positive drivers of change as they each apply to the causal pathways to achieve these outcomes and systems transformation, and through this intervention logic the barriers will be removed, and the baseline will change. Taken together, the transformational objective will be achieved, the project will address vulnerable livelihoods through increased resilience, adaptation and food security, and global environmental benefits will accrue.

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this project, including financial management and procurement. If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

The Department of Water Resources (DWR) in the Ministry of Natural Resources and Environment (MoNRE) and its associated line agencies at the Provincial and District levels, is the executing entity, primarily responsible to execute the project, supported by the WWF-Laos Country Office. A Project Management Unit (PMU) will be established and hosted in DWR (Figure 7). The PMU will coordinate and deliver the project activities in close cooperation with key partners, including Department of Meteorology and Hydrology (DMH) in MONRE, the Provincial and District DWR offices (PONRE, DONRE) and Provincial and District Agriculture and Forestry (PAFO and DAFO). Additional assistance in implementation will be obtained through service providers (international and national companies, NGOs, and other government agencies) on a contractual basis. The

PMU staff will include a full-time National Project Coordinator based in Vientiane. A full-time Gender and Safeguards Specialist and a Project Admin and Support Officer will be based in Sayaboury, while a full-time M&E and Communications Specialist may be based in either Vientiane or Sayaboury as appropriate. A finance position will sit in the Vientiane office for ease of coordination with DWR, WWF Laos Program Operations and Finance team. The National Project Coordinator will report to the Conservation Director in WWF Laos; all other PMU positions will report to the National Project Coordinator. Consultants will also be hired to work closely with the National Project Coordinator and PMU to provide additional technical advisory capacity on issues including nature-based solutions, flood management, watershed monitoring, and early warning system.

The project's organization structure together with funding and reporting flows is illustrated in Figure 2. The project will be overseen and guided by a Project Steering Committee (PSC) and the PMU will act as the secretariat for the PSC. The Project Steering Committee (PSC) is the main strategic decision-making and coordinating body of the Project. In accordance with Decree No. 357 and the MOFA decree concerning INGOs and considering the project budget is over USD 5 million, the committee should be chaired by the Office of the Minister of MONRE (i.e. the Minister of the Vice-Minister), with the Country Director of WWF as a co-chair.

Th function of PSC Member Secretary will be filled by the National Project Coordinator (NPC), who will be responsible for convening PSC meetings, for preparing the agenda and for taking the minutes. PSC members will include the NPD (in representation of the DWR); the NPC; representatives of DWR and partner organizations and WWF. The PSC will take policy-level decisions on project implementation, such as recommendations to WWF on necessary strategic adaptations of the Project, and senior management decisions, including the approval of Annual Work Plans and Budgets and the approval of major project deliverables. The PSC will also provide strategic guidance, review the progress of project implementation, facilitate strategic coordination between stakeholders, and ensure the delivery of cofinancing. PSC decisions will be taken unanimously, or where not possible, by majority vote. PSC meetings will allow virtual attendance, particularly for members stationed outside Vientiane. PSC meetings will take place twice per. The resolutions of PSC meetings will be circulated by the NPC, no later than two weeks following meetings.

Proposed Composition of Project Steering Committee

PSC Role	Organization	Title
Chair	MONRE	Minister/Vice-Minister
Co-Chair	WWF	Country Representative
Member	MPI	
Member	DWR	National Project Director (Director-General)
Secretariat	PMU	National Project Coordinator
Member	DCC	
Member	DMH	
Member	DOE	
Member	DOF	
Member	DFL	
Member	Thongmixay District Governor's Office	
Member	Pak Lay District Governor's Office	
Member	Phiang District Governor's Office	
Member	Xaysathan District Governor's Office	
Member	Sayabouri District Governor's Office	
Member	Hongsa District Governor's Office	
Member	WWF US	

The execution services to be provided by Department of Water Resources (MONRE) are expected to include:

- Hosting the PMU
- Preparation of procurement plans
- Preparation of terms of references and recruitment of consultants to be awarded service contracts to implement specified activities within the project results framework (together with WWF-Laos)
- Management of consultant activities
- Management of output deliverables
- Maintenance of records of all project-related documentation
- Management and administration of the Knowledge Management Plan
- Preparation of technical progress reports (together with WWF Laos)
- Consultation with project stakeholders
- Coordination with project partners, including sub-grantees.

Sub-executing partners to deliver several activities on the ground include other government and non-government entities, to be identified.

PMU staff roles and responsibilities and the PSC roles and responsibilities have both been defined and agreed during the PPG phase and are specified in detail in Annexes 6 (ToRs for key staff) and Annex 7 (ToR for PSC).

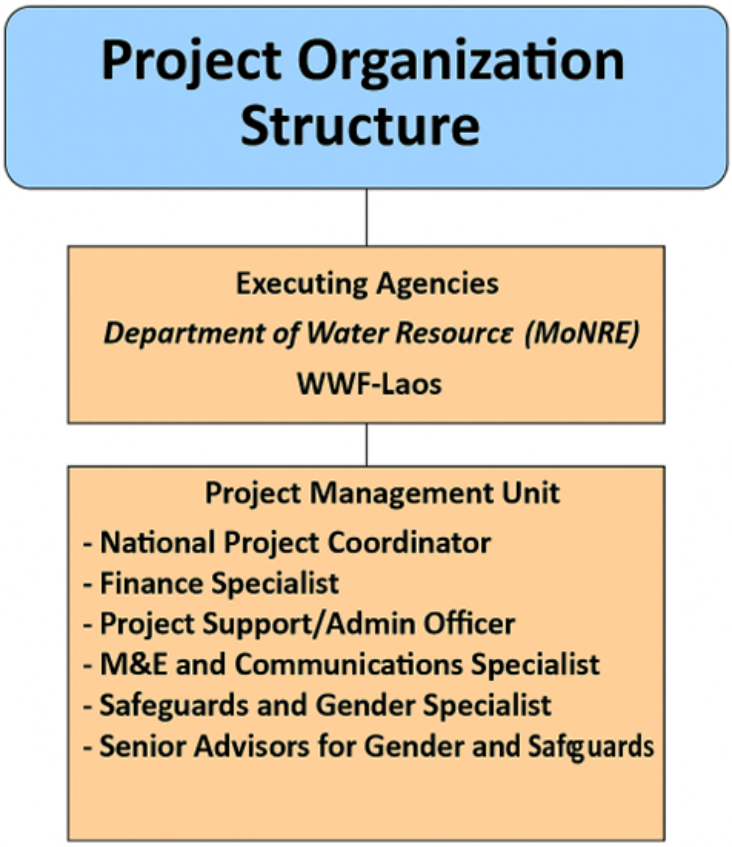


Figure 1: PMU Structure and Composition

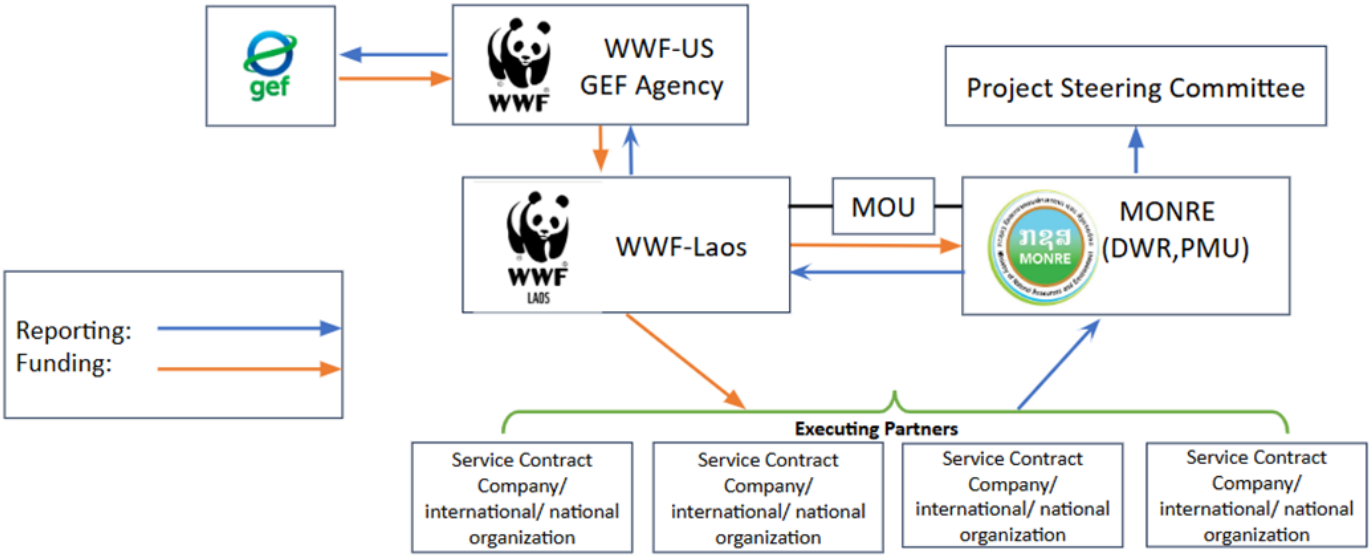


Figure 2: Organizational Structure for Implementation

The Laos Government has approved WWF-Laos to provide execution support to DWR for the implementation of this project. This was confirmed during the earlier phase of project development.

The scope of this support has been discussed among DWR, WWF-Laos and WWF-US (GEF Agency), and includes WWF-Laos undertaking the following tasks for the project:

- Financial management and preparation of financial reports for the project
- Sub-grant assessments, awards and management
- Transfer of funds received from WWF-US to DWR and to all contracted service providers, and review of financial reports for use of those funds
- Procurement (based on plans developed with the PMU)
- PMU Staff recruitment (recruited by WWF-Laos on behalf of government but hosted at DWR offices)
- Technical assistance to support government and sub-grantee delivery of the project.

Will the GEF Agency play an execution role on this project?

No

If so, please describe that role here and the justification.

NO.

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

The proposed project will coordinate with other ongoing relevant initiatives and projects in the landscape. Nam Poui NPA has been a priority WWF-Laos site since 2010, and WWF-Laos has a team of 4 staff working from the Nam Poui NPA office under an annual Memorandum of Agreement (MOA) concluded with the Ministry of Forestry and Agriculture. This support includes PA management, community engagement, and institutional capacity strengthening with NPA staff, the Province and District Agriculture and Forestry Office (PAFO/DAFO) and local communities. WWF-Laos has previously collaborated with CARE International Laos and the Gender Development Association (GDA) to conduct research on the nexus between gender-based violence and climate change in Sayaboury and Phongsali provinces[1][25].

FAO recently concluded the GEF SAMIS project (Strengthening Agro-climatic Monitoring and Information Systems to Improve Adaptation to Climate Change and Food Security in Lao PDR) and discussions are underway to develop a follow-on, SAMIS 2, with support from the Green Climate Fund. Given SAMIS's emphasis on improving climate-related information for farmers, and the close involvement of MONRE and MAF, there is synergy with this project's activities on climate information systems and early warning systems in the 18 target villages.

Led by the Government of Lao PDR with support from the UN Development Programme, another 4-year project "Integrated water resource management and ecosystem-based adaptation in the Xe Bang Hieng River Basin and Luang Prabang City" aims to increase the resilience of communities in two particularly vulnerable areas – the Xe Bang Hieng river basin in Savannakhet Province and the city of Luang Prabang – through: Strengthened national and provincial capacities for Integrated Catchment Management and integrated urban Ecosystem-based Adaptation for climate risk reduction; Ecosystem-based Adaptation (EbA) interventions with supporting protective infrastructure and enhanced livelihood options; Community engagement and awareness-raising around climate change and adaptation opportunities, as well as knowledge-sharing within and outside Lao PDR; and The introduction of community-based water resource and ecological monitoring systems in the Xe Bang Hieng river basin. PMU staff for this LDCF project will communicate closely with the UNDP-led project staff as it nears completion in 2026, to incorporate their relevant insights on, e.g., the implementation of NbS for flood risk reduction and the inclusion of complementary grey infrastructure.

In upland areas, NbS such as watershed management and wetland restoration can also contribute to improved water quality by reducing sediment and nutrient run-off. The UNDP Project "Promoting Climate Resilience through EbA solutions in Northern Lao PDR" aims to enhance resilience and sustainable livelihoods in 4 river basins through the acceleration of EbA solutions improving forest and landscape management to enhance capacity to retain water, reduce run-off, and stabilize slopes[2][26].

Recently, WWF-Laos has supported the GoL in mainstreaming nature-based solutions, including ecosystem-based adaptation in WWF-GoL priority landscapes, to increase the resilience of those most vulnerable to climate change, while maintaining or enhancing the ecosystem services which they and the country's economy depend on, including through a site-based project in the Siphandone wetland in Champasak province. This

LDCF project will build off the WWF-GoL collaboration in Sayaboury and will also draw on the experience and lessons learned from the Siphandone wetland project.

The project will also collaborate with the GIZ project "Implementation of Governance, Forest Landscapes and Livelihoods Program (I-GFLL) 2 " Collaboration will focus on development of VFMPs, and development of sustainable, climate resilient and deforestation free agricultural practices and agroforestry in which the project will invest, together with building capacity of personnel in district government offices.

The project will also collaborate with the ADB "Climate Adaptation Investment Planning (CAIP)" project This project will be working in one or two river basins and supporting the development of investment plans for the basins, along with a resource mobilization strategy. Collaboration with the CAIP program will largely focus on identifying options to magnify investment in appropriate water management, village forest management and resilient livelihood development, to scale the investments across the four river basins and support the replication of similar approaches in other basins across the country.

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[1] https://wwfasia.awsassets.panda.org/downloads/climate-change-and-gender-based-violence-in-laos_1.pdf

[2] https://www.adaptation-undp.org/projects/promoting-climate-resilience-through-ecosystem-based-adaptation-eba-solutions-northern-lao

Core Indicators

Indicate expected results in each relevant indicator using methodologies indicated in the GEF-8 Results Measurement Framework Guidelines. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

META INFORMATION – LDCF

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

Is this project LDCF SCCF challenge program?
false
This Project involves at least one small island developing State(SIDS).
false
This Project involves at least one fragile and conflict affected state.
true
This Project will provide direct adaptation benefits to the private sector.
false
This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs).
false
This project will collaborate with activities begin supported by other adaptation funds. If yes, please select below

Green Climate Fund	Adaptation Fund	Pilot Program for Climate Resilience (PPCR)
false	**false**	**true**

This Project has an urban focus.

false

This project will directly engage local communities in project design and implementation

false

This project will support South-South knowledge exchange

true

This Project covers the following sector(s)[the total should be 100%]: *	
Agriculture	30.00%
Nature-based management	30.00%
Climate information services	5.00%
Coastal zone management	0.00%
Water resources management	30.00%
Disaster risk management	5.00%
Other infrastructure	0.00%
Tourism	0.00%
Health	0.00%
Other (Please specify comments)	0.00%
Total	100.00%

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

Sea level rise	Change in mean temperature	Increased climatic variability	Natural hazards
false	**true**	**true**	**true**

Land degradation	Coastal and/or Coral reef degradation	Groundwater quality/quantity
true	**false**	**true**

CORE INDICATORS – LDCF

	Total	Male	Female	% for Women
CORE INDICATOR 1 Total number of direct beneficiaries	19,000	9,500.00	9,500.00	50.00%
CORE INDICATOR 2 (a) Area of land managed for climate resilience (ha) (b) Coastal and marine area managed for climate resilience (ha)	15,000.00 0.00			
CORE INDICATOR 3 Number of policies/plans/ frameworks/institutions for to strengthen climate adaptation	30.00			
CORE INDICATOR 4 Number of people trained or with awareness raised	3,390	1,720.00	1,670.00	49.26%
CORE INDICATOR 5 Number of private sector enterprises engaged in climate change adaptation and resilience	0.00			

SUB INDICATOR 1

	Total	Male	Female
1.1 Number of direct beneficiaries from more resilient physical and natural assets	19000	9,500	9,500

1.2 Number of direct beneficiaries with diversified and strengthened livelihoods and sources of income	19000	9,500	9,500
1.3 Number of direct beneficiaries from the new or improved climate information services including early warning systems	19000	9,500	9,500
1.4 Number of youth (15 to 24 years of age) benefiting from the project	0	0	0
1.5 Number of elderly (over 60 years of age) benefiting from the project	0	0	0
1.6 Increased income, or avoided decrease in income (per capita in $ across all relevant beneficiaries)	0		

SUB-INDICATOR 2

2.1 Hectares of agricultural land

7,500

2.2 Hectares of urban landscape

0

2.3 Hectares of rural landscape

0

2.4 Hectares of forests

7,500

2.5 Hectares of marine area

0

2.6 Hectares of freshwater area

0

2.7 Number of residential houses

0

2.8 Number of public buildings

0

2.9 Number of irrigation or water structures

0

2.10 Number of fishery or aquaculture ponds or cages

0

2.11 Number of ports or landing sites

0

2.12 Km of road

0

2.13 Km of riverbank

0

2.14 Km of coast

0

2.15 Km of stormwater drainage

0

2.16 Number of new adaptation technologies supported

12

SUB INDICATOR 3

3.1 Number of policies/plans developed and strengthened that will mainstream climate resilience

(regional, national, sub-national)

5

3.2 Number of systems and frameworks established for continuous monitoring, reporting and review of climate adaptation impacts

0

3.3 Number of national climate policies and plans enabled, including national adaptation planning processes

0

3.4 Number of institutional partnerships or coordination mechanisms established or strengthened

0

3.5 Number of institutions with increased capacity to plan, implement, monitor, and report for climate adaptation

7

3.6 Number of institutions with increased capacity to attract, and manage climate adaptation finance

0

3.7 Number of local community organizations benefitting from and/or engaged in institution strengthening, partnerships, or financing

0

3.8. Number of climate risk and vulnerability assessments conducted

18

SUB INDICATOR 4

4.1 Number of people trained or made aware of climate change impacts and appropriate adaptation responses	Total	Male	Female
a) National government	0	0	0
b) Local government	150	100	50
c) Local community organizations	3240	1,620	1,620
d) Extension services	0	0	0
e) Hydromet and disaster risk management agencies	12	8	4
f) School children, university students, and teachers	0	0	0
g) Youth			

	0	0	0

SUB INDICATOR 5

	Total	Male	Female
5.1 Amount of investment mobilized (US$) from private sector sources			
5.2 Number of entrepreneurs supported for climate adaptation or resilience	0		
5.3 Total financial value of lines of credit and/or investment funds			
5.4 Number of MSMEs incubated/accelerated with technical assistance, financial matchmaking, and/or direct financing			

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Moderate	Extreme weather events could hamper project implementation, but also provide further justification and impetus for the planned interventions. All project activities are designed for climate resilience, so that results are highly unlikely to be undone by climate-related extreme weather events.
Environmental and Social	Moderate	Risk is the project design and implementation results in environmental and social impacts cannot be adequately mitigated . This risk has been assessed through a comprehensive screening procedure that has determined a Moderate level of risk, arising from a combination of risks concerning human rights, indigenous people, child welfare community health, safety and security, physical and cultural resources, gender equality and women's rights, and climate change. This risk has been mitigated through the inclusion in the project design of an Environmental and Social Management Framework (ESMF), including an Indigenous Peoples Planning Framework, a project-level Grievance Redress Mechanism (GRM) and a Cultural Resources Plan. In addition, a Stakeholder Engagement Plan and a Gender Assessment and Gender Action Plan have been prepared.
Political and Governance	Low	While there is substantial buy-in and good will to implement the project evident during the planning stage, government priorities could change, and key personnel may be shifted to different positions. – this risk is mitigated by the involvement of all stakeholders in project planning from the beginning and ongoing planned engagement and consultations throughout the project.
INNOVATION		

Institutional and Policy	Low	There is little risk that government agencies will have difficulties prioritizing the project as it is aligned with existing relevant strategies and policies in the country and involves the appropriate agencies in line with their institutional mandates. In addition, the project has a number of capacity-strengthening activities for local government agencies. In the event of government turnover, there are systems in place within the OFP office in Laos to ensure existing projects remain in implementation and supported by the government.
Technological	Low	NbS technologies and approaches are not well understood, and their cost-effectiveness is not widely known. There is a risk that government agencies may wish to stay within their comfort zone and favor the use of more gray infrastructure with which they are more familiar. The project will manage the risk through an upfront effort to develop an evidence-based approach for managing climate risks, local planning and mainstreaming of climate resilience in policies in Sayaboury province. Furthermore, the project delivery relies on extensive engagement with the local community so that the design of the IWRM and NBS solutions are fit for purpose, viable and tailored to the availability of local communities.
Financial and Business Model	Low	The project adopts a standard approach to adaptation without any innovative financial and business models. No risks are therefore foreseen on this parameter.
EXECUTION		
Capacity	Moderate	Government capacities at the district level are limited – both in terms of the number of personnel, and their levels of skills and experience. The project will identify the capacity gaps and actively strengthen the capacity of stakeholders involved to lead/participate in relevant activities and continue these beyond the project's duration. With respect to absorptive capacity, partners with the ability to deliver parts of the project together with government are being identified and their roles will be formalized in project implementation. mostly through the issuance of service contracts
Fiduciary	Low	Government has requested WWF-Laos to support project administration, including financial management and procurement, for more efficient delivery. The residual risk is therefore low.
Stakeholder	Moderate	The diversity of stakeholders involved in the project including different ethnic minority groups with different languages, means that without effective stakeholder engagement there is a risk that certain stakeholders will not be adequately involved and will not be able to either contribute to and/or benefit from the project as intended. Extensive stakeholder engagement will continue to be undertaken during project implementation, with special focus on inclusive engagement processes for ethnic minority groups, women, persons with disability, youth and other vulnerable groups. This will be informed by the detailed stakeholder engagement plan. The remaining risk is therefore moderate.
Other		

Overall Risk Rating	Moderate	The overall risk rating was identified as moderate. Considering individual categories of risk, many were identified as low and the rest as moderate with no high risk ratings for any category. Based on the individual ratings it may even be appropriate to consider the overall rating as low, however given the central importance of environmental and social risk, which was rated as moderate, it was agreed to consider the overall rating as moderate.

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this. (max. 500 words, approximately 1 page)

The project is aligned to two CCA Objectives, CCA-2, Mainstream climate adaptation and resilience for systemic impact, and CCA-3, Foster enabling conditions for effective and integrated climate change adaptation, as it will build an enabling environment for increased climate adaptation, including provincial and district government capacity, and will mainstream CCA into IWRM policies, plans and processes for 4 river basins in a highly vulnerable context, and will build increased community capacities and experience for climate adaptive agriculture.

The project addresses all four pillars highlighted in the GEF-8 LDCF Programming Strategy on Adaptation to Climate Change (2022-2026) in an integrated manner:

- **Agriculture, Food Security, (and indirectly health)**: The project will support investment in climate-smart agriculture and will foster agroecological transformation in the target villages.
- **Water**: Project measures will all be framed through the lens of IWRM and will enhance capacity for water resource assessment and planning, but will also include targeted interventions designed to slow, capture and store water as both protective measures against floods and to enhance water security in the dry season;
- **Nature-Based Solutions**: As a cornerstone of its interventions, the project will promote nature-based infrastructure to mitigate floods and droughts, improve fish migration and enhance ecosystem health across the four river basins;
- **Early Warning and Climate Information Systems:** The project will promote local use of climate information, implement automated early warning systems, and provide related institutional capacity building.

In terms of scale, the primary approach of the project will be to work at all three LDCF intervention scales, employing ecosystem and nature-based adaptation approaches, landscape and value-chain based approaches, supported by regional (provincial and river basin) approaches with an emphasis on rural areas of northern Laos.

The project will support policy coherence and mainstreaming of climate adaptation at wider landscape/ watershed/ scale, as well as in local community and local government planning and actions. Component 1 primarily focuses on adaptation planning and investments at a systems scale through mainstreaming, cutting across different sectors, local districts, and governance levels, requiring enhanced vertical (across governance) and horizontal (across sectors) institutional integration. The project will have a strong focus

on knowledge management and sharing and ensuring effective arrangements for long-term collaboration among different stakeholders to promote a “whole-of-society” and “whole-of-government” approach and may consider including private sector engagement based on further consultations and project planning during the inception phase.

Contribution to the Kunming-Montreal Global Biodiversity Framework Targets

Although it is not designed as a biodiversity project, and biodiversity conservation is not a major objective of the project, nevertheless it can be seen that the project will make some contributions towards the KMGBF targets, as follows:

TARGET 2: Restore 30% of all Degraded Ecosystems

This target is to ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity. The project will contribute to this through (i) restoration of some upper watershed areas of the 4 river basins; and (ii) restoration of riparian zones of some stretches of water courses.

TARGET 8: Minimize the Impacts of Climate Change on Biodiversity and Build Resilience

Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

This target focuses on (a) minimizing the impacts of climate change and ocean acidification on biodiversity, (b) the contribution of biodiversity, through nature-based solutions or ecosystem based approaches, to climate mitigation and adaptation and disaster risk reduction and (c) minimizing negative and fostering positive impacts of climate action on biodiversity. Of these, this project directly relates to (b) the use of NbS. This refers to actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits including on mitigation, adaptation and disaster risk reduction. The project will be using in NbS in freshewater ecosystems to improve resilience of those systems and the benefits they provide to resilience of local communities.

TARGET 10: Enhance Biodiversity and Sustainability in Agriculture, Aquaculture, Fisheries, and Forestry

This target ensures that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches. Such approaches contribute to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature’s contributions to people, including ecosystem functions and services. The project will be supporting the development of sustainable agricultural systems which are ”Climate Smart” and contribute to increased resilience of the local communities.

TARGET 11: Restore, Maintain and Enhance Nature’s Contributions to People

Restore, maintain and enhance nature’s contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature. The project will contribute to this target by supporting Community-Based Natural Resource Management (CBNRM), particularly management of village forests through the development and implementation of Village Forest Management Plans (VFMPs). The VFMPs

will ensure that the village forests are sustainably managed to provide a continuing stream of goods and services for the local communities.

Alignment of the project with national plans, policies, and strategies

National Climate Change Adaptation Baseline

Lao PDR has put in place several key strategies to support action to address the climate-related hazards and risks to livelihoods in the target areas. The project takes into consideration the majority of the barriers to climate change adaptation in Lao PDR identified in the country's latest NDC. It is aligned with priorities and contributes to activities identified in Lao PDR's NBSAP, Natural Resources and Environment Five Year Plan 2021-2025, and National Strategy on Climate Change. More specifically the project will contribute to the following national plans, policies, and strategies.

The 9th National Socio-Economic Development Plan 2021-2025: The plan outlines programs of work to enhance adaptation to climate change and reducing risks of natural disasters.[1][27]

*Nationally Determined Contribution (NDC***)**: Long-term agricultural adaptation targets include the promotion of: i) climate resilience in farming systems and agriculture infrastructure and ii) appropriate technologies for climate change adaptation, including nature-based and grey infrastructure solutions. Water adaptation targets include i) managing surface water, groundwater, and wetlands for climate change resilience; ii) increasing water resource infrastructure resilience to climate change, including through nature-based solutions; and iii) strengthening early warning systems[2][28].

National Strategy on Climate Change: The project is aligned with the strategic actions related to climate adaptation, particularly those referring to data management and reporting, capacity strengthening, enhancing access to information, and developing adaptive infrastructure, production systems and value chains. It will also support capacity development in government for climate monitoring, horizontal and vertical coordination, and the development and implementation of adaptation plans. It will contribute to the following sector-specific projects actions:

- *Agriculture*: Conduct assessments of climate impacts on agriculture; enhance knowledge transfer, advisory services and technology transfer to farmers; enhance capacity to manage water supply systems; enhance capacity for the implementation of adaptation plans.
- *Water*: Enhance climate change adaptation and resilience, including in watersheds and wetlands; implement measures for adaptation, resilience, water resources use, and mitigation of conflicts and impacts, especially in the event of drought and floods.

- *Rural development and settlement:* Conduct assessments of climate impacts on settlements and rural development; develop and implement climate adaptation plans; identify and relocate communities that settle in climate and disaster risky areas[3][29].

National Strategy on Disaster Risk Reduction 2021-2030: The project will contribute to the priority actions of this strategy, primarily (i) understanding risks, vulnerability and risk assessment; (ii) strengthening risk governance; (iii) reducing vulnerabilities and building resilience and (iv) strengthening disaster preparedness for more effective response and recovery to build back better (BBB)[4][30].

National Biodiversity Strategy and Action Plan (NBSAP): Lao PDR's National Biodiversity Strategy and Action Plan (NBSAP) 2016-2025 identifies the importance of other freshwater ecosystems to biodiversity, as well as rivers, waterways and marshlands. Among the planned activities, the NBSAP lists the management water resources as a priority in comprehensive alignment with principles on integrated water resource management, particularly at sub watershed levels, and their governance through River Basin Organizations (RBOs)[5][31]. Section 9 of the NBSAP focuses on cross-cutting themes, including the ability of natural and semi-natural system to respond to climate change or natural disaster, as well as the adaptation and disaster control services that a given natural or semi-natural system may provide. Furthermore, Section 9.2 identifies conservation and restoration of "natural infrastructure" as an important climate change adaptation and hazard management solution.

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[1] https://rtm.org.la/wp-content/uploads/2021/11/PPT_NREP2021-2025_10-November-2021-10.11.21-1.pdf

[2] https://unfccc.int/sites/default/files/NDC/2022-06/NDC%202020%20of%20Lao%20PDR%20%28English%29%2C%2009%20April%202021%20%281%29.pdf

[3] https://www.undp.org/sites/g/files/zskgke326/files/migration/la/UNDP_LA_National_Strategy-on-Climate-Change_Lao-PDR_2010.pdf

[4] https://www.preventionweb.net/media/76795/download?startDownload=true

[5] https://www.cbd.int/doc/world/la/la-nbsap-v2-en.pdf

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment

We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

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

Yes

If the project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

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

Yes

Improving women's participation and decision-making; and/or

Yes

Generating socio-economic benefits or services for women.

Yes

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

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement**.**

Yes

Select what role civil society will play in the Project

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

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

Executor or co-executor;

Other (Please explain)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in section B project description?

Yes

Environmental and Social Safeguards

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate	Medium/Moderate		

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted and an anticipated timeline for delivery of relevant outputs has been provided.

Yes

Socio-economic Benefits

We confirm that the project design has considered socio-economic benefits to be delivered by the project and these have been clearly described in the Project Description and will be monitored and reported on during project implementation (at MTR and TER).

TABLE 9: List of Stakeholder Consultations undertaken during the PPG

Date	Name of event	Total participants	Key institutions
5 December 2024	Village selection meeting in Thongmisay District	6 (1 woman)	Thongmisay District Deputy Governor, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), WWF-Laos, Department of natural resources and environment (DONRE), Sayyaboury province, Thongmisay-District Office of natural resources and environment (DONRE).
4 December 2024	Village selection meeting in Phaklay District	6	Phaklay District Deputy Governor, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), WWF-Laos, Department of natural resources and environment (DONRE), Sayyaboury province, Paklay-District Office of natural resources and environment (DONRE).

4 December 2024	Village selection meeting in Pheing District	6 (2 women)	Pheing District Deputy Governor, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), WWF-Laos, Department of natural resources and environment (DONRE), Sayyaboury province, Pheing-District Office of natural resources and environment (DONRE).
15 November 2024	Village selection meeting in Saisathan District	6	Saisathan District Deputy Governor, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), WWF-Laos, Department of natural resources and environment (DONRE), Sayaboury province, Saisathan-District Office of natural resources and environment (DONRE).
14 November 2024	Village selection meeting in Hongsa District	6	Hongsa District Governor, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), WWF-Laos, Department of natural resources and environment (DONRE), Sayyaboury province, Hongsay-District Office of natural resources and environment (DONRE)
13 November 2024	Village selection meeting at Sayaboury Provincial Administrative office	12 (2 women)	Sayyabouly District Governor, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), Department of natural resources and environment (DONRE), Sayyaboury province, Sayaboury District Office of natural resources and environment (DONRE) and WWF-Laos
9 October 2024	Project Kick-off Workshop	45	Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), Department of Climate Change Management, Department of Meteorology and Hydrology, Department of Land, Department of Planning and Finance, Department of Environment, Department of Personnel Organization, Department of Forestry, Department of Agricultural Land Development and Management, Department of Agriculture, Department of International Cooperation, MPI, MOFA, NGOs and INGOs in Laos: WWF, Work Bank, IUCN, WCA, WCS, FAO, Care international, MRC, People in need, GGGI, GIZ, GDA, RECOFTC, AFD.
24 October 2024	Provincial Stakeholder Workshop	59 (9 women)	Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), Department of International Organization, Ministry of Foreign Affairs (MOFA), Provincial Office for Natural Resources and Environment (PONRE), Provincial Cabinet Office, Provincial Agriculture and Forestry (PAFO), Lao Women's Union, Provincial Planning and Investment Office, POFA, Energy and Mines, Public Works and

			Transportation, Industry and Commercial, Provincial Health Office, Education and Sports, Culture and Information, includes the representatives from district governor, deputy governor, and DAFO office and district natural resources and environment offices of six target districts Phiang, Paklay, Thongmixay, Sayaboury, Xaisathan, and Hongsa.
09 January 2025	WWF-DWR-Symmetry project planning meeting	16 (5 women)	DWR, WWF-US, WWF-LAOS, Symmetry
20 February 2025	Mid-term Review for The Project of "Enhancing Integrated Watershed Management and Climate Resilience in the Nam Poui-Nam Poun-Nam Lay and Nam Houng in Sayaboury Province)	35 (10 women)	DWWF-US, WWF-LAOS, Symmetry, Department of Water Resource, Ministry of Natural Resources and Environment (MONRE); Department of Climate Change Management; Department of Meteorology and Hydrology; Department of Land; Department of Planning and Finance; Department of Environment; Department of Forestry; Department of Agricultural Land Development and Management, Department of Agriculture, Department of International Cooperation, MPI, MOFA, NGOs and INGOs in Laos: WWF, IUCN, WCA, WCS, FAO, Care international, People in Need, GGGI, GDA
31 March 2025	Progress Report and Community Validation Workshop Meeting Minutes for the Project of "(Climate Adaptive River Basins of Sayaboury Province (CARBS)"	110 (36 women)	Minister of Natural Resources and Environment (MONRE), representatives from the Department of Water Resources (MONRE), Department of Climate Change Management, Department of Meteorology and Hydrology, Lao Women's Union, Department of Planning and Finance, and Department of International Cooperation. Officials from the Ministry of Foreign Affairs (MOFA), Provincial Office of Natural Resources and Environment (PONRE), Provincial Agriculture and Forestry Office (PAFO), Provincial Office of Foreign Affairs (POFA), Provincial Energy and Mines Office, Provincial Office of Planning and Investment, as well as district authorities from six target districts—including district governors/vice governors, District Office of Natural Resources and Environment (DONRE), and District Agriculture and Forestry Office (DAFO), and 18 village authorities
06 June 2025	Local Project Appraisal Committee Meeting for Project Endorsement	35 (6 women)	Department of Water Resource, Ministry of Natural Resources and Environment (MONRE), Department of Climate Change Management, Department of Meteorology and Hydrology, Lao women's Union, Department of Planning and Finance, Department of Environment, Department of Personnel Organization, Department of Natural Resources

Research, Department of Forestry, Department of International Cooperation, MOFA,LNMC, NGOs and INGOs in Laos: WWF, Work Bank, UNDP, ADB, GIZ, IUCN.

Socioeconomic Benefits:

The project will deliver a variety of socio-economic benefits at the local level in Sayaboury province, Members of 18 communities (especially women) will have improved livelihood opportunities including through improved farming practices and new varieties of crops and livestock, as well as off-farm income sources. Water security will be increased, providing opportunities for improved crop yields and increased income. Economic losses from climate related hazards including floods and droughts will be reduced as more resilient livelihoods take root and NbS as well as small-scale grey infrastructure investments improve conditions and reduce damage and loss caused by floods and drought. The cost-effectiveness of NbS approaches means that local government budgets can achieve the same level of climate hazard protection without need for the higher levels of spending on additional grey infrastructure which is more costly.

ANNEX A: FINANCING TABLES

GEF Financing Table

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

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant($)	Agency Fee($)	Total GEF Financing ($)
WWF-US	LDCF	Lao PDR	Climate Change	LDCF Country allocation	Non-Grant	6,772,477.00	609,523.00	7,382,000.00
Total GEF Resources ($)						**6,772,477.00**	**609,523.00**	**7,382,000.00**

Project Preparation Grant (PPG)

Was a Project Preparation Grant requested?

true

PPG Amount ($)

200000

PPG Agency Fee ($)

18000

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	PPG($)	Agency Fee($)	Total PPG Funding($)

WWF-US	LDCF	Lao PDR	Climate Change	LDCF Country allocation	200,000.00	18,000.00	218,000.00
Total PPG Amount ($)					**200,000.00**	**18,000.00**	**218,000.00**

Please provide Justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total($)
Total GEF Resources					**0.00**

Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
CCA-1-1	LDCF	3,047,615.00	16355674
CCA-1-1	LDCF	1,354,495.00	7269185
CCA-1-3	LDCF	2,031,743.00	10903781
CCA-1-4	LDCF	338,624.00	1817297
Total Project Cost		**6,772,477.00**	**36,345,937.00**

Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Laos Department of Water Resources	In-kind	Recurrent expenditures	331384
Recipient Country Government	Ministry of Natural Resources and Environment, Department of Forestry, Minister of Agriculture and Forestry	Grant	Investment mobilized	34731301
GEF Agency	WWF-US	In-kind	Recurrent expenditures	470555
Others	WWF-Laos	In-kind	Recurrent expenditures	812697

Total Co-financing				**36,345,937.00**

Please describe the investment mobilized portion of the co-financing

Investment mobilized was identified through discussions with multiple government ministries and the conclusion that the following will contribute to the overall objective of the WWF GEF Laos LDCF Project; i) Implementation of Governance, Forest Landscapes and Livelihood Program, ii) Scaling up the implementation of the Lao PDR Emissions Reductions Programme through improved governance and sustainable forest landscape management and iii) Community based fire management project in the Laos PDR.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	6/16/2025	Renae Stenhouse	2027669372	renae.stenhouse@wwfus.org
Project Coordinator	6/16/2025	Jacquelyn Beattie	2028306302	jacquelyn.beattie@wwfus.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Please attach the Operational Focal Point endorsement letter(s) with this template.

Name of GEF OFP	Position	Ministry	Date (MM/DD/YYYY)
Ms. Phakkavanh Phissamay	Director General	Ministry of Natural Resources and Environment	10/2/2023

ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document.

						Targets (annual, or mid-term and close)						
Indicator / unit	**Definition (note if cumulative)**	**Method/ source**	**Responsible**	**Disaggregation**	**Baseline**	**YR1**	**YR2**	**YR3**	**YR 4**	**YR5**	**YR 6**	**Notes/ Assumptions**
Objective: To enhance climate change adaptation and resilience of upstream and downstream communities in Sayaboury, through IWRM, NbS, small-scale grey infrastructure and local livelihood diversification.												
Outcome Description: 1.1 Policy, planning and Capacities for CCA improved in 6 Districts, 4 River Basins and one province												

Outcome 1.1. Indicator 1: Number of climate risk and vulnerability assessments conducted **GEF CCA Core Indicator 3, sub-indicator 3.8**	climate risk and vulnerability assessment: Community Climate Vulnerability Assessments (CCVA) to be developed through the project Cumulative)	The assessment will include social mapping and in-depth survey data expanding on the climate crowd consultation process The process will provide equal opportunities for the participation of women, youth, and ethnic minorities	PMU	By each complete assesment endorsed/signed off on by govt.	0			6			18	The PMU will determine which years the CCVAs will be conducted in which villages with the hopes of achieving at least 6 by Y3
Outcome 1.1 Indicator 2: Number of institutions with increased capacity to plan, implement, monitor, and report for climate adaptation **GEF CCA Core Indicator 3, sub-indicator 3.5**	Increased capacity: Six District DONRE offices and 1 provincial PONRE Office receive trainings and capacity strengthening to implement resource management plans developed and strengthened through the project.	Kirkpatrick 4-level evaluation, see the Annex on Lessons Learned for the details of this methodology	PMU	By government office level	0						7	The trainings are delivered to government ministries and that by the project end when these ministry staff are surveyed their understanding and capacity has increased for CCA

Outcome 1.1 indicator 3 District level polices and plans approved **GEF CCA Core Indicator 3, sub-indicator 3.1**	Policies an plans: 1 provincial Groundwater Plan; 4 River Basin Plans; (Cumulative)	Official Documentation of approved Policies and Plans available publicly on-line	PMU		0			0	5			5 Approved in Y3
Outcome Description: 2.1 Water security improved in 18 communities through gender-responsive and locally informed water resource management interventions												

Outcome 2.1 indicator 1: Number of Villages with, and the area of, land managed for climate resilience (hectares) through project activities including small-scale Nature-Based Solutions or piloting small grey infrastructure projects in districts for water or forest resource management **GEF CCA Core Indicator 2, sub-indicator 2.1, 2.4**	**Small-scale Nature-Based Solution** interventions here are distinct actions taken that include the use of green-infrastructure as well as utilizing natural processes(such as mimicking or enhancing natural functions), for water resource or forest management **Small-scale grey infrastructure projects** are defined as engineered systems built to manage water flow on a localized or limited scale. (Cumulative)	Measured by the number of villages implementing these activities and the total number of hectares included in these interventions in both forests and agricultural lands (Cumulative) This will be monitored through documentation of the interventions – reports, photographs, videos	PMU		0	0	0	4 Villages TBD Hectares s	10 Villages TBD Hectares	16 Villages TBD Hectares	16 Villages 15,000Hectares	Ideally this would happen in all 18 villages, but the project is conservatively estimating that Nb S and grey infrastructure interventions will be implemented in 4 villages in YR3, 6 in YR4 and 6 in YR5 Grey infrastructure interventions completed in 2 districts in YR3, 2 in YR4, and 2 in YR5

Outcome 2.1 Indicator 2: Number of direct beneficiaries from more resilient physical and natural assets (sex disaggregated) **GEF CCA Core Indicator 1** **sub-indicator 1.1**	Direct beneficiaries are benefiting specifically from **Nature-Based Solution** interventions **Small-scale grey infrastructure projects** deployed through this project to enhance community resilience. See definitions above for interventions. *(beneficiaries are also the beneficiaries in Outcome Indicators under 3.1)* (Cumulative)	Questionnaire survey of beneficiaries. Individual testimonials and. Biggest Significant Change (BSG) evaluation.	PMU	50% female	0	0	0	1,500 F 1,500 M	3,600 F 3,600 M	4,400 F 4,400 M	9,500 F 9,500 M	Assuming village members are benefitting from the infrastructure and interventions on the ground in proportion to the number of villages the interventions are rolled out in each year
Outcome Description: 3.1 Resilience to climate change strengthened in 18 communities through climate-adapted agriculture, livelihood diversification and CBNRM												

Outcome 3.1 Indicator 1: Number of direct beneficiaries a) with diversified, strengthened and more resilient livelihoods and sources of income Indicator 2: b) benefitting from the new or improved climate information services including early warning systems **GEF CCA Core Indicator 1** sub-indicator 1.2, 1.3	Beneficiaries: people identifying as having access to, and understanding of, project interventions to improve livelihoods. For the purposes of this objective, improved livelihoods is defined as increased income and/or more stable income that is resilient in the face of climate events b) new or improved climate information services means; (i)built and functioning in place in target villages; (ii) understood and (iii) used by villagers (Cumulative) *(beneficiaries are also the beneficiaries in Outcome Indicator 2.1)*	Questionnaire survey of beneficiaries. Individual testimonials and. Biggest Significant Change (BSG) evaluation. Reports on establishment/ construction of the systems.	PMU	Beneficiaries of livelihood interventions should be 50% female Indicator is sex disaggregated	0	0	0	0	3,600 F 3,600 M	5,400 F 5,400 M	9,500 F 9,500 M	Assumption: Only 1% of the rural farming population of the target districts in Sayaboury province have access to diversified livelihood opportunities to cushion against climate shocks. Target population in villages for early climate warning systems are based on-Systems in place and understood in 6 villages in YR4, another 4 in YR5 and being used in YR6

Outcome 3.1 Indicator 2 Number of people trained or made aware of climate change impacts and appropriate adaptation responses (sex disaggregated) at Local Government and Local Community Level, *also measures Outcome 4.1 and Outcome 2.1 objectives.* **GEF CCA Core Indicator 4** sub-indicator 4.1	People trained/made aware of climate change impacts: people from local authorities and communities who attend proje cttrainings on on risk information and monitoring systems, and understanding climate information and climate hazard risk data collection to make informed decisions about agriculture, water resources and disaster preparedness (Not Cumulative)	Kirkpatrick 4-levels of learning post-training surveys. , see the Annex on Lessons Learned for the details of this methodology .	PMU	Local Government 150 (M:100; F:50) (Sayabour y Province 30 people; an d 6 Districts 120 people). Local Communities 3,240	0	0	Lo cal Go vt. 10 M 1 F	Local Govt. 150 M 50 F Local Comm unities: M 1620; F 1,620	Local Govt. 150 M 50 F Local Comm unities: M 1620; F 1,620	Local Govt. 150 M 50 F Local Comm unities: M 1620; F 1,620	Local Govt. 150 M 50 F Local Commu nities: M 1620; F 1,620	Government will be trained earlier in the project during the development of provincial level plans, the female ratio is lower than male in the government as there are less female members of provincial level government than male
Outcome Description: 4.1 Increased availability and accessibility of knowledge and lessons learned to support further integration of CCA in IWRM												

Outcome 4.1 indicator 1 Percentage of Project stakeholders have access to and then utilize the knowledge and lessons learned for CCA and IWRM produced through the project	Have access to means the materials are language-appropriate, easily accessible and applicable for the context of target audiences Utilized here means knowledge and communications materials are being used in their work or daily life (Cumulative)	Mid-term and end of project "Market Research" surveys of the target audiences of the project knowledge and communications products	PMU	Surveys should target equal #s of female and male respondents	0	0	0	10%	20%	25%	50% 10% report utilization	The target is that 50% of the intended target audience of the materials acknowledge receiving and reading or viewing the materials, and 10% use them in some way (e.g. in helping to design new projects, etc.)
M&E: Monitoring and evaluation data contributes to efficient decision making and to adaptive project management.												

Level of progress in implementing the M&E plan Y1: 2 PPRs, 4 QFRs, 1 RW Y2: 2 PPRs, 4 QFRs, 1 RW Y3: 2 PPRs, 4 QFRs, 1 RW, Y4: 2 PPRs, 4 QFRs, 1 RW, 1 MTE Y5: 2 PPRs, 4 QFRs, 1 RW Y6: 2 PPRs, 1 PCR, 4 QFR, 1 RW, 1 TE	PPR: Project Progress Report QFR: Quarterly Financial Report RW: Reflection Workshop MTE: Mid-Term Evaluation PCR: Project Close Report TE: Terminal Evaluation		PMU			100 %	100 %	100%	100%	100%	100%	

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount ($)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Stakeholder Consultations	46,736.00	14,475.00	32,261.00
Meetings, Workshops and Travel for project development	32,900.00	3,537.00	29,363.00
Project Design and Development of Project Documents	77,131.00	20,415.00	56,716.00
ESS Document Drafting-ESMF, SEP	33,000.00	33,000.00	0.00
Gender Analysis and Action Plan	10,233.00	10,233.00	0.00

Total	**200,000.00**	**81,660.00**	**118,340.00**

ANNEX E: PROJECT MAP AND COORDINATES

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

Location Name	Latitude	Longitude	GeoName ID
Ban Namyang village, Pak Lay district	18.05833	101.241	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Phon village, Pak Lay district	18.2856	101.3012	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Souvannaphoum village, Pak Lay district	18.40373	101.5079	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Hatdai village, Pak Lay district	18.43601	101.4948	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Mai village, Thongmixay district	18.36416	101.1395	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Det village, Thongmixay district	18.37256	101.1892	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Nale village, Phieng district	18.70664	101.5618	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Nongbouaphinong village, Phieng district	19.04768	101.5269	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Namngim village, Phieng district	19.09772	101.3451	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Houaydok village, Sayabouly district	19.13022	101.7401	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Sisaythong village, Sayabouly district	19.30597	101.3387	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Khonpiat village, Sayabouly district	19.31205	101.4796	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Nakhan village, Sayabouly district	19.371	101.5537	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Sakhet village, Xaysathan district	19.39764	101.2433	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Doykao village, Xaysathan district	19.40891	101.3508	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Samakkhixay village, Xaysathan district	19.49668	101.2845	

Location Description:

Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Houaychong village, Hongsa district	19.55635	101.4764	

Location Description:

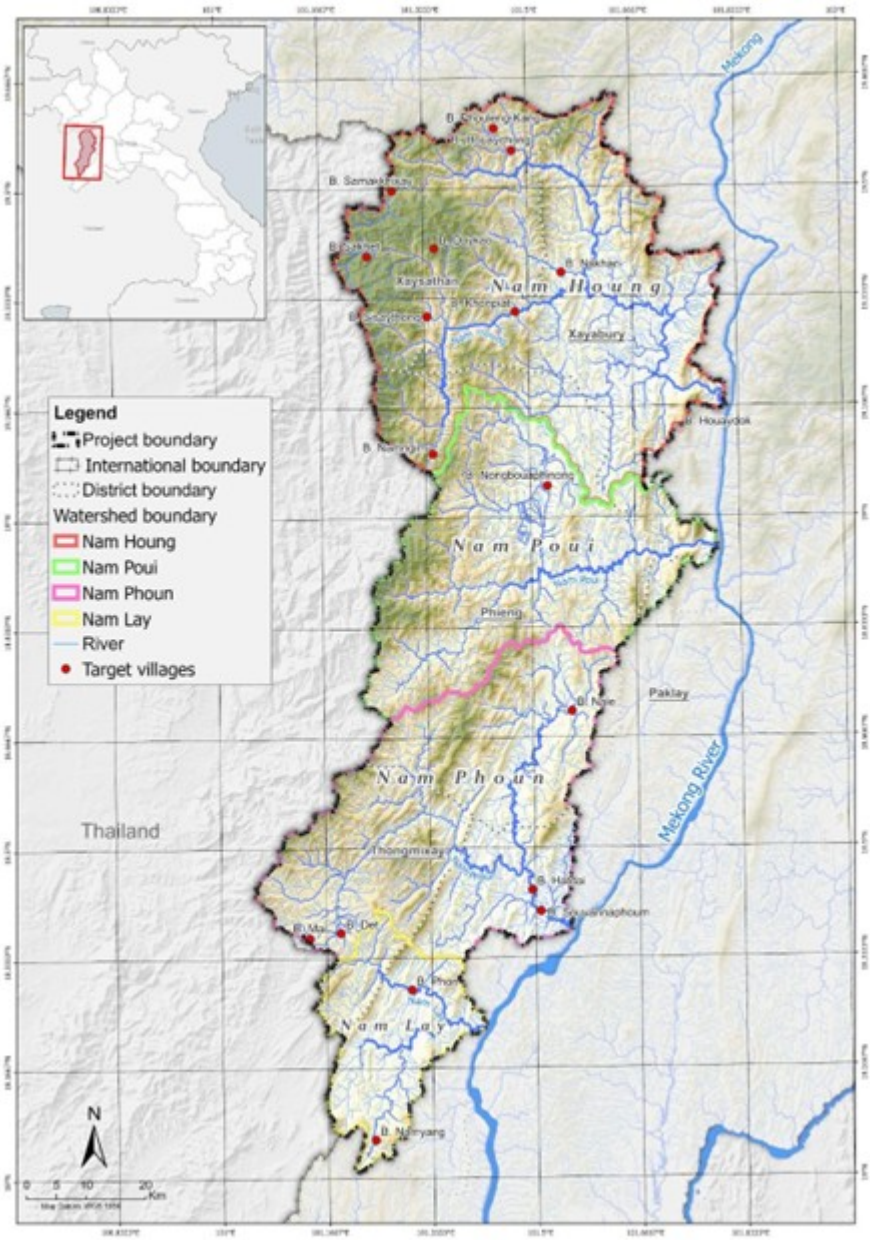
Activity Description:

Location Name	Latitude	Longitude	GeoName ID
Ban Phouleng-Kang village, Hongsa district	19.5901	101.4487	

Location Description:

Activity Description:

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.



Please see a larger, clearer image in the map and coordinates annex.

ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

Attach agency safeguard datasheet/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts (as applicable).

Title
WWF GEF8 Laos LDCF Gender Analysis and GAP
WWF GEF8 Laos LDCF ESMF Updated
Stakeholder Engagement Plan CARBS WWF GEF8 Laos LDCF
Categorization Memo WWF GEF LDCF CARBS

ANNEX G: BUDGET TABLE

Please upload the budget table here.

Please explain any aspects of the budget as needed here

For a more legible budget please see the roadmap section uploaded annex G. The portal will not allow for larger images (more pixels) to be uploaded in this section.

Expenditure Category	Detailed Description	Budget notes and assumptions #	Component (USDeq.) TOTAL COMPONENT 1 Mainstreaming climate change adaptation (CCA) into planning and policy: integrating CCA into provincial WRM and river basin management plans	TOTAL COMPONENT 2 Community-driven Interventions to improve climate resilience:NbS and small-scale grey infrasstructure interventions on the ground	TOTAL COMPONENT 3 Enhancing Resilience: Promoting climate-smart agriculture and diversifying livelihoods	TOTAL COMPONENT 4 Knowledge management and communications: Disseminating lessons, practices and experiences from the project to faster adaptive learning	Monitoring and Evaluation	PMC	Total Project	Responsible Entity (Executing Entity receiving funds from the GEF Agency)[1] PMU Hosted by MONRE with Staff Seconded from
Works:	Supplies, tools and equipment for restoration of Water and Water Resources Protected Areas including management of water quality		$ -	$ 280,812	$ -	$ -			$ 280,812	PMU
	Supplies, tools and equipment for landscape management/restoration of riparian zones in selected target communities		$ -	$ 280,812	$ -	$ -			$ 280,812	PMU
	Supplies, tools and equipment for management of natural wetlands in selected target communities		$ -	$ 280,812	$ -	$ -			$ 280,812	PMU
	Supplies, tools and equipment for restoration of upper watersheds in selected target communities		$ -	$ 280,812	$ -	$ -			$ 280,812	PMU
	Equipment and construction materials to implement small-scale grey infrastructure interventions		$ -	$ 850,000	$ -	$ -			$ 850,000	PMU
	Provision of material, equipment, seeds and seedings		$ -	$ -	$ 872,000	$ -			$ 872,000	PMU
	Meetings and workshop costs to Conduct an Inventory and analysis of water resources in 4 basins	3	$ 20,000	$ -	$ -	$ -			$ 20,000	PMU
	Workshops to consult with stakeholders in the development of a provincial database of water resources	4	$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	Meetings and workshop costs to develop and implement trainings for Provincial, District Staff and village committees on CCA, NbS, Climate risk informed water manangement practices, and community-led participatory approaches		$ 60,000	$ -	$ -	$ -			$ 60,000	PMU
	workshops for Participatory Development of Community Climate Vulnerability Assessments (CCVA)		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	GESI inclusive Community Consultation and selection of diverse NbS strategies		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	Hosting costs for a regular forum to provide a platform for community voices into local government planning	5	$ 40,000	$ -	$ -	$ -			$ 40,000	PMU
	Consultation and workshop costs to collect data and review existing plans and policies, prioritizing need for updated policies and plans		$ 20,000	$ -	$ -	$ -			$ 20,000	PMU
	workshops to prepare draft improved/new policies and plans		$ 20,000	$ -	$ -	$ -			$ 20,000	PMU
	Workshops hosted for relevant authorities to review and approve policies and plans		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	workshop facilitation to Prioritize "Water and Water Resources Protected Areas" and water related NbS Interventions in 18 communities		$ -	$ 50,000	$ -	$ -			$ 50,000	PMU
	Workshops to prioritize and co-design construction of small scale grey infrastructure interventions for water resource management		$ -	$ 50,000	$ -	$ -			$ 50,000	PMU
	consultation costs to review existing agriculture and livestock management practices and identification of climate smart options, including market analysis to identify gender-responsive value chains.		$ -	$ -	$ 30,000	$ -			$ 30,000	PMU
	Technological equipment (radios, hardware) and materials (building materials) for the establishment of early warning systems	1	$ -	$ -	$ 802,500	$ -			$ 802,500	PMU
Total Works			**$ -**	**$1,973,248**	**$ 1,674,500**	**$ -**	**$ -**	**$ -**	**$ 3,647,748**	
Contractual Services-Company / NGO	Aanalyze Incorporation of climate change adaptation and DRR in existing plans		$ 60,000	$ -	$ -	$ -			$ 60,000	PMU
	Conduct an assessment to identify current and future high-risk zones for climate change-induced flooding and drought within the target River Basins using existing hydrological models, and evaluate mixed infrastructure options.		$ 38,000	$ -	$ -	$ -			$ 38,000	PMU
	Evaluation of the exising hydrological monitoring network for river basins, including village weather stations, and identification options and prorities to increase efficiency.		$ 40,000	$ -	$ -	$ -			$ 40,000	PMU
	Inventory and analysis conducted of water resources in the Nam Phoun, Nam Lay, Nam Houng and Nam Poui basins	2	$ 40,000	$ -	$ -	$ -			$ 40,000	PMU
	Develop and implement training for Provincial, District Staff and village committees		$ 30,000	$ -	$ -	$ -			$ 30,000	PMU
	Participatory Development of Community Climate Vulnerability Assessments (CCVA)		$ 40,000	$ -	$ -	$ -			$ 40,000	PMU
	Collect data and review existing plans and policies, prioritizing need for updated policies and plans		$ 60,000	$ -	$ -	$ -			$ 60,000	PMU
	Development and dissemination of Communications to external audiences: Produce reports, case studies, success stories, handbooks and videos		$ -	$ -	$ -	$ 111,035			$ 111,035	PMU
	Development and dissemination of Communications to project target community and cost for translation of materials to local languages.		$ -	$ -	$ -	$ 124,775			$ 124,775	PMU
	Review existing agriculture and livestock management practices and identification of climate smart options, including market analysis to identify gender-responsive value chains.		$ -	$ -	$ 45,000	$ -			$ 45,000	PMU
	Review of existing VFMPs and update as needed		$ -	$ -	$ 40,000	$ -			$ 40,000	PMU

	Meetings and workshop costs to Conduct an Inventory and analysis of water resources in 4 basins	3	$ 20,000	$ -	$ -	$ -			$ 20,000	PMU
	Workshops to consult with stakeholders in the development of a provincial database of water resources	4	$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	Meetings and workshop costs to develop and implement trainings for Provincial, District Staff and village committees on CCA, NbS, Climate risk informed water manangement practices, and community-led participatory approaches		$ 60,000	$ -	$ -	$ -			$ 60,000	PMU
	workshops for Participatory Development of Community Climate Vulnerability Assessments (CCVA)		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	GESI inclusive Community Consultation and selection of diverse NbS strategies		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	Hosting costs for a regular forum to provide a platform for community voices into local government planning	5	$ 40,000	$ -	$ -	$ -			$ 40,000	PMU
	Consultation and workshop costs to collect data and review existing plans and policies, prioritizing need for updated policies and plans		$ 20,000	$ -	$ -	$ -			$ 20,000	PMU
	workshops to prepare draft improved/new policies and plans		$ 20,000	$ -	$ -	$ -			$ 20,000	PMU
	Workshops hosted for relevant authorities to review and approve policies and plans		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
	workshop facilitation to Prioritize "Water and Water Resources Protected Areas" and water related NbS Interventions in 18 communities		$ -	$ 50,000	$ -	$ -			$ 50,000	PMU
	Workshops to prioritize and co-design construction of small scale grey infrastructure interventions for water resource management		$ -	$ 50,000	$ -	$ -			$ 50,000	PMU
	consultation costs to review existing agriculture and livestock management practices and identification of climate smart options, including market analysis to identify gender-responsive value chains.		$ -	$ -	$ 30,000	$ -			$ 30,000	PMU
	Review and revise early warning systems and emergency procedures		$ -	$ -	$ 50,000	$ -			$ 50,000	PMU
Total Contractual Services - Company			**$ 308,000**	**$ -**	**$ 135,000**	**$ 235,810**	**$ -**	**$ -**	**$ 678,810**	
	National Consultant to develop a provincial database of water resources		$ 25,000	$ -	$ -	$ -			$ 25,000	PMU
	Independent consultant for both Mid-Term and terminal Evaluations		$ -	$ -	$ -	$ -	$ 80,000		$ 80,000	WWF GEF Agency
	Consultants with Technical Expertise in nature-based solutions, flood management, watershed monitoring, and early warning systems		$ 40,000	$ 176,000	$ 44,000	$ -	$ 20,000		$ 280,000	PMU
Total Contractual Services - Company			**$ 65,000**	**$ 176,000**	**$ 44,000**	**$ -**	**$ 100,000**	**$ -**	**$ 385,000**	
Staff	M&E and Communications Specialist		$ -	$ -	$ -	$ 92,536	$ 92,536		$ 185,072	PMU
	Safeguards and Gender specialist Specialist		$ -	$ 61,074	$ 31,462	$ -	$ 92,536		$ 185,072	PMU
	Project Support/Admin Officer		$ -	$ -	$ -	$ 40,821		$ 40,821	$ 81,642	PMU
	Finance Specialist		$ -	$ -	$ -	$ -	$ 10,000	$ 175,072	$ 185,072	PMU
	National Project Coordinator		$ 148,424	$ 74,212	$ 74,212	$ -		$ 74,212	$ 371,060	PMU
	Gender Senior officer		$ 23,193	$ -	$ -	$ -			$ 23,193	PMU
	Safeguards Senior officer		$ 23,193	$ -	$ -	$ -			$ 23,193	PMU
Total Staff Costs			**$ 194,810**	**$ 135,286**	**$ 105,674**	**$ 133,357**	**$ 195,072**	**$ 290,105**	**$ 1,054,304**	
Workshops, Meetings, Travel cost	Meetings to facilitate the analysis Incorporation of climate change adaptation and DRR in existing plans		$ 15,000	$ -	$ -	$ -			$ 15,000	PMU
	Meetigns to facilitate the assessment to identify current and future high-risk zones for climate change-induced flooding and drought and evaluate protective grey, green and mixed infrastructure options for the identified areas.		$ 15,000	$ -	$ -	$ -			$ 15,000	PMU
	Workshops and Meetings to evaluate the exising hydrological monitoring network for river basins, including village weather stations, and identify options and prorities to increase efficiency		$ 10,000	$ -	$ -	$ -			$ 10,000	PMU
Grand Total			**$ 807,810**	**$2,384,534**	**$ 2,359,174**	**$ 562,567**	**$ 325,072**	**$ 333,320**	**$ 6,772,477**	

Please see the CEO ER Information page for PMC Cost Justification

Budget Notes and Assumptions

1 200,000 USD will be allocated to each basin
2 10,000 has been allocated as the cost for this activity in each basin
3 1 meeting is expected to be held gathering all relevant stakeholders in each basin at the estimated cost of $5,000/meeting = 20,000
4 Meetings to design the database and orient users to understand how to use the database after it is developed
5 1 forum in each river basin in each year (Y2-Y6)=20 forum meetings in total at $2,500 for each meeting to provide space, materials, food, and beverages
6 10,000 for the trainings and capacity building activities in each basin
7 10,000 is allocated for each community discuss and agree CCA for each of 18 communities
8 20,000 has been allocated by the government for this activity in each basin
9 Funding has been allocated for 2 event sper year from years 1-6 of implementation to celebrate the project miletstones and elevate the GEF Project achievements, to be led by the Department fo Water Resources
10 5,000 each year will cover at least one project representative to attend international conferences and workshops on behalf of the project for years 2-6
11 Funds to cover the transportation, meals, lodging and airfare if applicable for stakeholder to pariticpate in 5 organized peer to peer eventss @19,000 / visit Printers, Printing Supplies, Laptops and Projectors to produce communications materials, provide stakeholder engagement presentations and print monitoring and evaluation supplies (surveys, evaluation templates, etc.) for Communications events and materials production and for the activtiies on the ground that need to be led
12 by community consultations
13 The office running costs have been calculated by the Department of Water resources to include the rent required for 6 years of space for the PMU
14 Project audit and follow up monitoring during implementation

ANNEX I: RESPONSES TO PROJECT REVIEWS

From GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF.

Germany PIF comment (2024):

"Within component 2: “IWRM implementation”, it should be highlighted that NbS addresses climate change concerns through the numerous services provided by ecosystems in term of adaptation (water management, flood risk reduction, adaptation to disaster risks, support to livelihoods resilience) and mitigation (carbon storage), especially when looking at the Nationally Determined Contribution (NDC). So far NbS has only be mentioned in relation to adaptation, for example on p. 25f.'

WWF GEF Agency 8/25/2025:

In the description of activities in both component 2 and component 3, the additional climate change mitigation benefits of the activities have been mentioned as appropriate

Germany PIF comment (2024):

Component 2 promotes small-scale grey infrastructure, here Germany recommends being more concise about the planned measures/solutions and how they contribute to the project objective and can be combined with NbS.

WWF GEF Agency 8/25/2025:

A more precise description of the main small-scale grey infrastructure interventions is provided in the description of component 2. The most important are likely to be the construction of small weirs, and groundwater wells and pumping. Where appropriate, examples have been provided of how small-scale grey infrastructure and NbS can be integrated - for example restoration of riparian vegetation in areas where weirs are built; and wetlands management for groundwater recharge when wells and pumping systems are being supported; as well as watershed restoration in areas were gravity-fed water supply systems are being established.

Germany PIF comment (2024):

In relation to Component 1 and Component 2, Germany recommends working with a broader network of stakeholders, involving public and private finance actors, which can tap into different sources of capital for the endeavored solutions and also touch the topic of 10 climate risk insurance that can improve disaster risk management for the small-scale farmers.

WWF GEF Agency 8/25/2025:

We thank Germany for this comment. The number of stakeholders the project is working with is quite long. At one point in the PPG process we considered having an output under component 2 that was related to engaging with other public and provate sector financiers to try and attract additional funding - especailly for on the ground implementation of integrated NbS and small scale grey infrastructure. However when the team discussed this further it was decided that this was over-reaching and wouldbe too much to expect to have an actual output and related targets for this. However, in Component 4, other development partners, donors and

private sector will be engaged through the projects awareness raising and knowledge management, including sharing lessons learned from the project approaches and activities, and in this way magnifications and replication will be encouraged.

Germany PIF comment (2024):

Germany emphasizes the need to include the Mekong River Commission (MRC) as one key stakeholder/cooperation partner.

WWF GEF Agency 8/25/2025:

MRC is included as a stakeholder. It is included in the table of stakeholders and described in the text section on stakeholders.

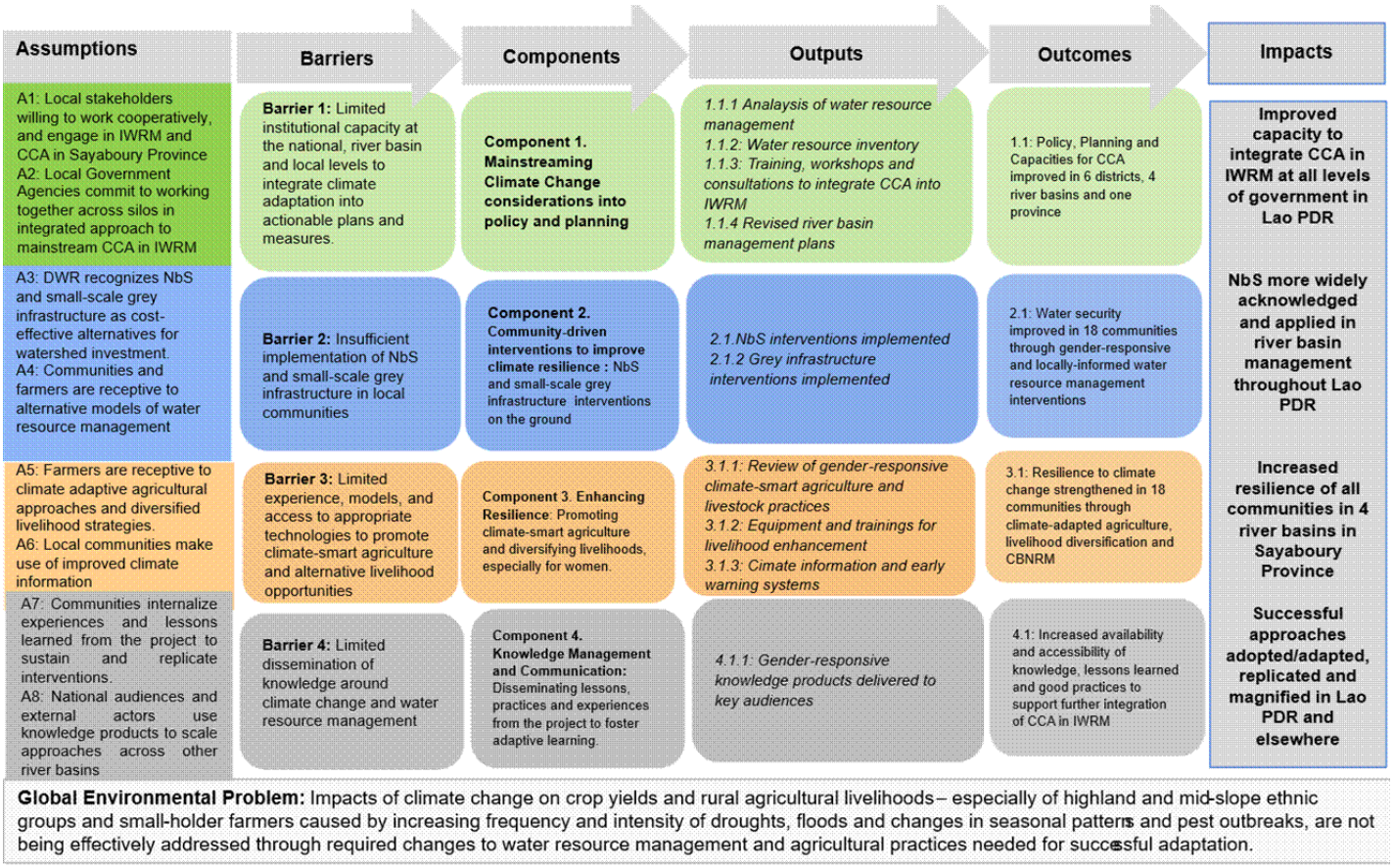
Comment by Yibin Xiang, Convention Secretariat, Convention on Biological Diversity (CBD) made on 3/25/2024

Regarding C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES As biodiversity is mentioned several times, there might be links between the proposal and the 23 targets of the Kunming-Montreal Global Biodiversity Framework (KM-GBF). Very much appreciated it if such links, if any, can be documented in the proposal, in terms of primary links and secondary links.

WWF GEF Agency 8/25/2025:

Content has been added reflecting project contributions to targets 2,8,10, 11

FIGURE 1: THEORY OF CHANGE



Component 1: Mainstreaming climate change adaptation into policy and planning: integrating adaptation into provincial water resources management and river basin management plans

This component will create an enabling environment for climate change adaptation and resilience in Sayaboury Province through improved policy, planning and technical capacities. This will involve (i) analysis of current water resource management in 4 target basins; (ii) water resource inventories (both surface water and groundwater) and mapping for the 4 basins; (iii) technical capacity development for integration of CCA, NbS and small-scale grey infrastructure into water resource and river basin management and (iv) drafting improved or new policies and plans.

Outcome 1.1: Policy, Planning and Technical Capacities for CCA improved in 6 districts, 4 basins and one province

Output 1.1.1: Analysis of water resources management in the 4 river basins

Requested by DWR, this output will create a better understanding of current water resource and river basin management practices, identifying existing strengths and weaknesses, particularly in relation to incorporating CCA and disaster risk reduction (DRR) into management policies, plans and actions. High risk zones for flooding and drought will be identified and mapped; and the existing hydrological monitoring network will be assessed. The output will be delivered by three activities producing inter-linked studies, each led by a consultant.

Activity 1.1.1.1 Analyze incorporation of climate change adaptation and DRR approaches in existing River Basin Management plans (consultancy to conduct analysis and provide recommendations for better inclusion of the approaches) and recommendations for its improvement.

Activity 1.1.1.2 Conduct an assessment to identify current and future high-risk zones for climate change-induced flooding and drought within the Phoun, Lay, Houng, and Poui River Basins using existing hydrological models.

Activity 1.1.1.3 Evaluate the existing hydrological monitoring network for the four river basins, including village weather stations, and identify options and priorities to increase efficiency. Local knowledge, including knowledge gathered in the climate crowd surveys about water resources and river flows should be incorporated into this evaluation through participatory processes.

Output 1.1.2: Surface and Ground Water Resource inventory in 4 river basins

Before implementing water resource management interventions – whether NbS or grey infrastructure, it is crucial to have a clear understanding of the water resources available in the four basins, including volume, quality, and seasonal flow of surface water as well as an understanding of ground water levels and extraction in the areas. DWR has requested water resource inventory assessments for the four basins because existing data are incomplete. Groundwater is an essential but under-utilized and under-studied resource in the province, and there is an urgent need to assess and manage groundwater resources systematically to build long-term climate resilience and support sustainable livelihoods. This output will help make information available to support decision-making regarding implementation of NbS and small-scale grey infrastructure, including extraction and use of groundwater.

Activity 1.1.2.1 Inventory and analysis of water resources

An inventory and analysis of surface and groundwater resources will be conducted in the Nam Phoun, Nam Lay, Nam Houng and Nam Poui basins. As part of this exercise, the project will map groundwater extraction potential and quality and will support the revision of the spatial definition of drought and flood risk in land use and development planning (see also Activity 1.1.1.2). The groundwater inventory will identify existing wells and boreholes in target areas, recording coordinates well depth, water levels and usage types in both dry and wet seasons. Aquifer yield potential will be calculated with standardized pumping tests, and chemical and physical properties will be analyzed. The analysis will provide recommendations on how to incorporate sustainable use of groundwater resources in the province to support climate resilience. The activity will be led by DWR, including its groundwater division, and implemented through the PONRE Sayaboury.

Activity 1.1.2.2 Development of a provincial database

Prioritized by government as an activity within this project, the information produced in the water resource inventory will be stored in a provincial database that will be established in the PONRE office. The database will be linked to a national level database in DWR and is intended to provide a model that could be followed for other provinces. The information in the database will be used to support planning of water resource interventions, including reviewing applications for groundwater extraction, development of irrigation schemes and other extractive uses of water in the 4 basins. It will become an important tool enabling PONRE

to fulfill their regulatory mandate based on factual information about water resources and will be maintained by them beyond the project lifetime.

Output 1.1.3 Training, workshops and consultations to integrate CCA, NbS, and small-scale grey infrastructure into river basin management plans and provincial adaptation plans,

The project will provide suite of gender-responsive facilitated thematic workshops and planning sessions aimed at integrating climate change adaptation and disaster risk management in district, provincial and river basin management plans.

Activity 1.1.3.1. Develop and implement gender-inclusive training for Provincial, District staff and village committees.

Trainings will incorporate key topics such as;

- Impacts of climate change on water management and ways to adapt to the changing climate
- Nature -based solutions that could improve water management practices
- How to deploy community-led participatory approaches and techniques for working with communities

Once these individuals are trained, they will be empowered to share best practices and inform their communities on climate risk informed water management practices. The project will improve accessibility of training and workshops (addressing time constraints, family caregiving, language needs, etc). In addition, efforts will be made to encourage gender-responsive design, including during the conducting of needs assessments and curriculum design.

Activity 1.1.3.2 Participatory development of Community Climate Vulnerability Assessments (CCVA).

The assessment will be complemented by social mapping and in-depth survey data expanding on the climate crowd consultation process undertaken during the PIF development and PPG phase. The process will provide equal opportunities for the participation of women, youth, and ethnic minorities, and due consideration will be given to their different vulnerabilities.

Activity 1.1.3.3 GESI inclusive Community Consultations for the selection of strategies to pilot to reduce vulnerability to climate shocks. Potential interventions (NbS and small-scale grey infrastructure) will be evaluated using criteria developed by the PMU and endorsed by WWF and DWR in alignment with the project ESS Policies and Procedures, including but not limited to;

i) relevance in village, intervention is aligned to the communities' stated priorities and needs

ii) takes into account potential gendered risks, and benefits marginalized groups

iii) intervention has been screened for risks of displacement, water contamination, or other hazards to human health

iv) there are no negative impacts on wildlife and ecosystems that may, in turn, impact community members

v) the community and government have the ability to maintain the infrastructure or have a financing plan for longevity

vi) intervention is resilient to long term potential climate impacts

vii) intervention is complementary to existing and planned infrastructure in the area

viii) the project has available budget to implement the intervention

Activity 1.1.3.4 A regular (i.e. reoccurring, tentatively annually) forum will be organized to provide a platform for community voices into local government water resources and river basin planning. Criteria will be set for inclusive representation from the 18 target villages. One forum for each river basin will be hosted by PONRE.

Output 1.1.4: District level IWRM/river basin policies and plans developed

The project will support the review and updating of existing river basin management plans in Sayaboury Province, as well as the development of a groundwater plan. The government has already developed river basin plans and requested the project to support their review and updating in the latter part of the project, so that there will be updated plans in place to continue to guide their work after the project ends. The government has also requested support to develop a groundwater plan

in Sayaboury province. Using the outputs generated from 1.1.1, 1.1.2, and 1.1.3, the project will then support the participatory revision of existing policies and plans, and/or the development of new policies and plans in the target areas, which will then be submitted for formal government approval through the appropriate line agencies.

Activity 1.1.4.1 Review existing policies and plans, and prioritize needs for new/updated policies and plans,

To align with the current government plan cycle, in the second half of project implementation a participatory review of implementation of existing River Basin Plans will be conducted. The review will be led by a consultant but will involve focus group discussions with villagers and with provincial and district personnel.

Activity 1.1.4.2 Prepare draft improved/new policies and plans

(i) Sayaboury Provincial Groundwater Plan: The plan will be developed in the first two years of the project. It should establish limits for the amount of groundwater that can be extracted, regulating the extracted amount to not exceed the natural recharge rate. The plan should also identify locations where ground water extraction should be avoided, including areas prone to subsidence. The plan should identify important recharge zones and measures to protect them from degradation and contamination. The plan should also identify appropriate water-saving technologies and practices to be promoted through training and other activities. The plan will be developed based on participatory planning with local authorities, water user groups and civil society to identify usage zones, protection areas, abstraction guideline, and appropriate governance mechanisms.

(ii) 4 River Basin Plans: The consultant's report from 1.1.4.1 will be used as the basis for developing updated River Basin Plans for each of the 4 basins for the subsequent 5 year period. Consultants, in coordination with PONRE and the District governments, will draft updates to the RBMPs for Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng Basins to better incorporate climate change adaptation considerations.

Activity 1.1.4.3 Review and approval of policies and plans by relevant authorities. All updated and new plans will be reviewed in provincial workshops led by PONRE and national workshops led by DWR before submission for formal approval by the government, using normal government processes.

<u>Component 2</u>: Community-driven interventions to improve climate resilience: NbS and small-scale grey infrastructure interventions on the ground

Component 2 builds on the enabling environment created by Component 1. It links the systematic, province-wide information and planning processes of Component 1 with practical demonstration and implementation of community-driven gender-responsive interventions on the ground to respond to increasing climate impacts.

Outcome 2.1 Water security improved in 18 communities through gender-responsive and locally informed water resource management interventions

Interventions will be applied in both upstream and downstream landscapes in six districts. The selected interventions will be those identified through the climate crowd consultations and CCVAs carried out in Component 1 as well as identified through Outputs 2.1.1, and 2.1.2.

Interventions will be supported by hands-on workshops and training to maintain and replicate upstream and downstream investments. Together, the results of these outputs will help to mitigate negative impacts of floods and droughts, increase water security and enhance ecosystem health across each river basin.

Output 2.1.1 Local government and community-identified water-related NbS interventions implemented

Potential NbS interventions for water resource management to increase community water security and climate resilience, which emerged from the community consultations and CCVA activities under Component 1, will be prioritized in a participatory manner between communities and District government, and following the selection criteria outlined in Activity 1.1.3.3. NbS under this Output will include "Water and Water Resources Protected Areas" designated by DWR and implemented by PONRE in accordance with the National Water Law in strategic headwater areas of the 4 river basins, and then smaller-scale ecosystem restoration and protection initiatives in the 18 target villages. The detailed interventions will be co-designed and implemented together with the communities and district governments. Nature-based solutions (NbS) should be designed to be inclusive and gender responsive, addressing the intersection of social equity and ecological sustainability.

Activity 2.1.1.1 PONRE to select candidate sites for "Water and Water Resources Protected Areas" for the 4 river basins in the province based on analysis done for Output 1.1.2, namely areas deemed critical to maintaining adequate quantity and quality of water to meet demands for downstream rural and urban areas. Water-related NbS interventions for the target 18 to be shortlisted by the PMU, applying gender-responsive, culturally inclusive planning processes and ensuring active roles for diverse stakeholders. Participatory resource mapping will be carried out, and Free, Prior, and Informed Consent (FPIC) applied to develop fair and transparent agreement on protected areas.

Activity 2.1.1.2 Develop a Road Map for the next steps in management of the Water and Water Resources Protected Areas which could include participatory boundary demarcation, preparing management plans and establishing governance mechanisms. Depending on the size and identified location of these areas, the

most relevant communities will be invited to participate in meetings led by either the Provincial or District Agriculture and Environment Offices as appropriate (if the protected area straddles two districts the meeting will be led by the provincial agency with representatives of both districts; if the protected area is situated in a single district the meeting will be led by the district). These meetings will develop and agree on the road map for each of the individual Water and Water Resource Protected Areas identified. The Road Maps will subsequently be endorsed by the District and/or provincial Governor's Offices.

Activity 2.1.1.3 Implement pilot activities for restoration of riparian zones in selected villages,

These activities may include;

- Revegetation
- Re-establishing geomorphic features
- Limiting grazing and other streamside activities as needed, depending on local site conditions.

Vegetated riparian zones are important for maintaining natural flow regimes and water quality, preventing bank erosion, siltation, and shallowing of water courses, which can contribute to downstream flooding. Vegetated riparian zones also reduce run-off of harmful agricultural chemicals (fertilizers and pesticides) into streams. In addition to clearing riparian vegetation to expand agricultural fields, free-roaming livestock grazing can also damage riparian vegetation through overgrazing and trampling. In the agreed sites, revegetation will be carried out by local communities using a selection of plant and tree species agreed between the communities and the project, using a combination of both local ecological knowledge and scientific knowledge. If necessary, small village nurseries will be set up to propagate plants and trees using seeds and other plant matter collected locally from native species in the landscape. Revegetated areas will be protected from livestock, and the regrowth will be monitored and reported by the communities using simple techniques. Although not the main objective, this revegetation will also contribute to climate change mitigation through carbon storage.

Activity 2.1.1.4 Implement pilot protection and management activities of natural wetlands in selected villages, and enhance water retention

These activities may include;

- Blocking or unblocking drains
- Seasonal flood management
- Establishing vegetation buffer zones
- or managing/rotating grazing in selected sites

Wetlands in the lower reaches of the river basins are important in the context of flood management and as a source of freshwater fish, prawns, crabs, snails, shellfish, frogs, and other aquatic species of animals and plants that provide both food and a source of income for community members. They may also be sites for groundwater recharge. As such, it is important that they are effectively managed by communities, including ensuring inflow and outflow drainage is not blocked by sedimentation, preventing any filling-in of the wetlands to increase agricultural land holding or for other development projects, and controlling grazing in the wetland in the dry season. Local community governance systems will be established for the wetlands, and village use rules agreed under the oversight of the existing Village Development Committees (VDC). The project will support community meetings to agree on use rules and management responsibilities for wetlands, to be approved by the respective VDCs.

Activity 2.1.1.5 Implement restoration of forested headwaters in selected sites, through interventions to be selected based on the previously mentioned criteria and which may include Assisted Natural Regeneration (ANR) techniques, enrichment planting and soil enhancement.

Forested headwaters, particularly in steeply sloping areas, play an important role in regulating the hydrological cycle. In the project target landscape, while some of these forest areas may be contained within target village boundaries and thus are a part of the village forest area that is considered in component 3, much of the upper watershed lies in State Protection Forests as well as Provincial and National Protected Areas. This activity will be done in collaboration with the Division of Protection Forests of the Department of Forestry (DOF). Degraded forests in steeply sloping upper watersheds will be identified using the Department of Forestry's 2025 National Forest Inventory data sets and maps. Priority areas for restoration will be selected using relevant criteria from those described in section 1.1.3.3. The scale and restoration approach will be agreed between the PMU and the DOF and funding will be channeled to the relevant District Agriculture and Environment Offices in the target districts to implement the restoration activities. This forest restoration will also contribute to climate mitigation through additional carbon storage.

Output 2.1.2 Small-scale grey infrastructure interventions for climate resilience implemented

Similar to Output 2.1.1, small-scale grey infrastructure interventions such as weirs, which emerged from the community consultations and CCVA activities under Component 1, as well as groundwater wells and gravity-fed water supply systems, will be prioritized in a participatory manner between communities and district government, using criteria developed by the PMU and endorsed by WWF and DWR.

Activity 2.1.2.1: Prioritize small-scale grey infrastructure interventions for water resource management based on criteria as outlined under Activity 1.1.3.3, and as deemed complementary to NbS interventions selected under Output 2.1.1. Grey infrastructure decisions should also be guided by availability of local materials and local knowledge related to its construction and maintenance, as well as the possibility for using integrated or hybrid grey infrastructure + NbS approaches.

Potential interventions suggested during community consultations include, but are not limited to, the following:

- Small weirs constructed with wood/stone.
- Small ponds/reservoirs to retain surface water during the dry season.
- Groundwater wells/pumps linked to community water storage and distribution facilities.

Activity 2.1.2.2 The selected detailed interventions will be co-designed together with the communities and district governments through stakeholder consultations and with guidance from the project technical advisory consultants.

In the case of small check-dams, weirs, and gravity-fed water village supply systems and/or small irrigation systems simple technical design specifications can be discussed and agreed amongst DWR, the local District Agriculture and Environment Offices, and the local communities. The PMU can review these designs as necessary. When weirs (or even smaller "check dams") are created this should be done together with protection and if necessary, restoration of the riparian vegetation along the water course around the area of the weir. This NbS "add-on" will enhance the useful lifetime of the weir or check dam, preventing riverbank erosion and shallowing of the water storage behind the weir/check-dam. Similarly, if gravity-fed water supply systems are established, these should be done together with protection and/or restoration of the watershed forests, to help maintain the quality and quantity of water flow. This will again have additional climate mitigation benefits through carbon storage.

For larger interventions, design contractors may need to be brought in as service providers to design the infrastructure. The PMU will engage these contractors to ensure that, wherever possible and appropriate,

nature-based elements are included in some features of the design, moving towards a more hybrid approach. These designs will also be presented, discussed, and agreed upon in community consultations. As in all other cases, these consultations will be designed to ensure maximum participation of women, ethnic minorities, and other marginalized groups.

For groundwater pumping, storage, and distribution – either for household use and/or for irrigation, groundwater drilling companies will be involved in the process of designing the initiatives together with DWR, the District Offices, and the local communities. IWMI may be invited to contribute to and/or review the designs based on their successful experience of developing solar-powered groundwater extraction for irrigation, showing a clear return on investment in communities in Southern Lao PDR. To offset the groundwater extraction supported by the project, improved protection and management of groundwater recharge areas should also be supported.

Activity 2.1.2.3 Partners on the ground will receive funding to implement these small-scale grey infrastructure interventions for water management in the villages. Several funding modalities may be used as appropriate for each case.

For the smallest scale interventions, in some cases, funds may be provided directly to communities (through the VDCs), where villagers will source materials locally and provide their own labour. In other cases, funds may be provided as sub-grants to the District Agriculture and Environment Offices to manage the activity and provide oversight to purchase materials locally and to engage village labour and additional labour from outside the village if necessary.

Some interventions may be contracted out to private companies based on DWR standard procurement practices.

For each intervention, the executing partner will conduct Environmental Impact Screening/Assessments that will then be reviewed and approved by the PMU and WWF GEF Agency to understand and mitigate potential impacts before construction. For example, for the case of weirs:

- Implement sediment management practices to prevent accumulation and maintain water quality.
- Design and construct fish passages, if necessary, in weir designs to allow aquatic species to migrate freely.
- Promote regular maintenance of weirs to prevent structural failures and manage water flow effectively.

Component 3: Enhancing Resilience: Promoting climate-smart agriculture and diversifying livelihoods

This component will focus on implementing adaptive and gender-responsive community-based natural resource management, agriculture and livestock practices and livelihood diversification across the 18 target villages identified during the Site Selection Process (and documented in the Stakeholder Engagement Plan). The project will also work to enhance local capacities for the production, dissemination and use of climate information, forecasts and early warnings.

Outcome 3.1: Resilience to climate change strengthened in 18 communities through climate adapted agriculture, livelihood diversification and community-based natural resource management (CBNRM).

Output 3.1.1. Review and assessment of gender responsive climate-adapted agriculture, livestock and other livelihood practices

This output will fund the review, analysis and subsequent assessments of current agricultural practices and livelihood opportunities in the target villages. A thorough analysis of the baseline for this component has been conducted and will be referenced to design and implement any livelihood diversification opportunities through this project, to promote practices that are aligned with the local context and market demand.

Activity 3.1.1.1: Review existing agriculture and livestock management practices and identify climate smart options, including market analysis to identify gender-responsive value chains, and consider specific needs and barriers for women, ethnic minorities and other disadvantaged groups. Based on previous community consultations, viable options include small-scale fish ponds for aquaculture, agroforestry (teak and rubber), and intercropping to improve soil health. Criteria for selection will also include practices that are culturally appropriate, technically sound, have demonstrated impact (i.e. in nearby villages or similar projects), and can be sustained beyond the project's initial support. The review will be led by a consultant working closely with the District Agriculture and Environment Offices to organize a series of village meetings and field visits to collect information on current farming and animal husbandry practices. The consultant's report will be reviewed and approved by the PMU. Findings and recommendations from the assessment will be presented back to the target audiences in district meetings.

Activity 3.1.1.2 Review of existing Village Forest Management Plans (VFMPs) within each village's recognized boundary and update the plans as needed.

Forests in Lao PDR are divided into 3 main categories – Protected Areas, Protection Forest and Production Forest. According to the Forestry Law 2019, each community has the right and the responsibility to manage the forest lying within its village boundary, regardless of the category of forest. Each community should develop a Village Forest Management Plan (VFMP), which identifies and maps the existing forest and provides details on how it will be managed.

Village Forest Management Plan (VFMP) guidelines implemented in the GIZ project "Climate Protection through Avoided Deforestation (CliPAD)/GIZ 2016)" provide the following examples of permitted activities : Forest patrolling for protection against encroachment; fire prevention (e.g. digging fire breaks, ploughing firebreaks, controlled burning of fire breaks, etc.); building check dams or small water reservoirs to provide water for firefighting and water for watering planted tree seedlings; reforestation to promote river bank stabilization and ecosystem- based adaptation; identification and marking of trees to be left as mother trees for seed production; selective cutting (in small quantities in different diameter classes in accordance with the sustainable forest model to improve forest structure and provide timber and fuelwood for villages); close parts of forest temporarily and protect young regeneration trees, fencing off of some parts to encourage regeneration; conduct weeding around valuable tree seedlings; marking of trees to be cut every year; enrichment planting; promotion of natural regeneration (e.g. in case of fire damage, shifting cultivation, excessive degradation/tree cutting); direct seeding in barren, highly degraded areas; and Non-Timber Forest Product (NTFP) management and development.

If VFMPs do not exist in any of project target villages, the project will provide funding to a consultant to lead the development of these plans through inclusive and gender-responsive processes. The consultant will work closely with the District Agriculture and Environment Offices, and village meetings will be held to jointly develop the VFMPs. To support the planning process, maps will be produced from satellite data and ground-truthed on transect walks with community representatives. VFMPs will be approved by the VDC in each community and by the District Governor's Office.

Improved management of village forests will also have climate change mitigation benefits through reducing the rate of greenhouse gas emissions from forest degradation, and reducing the frequency, severity, and extent of forest fires.

The VFMPs will identify how each community can manage their existing natural resources sustainably to supply a variety of ecosystem services (including watershed services, food and materials, soil fertility, crop pollination, etc.) that will maintain or enhance community resilience to climate change and economic shocks.

Output 3.1.2 Equipment, materials, and trainings for livelihood enhancement and diversification

The project will enhance capacity to develop more resilient livelihoods through hands-on workshops, and training, field-school sessions and the provision of essential tools and equipment, all of which will be sensitive to gender considerations. Lessons learned in the agriculture sector in Laos will also be used to inform livelihood resilience building activities. Please find detailed Lessons Learned in Annex 4.

Increasing resilience and diversification of livelihoods could indicatively include but is not limited to: i) climate-smart agriculture (e.g. agroforestry, intercropping, minimum-tillage, integrated soil fertility management, water harvesting and management); ii) silvopastoral systems to support subsistence animal husbandry; iii) cultivation and sale of NTFPs; iv) seed banks and seedling stocks; and v) other similar climate adaptation and resilient livelihood practices. In upstream locations, an underlying focus of the project will be to purposefully select diverse, high-value tree species that benefit agricultural livelihoods, restore ecosystem services and enhance carbon stocks, thereby prioritizing solutions that deliver landscape management and restoration co-benefits in parallel. Importantly, the project will audit and future-proof local value chains and adapt them in a manner that helps get commodities to market.

In addition to the intended resilience-enhancing benefits, many of the agriculture-related livelihood interventions will also have a climate change mitigation benefit through additional carbon storage. This will happen broadly through two changes – (i) increasing the number of trees in the agricultural landscape through adoption of agroforestry systems; and (ii) increasing soil organic matter content through various good farming practices.

Activity 3.1.2.1 Capacity strengthening of target villages on implementation of forest management plans, climate smart agriculture and other diversified livelihood activities, promoting women's leadership and knowledge sharing.

This will include:

- Technical trainings on forest management, agroforestry techniques, establishment of seed banks, and related needs identified under Activity 3.1.1.1.
- Peer-to-peer exchanges on climate smart agriculture best practices among communities, with an emphasis on pilot activities that have been successful in Laos

An organisation with experience in these areas will be recruited as a service provider to design and deliver the trainings and exchanges. The activities will be carried out in close collaboration with the District Agriculture and Environment Offices and will be based on the results of the review conducted in 3.1.1.1, and the knowledge and skills required to implement the VFMPs (3.1.1.2).

Activity 3.1.2.2 Provision of appropriate machinery, equipment, seeds and seedlings (especially to women) in alignment with CCAs and to promote livelihood diversification. Livelihood support will be provided based on Community Conservation Agreements (CCAs) agreed by each village in which the villages stipulate aspects of sustainable management of natural resources that they will implement (e.g. preventing forest fires, preventing encroachment in protection forest, etc.).

Support will be provided to those community members who have successfully completed the capacity-building activities organized in activity 3.1.2.1. In each community, a group of "model" farmers will be selected. This selection will be based on their performance, enthusiasm, and motivation demonstrated in the capacity building activities; their openness to new approaches and willingness to experiment; their recognition as "informal leaders" within their peer group, their previous experience with innovation, and their inherent entrepreneurship. This group of farmers will be supported by the project to develop pilot demonstration farms showcasing all the new techniques of climate-resilient farming introduced by the project. These same model farmers will then also lead farmer-to-farmer extension of these techniques to their peers. In each community, a small village nursery will be established to produce the seedlings necessary for the development of agroforestry systems.

In villages where specific opportunities have been identified to add value to certain agricultural products through simple preservation and processing techniques (pickling, drying, etc) the project will work with the District Agriculture and Environment Offices to establish collective groups in each village and to provide simple facilities and equipment to support this (e.g. drying ovens/solar drying facilities, vacuum packing and sealing equipment, etc.

Output 3.1.3 Climate information and early warning systems developed in target communities

The project will work with local communities to build capacity on the use of climate information provided by the Department of Meteorology and Hydrology. The project will build on the results of GEF SAMIS and its follow-up project, expected to be funded by the Green Climate Fund, which produce and disseminate agro-climate information services, providing information and forecast about climate conditions that will affect agricultural activities and are important for farmers risk management considerations, to help information and warnings reach the 'last mile' and that vulnerable farmers and communities are equipped to prepare for floods and droughts, and able to mitigate their impacts. In addition, specialized technical training will be provided for women, youth and marginalized groups on climate risk data collection, to support a citizen science/gender inclusive approach to community led information and monitoring systems. The project will regulate and formalize the use of these tools and systems by developing operating procedures that will be included in updates to the RBMPs for the Nam-Poui, Nam-Poun, Nam-Lay and Nam-Houng basins, envisaged under Outcome 1.

Early Warning Systems are a critical component of disaster preparedness and mitigation measures. Inclusive design that considers the specific needs and vulnerabilities of the community, including gender, age, disability, rurality and other demographics, is essential to the efficacy of these systems. Integrating Gender Analysis in EWS enables an understanding of how gender dynamics impact the effectiveness of these systems. Gender norms and roles can shape how women and different groups experience disasters, as well as impact their coping mechanisms in times of recovery due to caregiving responsibilities. Numerous studies indicate heightened risk of gender-based violence in the aftermath of disasters, especially in areas without women and child friendly recovery spaces or for those facing intersecting forms of marginalization. Decreased access to information technologies, literacy or participation in public spaces will also limit the efficacy of EWS for women and the people in their care. In understanding the limitations and risks of gender-neutral EWS, mainstreaming GESI benefits the whole community, as women have unique knowledge on localized threats and hazards.

Activities:

3.1.3.1 Review early warning systems and emergency procedures in the flood-prone target villages, to identify information gaps that could be filled through better communication (e.g., flood advisories or water level monitoring).

The Division of Weather Forecasting and Early Warning within the Department of Water Resources will conduct a review of existing systems at the local level and develop a report with recommendations for improving the systems for each river basin. The report produced will be reviewed and endorsed by the PMU and approved by DWR and WWF. The PMU may also engage with the Mekong River Commission to learn lessons from the MRC experience in making available near-real time water level information for each monitoring station along the Mekong river, together with projections for changes in river levels over the forthcoming week, and the issuing of alerts when the river is approaching flood level.

3.1.3.2 Improve early warning systems and protocols in target communities for extreme weather events, including identifying trigger points for response actions, using accessible formats including local radio, Apps, community meetings, etc. Use visual, local-language formats and grassroots channels for dissemination, and incorporate traditional knowledge.

Based on the findings and recommendations of the review conducted in 3.1.3.1 the project will support improvements to early warning systems and protocols. Where appropriate the project can adapt the approach of the MRC to the smaller scale of the 4 tributary basins in Sayaboury Province. Using a similar system may allow for effective sharing of data and even interoperability of the systems. For example, the system might be set up so that an MRC flood warning alert for the section of the Mekong mainstream between Sayaboury town and Pak Lay town would automatically create an alert for the areas closest to the mouths of the 4 tributaries, in the tributary early warning systems. Conversely when alerts are issued at the provincial level in any of the project's 4 target tributaries for potential flash floods due to extended heavy rainfall in upper catchments, the MRC could be automatically alerted to be prepared to monitor any subsequent rise in water level in the Mekong mainstream, in case that may lead to potential flooding further downstream.

Based on the analysis of the hydrological monitoring network for each of the basins conducted in activity 1.1.1.3 any necessary repairs and upgrades to the monitoring stations should be supported by the project. If there are significant gaps in coverage, then additional hydrological monitoring stations should be established to reduce these gaps and ensure that there is sufficiently detailed coverage to enable the required level of understanding of conditions in different sections of the basin at any point in time.

The centre of the early warning system should be based in the Provincial Agriculture and Environment Office, in the same location as the monitoring database for the water resources of the 4 target basins, that was established in activity 1.1.2.2 and the centre should receive information from each of the hydrological monitoring stations in each of the basins on a daily basis. The centre should also receive regular updates from the national level Meteorology and Hydrology Division, as well as the Weather Forecasting and Early Warning Division and should regularly access the MRC system.

The provincial early warning centre can send out information on hydrological conditions through mobile phone alerts. For critical flood alerts that pose imminent danger require immediate responses, the centre will contact village heads directly, and automated warning sirens in each village will be activated.

3.1.3.3 Training local authorities and communities to understand information about risks, and risk monitoring, and climate information and climate hazard risk data collection to make informed decisions about agriculture (i.e., through agro-meteorological forecasts); water resource use; and disaster preparedness. Training will be conducted at the district level, in collaboration with the District Agriculture and Environment Offices. Dedicated, gender-sensitive training spaces will be provided, and inclusive participation and feedback will be monitored.

<u>Component 4</u>: Knowledge management and communications: Disseminating lessons, practices and experiences from the project to foster adaptive learning

Outcome 4.1: Increased dissemination of knowledge, including lessons learned and good practices on integrating CCA in IWRM

Under this component, the project will document, curate and catalog the information and experiences generated throughout its implementation to promote lessons learned and inform future adaptation planning and implementation efforts in other districts of Sayaboury not included in the target

area, and within other basins across other provinces with similar conditions, threats and barriers. This approach to knowledge management will also help to inform project monitoring and adaptive management. Underpinning this component will be a knowledge management strategy and communications plan, both cognizant of gender considerations. Communications materials (publications, videos etc.) will be produced to align messaging, increase visibility and exposure at events, and data sharing will be facilitated. The project will also develop a knowledge management system and engagement strategy to share information on approaches to further promote nature-based adaptation approaches at national levels as well as regionally and globally and will establish knowledge management vehicles (people, process and technology) to enable the transformation of information into know-how and use this to inform future planning exercises and efforts to better mainstream nature-based adaptation, as well as undertaking planning towards future replication and scaling.

Output 4.1.1. Gender-responsive knowledge management, communications, visibility and outreach products delivered to key audiences through appropriate and effective channels

Learning from the project will be used to inform national, regional and global work on adaptation and resilience through engagement with other GEF and related adaptation projects and programs such as the Sustainable Rice Landscapes Initiative (SRLI). As a part of outreach efforts, as well as to promote their strong involvement in decision making and equitable benefit from the project, the project will develop innovative locally adapted dissemination systems including producing materials in three languages (Lao, Hmong, Khmu) as well as implementing community gatherings, exchange visits and peer learning exchanges.

Activity 4.1.1.1 Communication to external audiences: Produce reports, case studies, success stories, handbooks and videos on water resource management and climate change adaptation measures, and policy briefs that highlight the gendered impacts of climate change and water. The project will strive to produce documentation that reflects varied social, cultural, and gendered experiences of project participants.

Activity 4.1.1.2 Organize special events on important days (e.g., public holidays), prioritizing inclusive storytelling and diverse representation events.

Activity 4.1.1.3 Participation in international conferences and meetings, as appropriate and if budget is available.

Activity 4.1.1.4 Communications to project target community audiences in local languages. Design outreach materials (e.g., brochures, posters, videos) that communicate climate change and water resource management issues in a way that is accessible and inclusive of different groups, especially women and ethnic groups, considering literacy levels, languages (Lao, Hmong, Khmu), and cultural contexts.

Activity 4.1.1.5 Peer to peer exchange visits for local communities.

Facilitate peer-to-peer exchange visits and sessions between communities that have successfully implemented climate adaptation practices and those looking to adopt them, both within and between river basins and to promote opportunities for women and youth to engage in provincial seed bank and CSV activities. This activity will use inclusive participant selection and provide logistical support (e.g., transport, childcare, interpretation).

Monitoring and Evaluation

For further details on the Monitoring and Evaluation of the project please see Annex 5: Monitoring and Evaluation Plan.

The project Monitoring & Evaluation System will be delivered by the project management unit in, led by the Monitoring, Evaluation & Knowledge Management Officer, working closely with the National Project Coordinator, and is composed of the following elements:

Annual Work Plan and Budget (AWPB) – Towards the end of each project year, The PMU in coordination with the executing partners, will work with project partners to develop a detailed AWPB that includes targets for key activities to achieve the outputs. When possible, the development of the annual work plan should consider suggestions for adaptive management and lessons learned, and attention to gender responsive activities and gender disaggregated targets will be made.

Project Results Framework (PRF) - The Project Results Framework (Annex C) includes core and additional indicators at the objective and outcome level along with a methodology for data collection and analysis. It defines responsible parties and frequency of data collection, provides baseline information, outlines yearly or mid-term targets and addresses key assumptions or related risks that should be monitored or mitigated. Importantly, the monitoring and reporting framework also includes specific provisions for monitoring the gender dimensions of the project. Throughout the project's duration, the data collected on these indicators will be analyzed to determine if the project strategies are working towards achieving its expected results including gender-related outcomes. Progress against the indicator targets, including gender-related ones, will be reported on at the end of each project year.

Project Progress Reports (PPRs) – The PMU, in coordination with the executing partners, will complete a PPR after 6 months and 12 months of each project year. The PPR will report on the progress against the AWPB and the PRF. PPRs will also monitor achievements on the Gender Action Plan, Environmental and Social Management Framework and the Stakeholder Engagement Plan. The 12-month PPR will include the project results delivered, tracked under the AWPB and the PRF.

Project Close Report (PCR) - The PMU will develop a PCR. The report will outline the same areas as the PPRs, but will be cumulative for the whole project period, and will also include information on project equipment handover, an assessment of WWF GEF Project performance, an exit and sustainability plan, and will focus on key lessons from the project. This report is due within one month after project close.

Mid-term and Terminal Evaluation Report - Independent Mid-term and Terminal Evaluation will take place at project mid-term and within six months of project completion, providing an external evaluation of the overall project effectiveness and efficiency. The Terms of References for the midterm and terminal evaluations will be drafted by the WWF-GEF Agency and the PMU in accordance with GEF requirements and the consultant will be contracted by the WWF-GEF Agency. The funding for the evaluations will come from the project budget but will be held by the WWF-GEF Agency.

Integration of the Gender Action Plan (GAP) – The recommendations of the GAP have been and will be incorporated into the above M&E elements. Development of the AWPB each year will be coordinated with the PMU, participating country executing partners and FWC partners to facilitate gender responsiveness across the planned project activities, and to include gender targets. The Project Results Framework includes specific gender indicators, and also indicators with targets disaggregated by gender. These will be tracked throughout the project implementation, and reported on as part of monitoring and evaluation. The six month and 12 month project progress reports will include subsections on implementation of the gender action plan, reporting on gender inclusion, and reporting against the specific gender indicators. TORs for the midterm and terminal evaluations will include specific provisions for evaluation of progress and results regarding gender inclusion in implementation of the project. Overall, the monitoring of the gender action plan has been accounted for through integration into the overall project and integration into the project's M&E systems and budget.